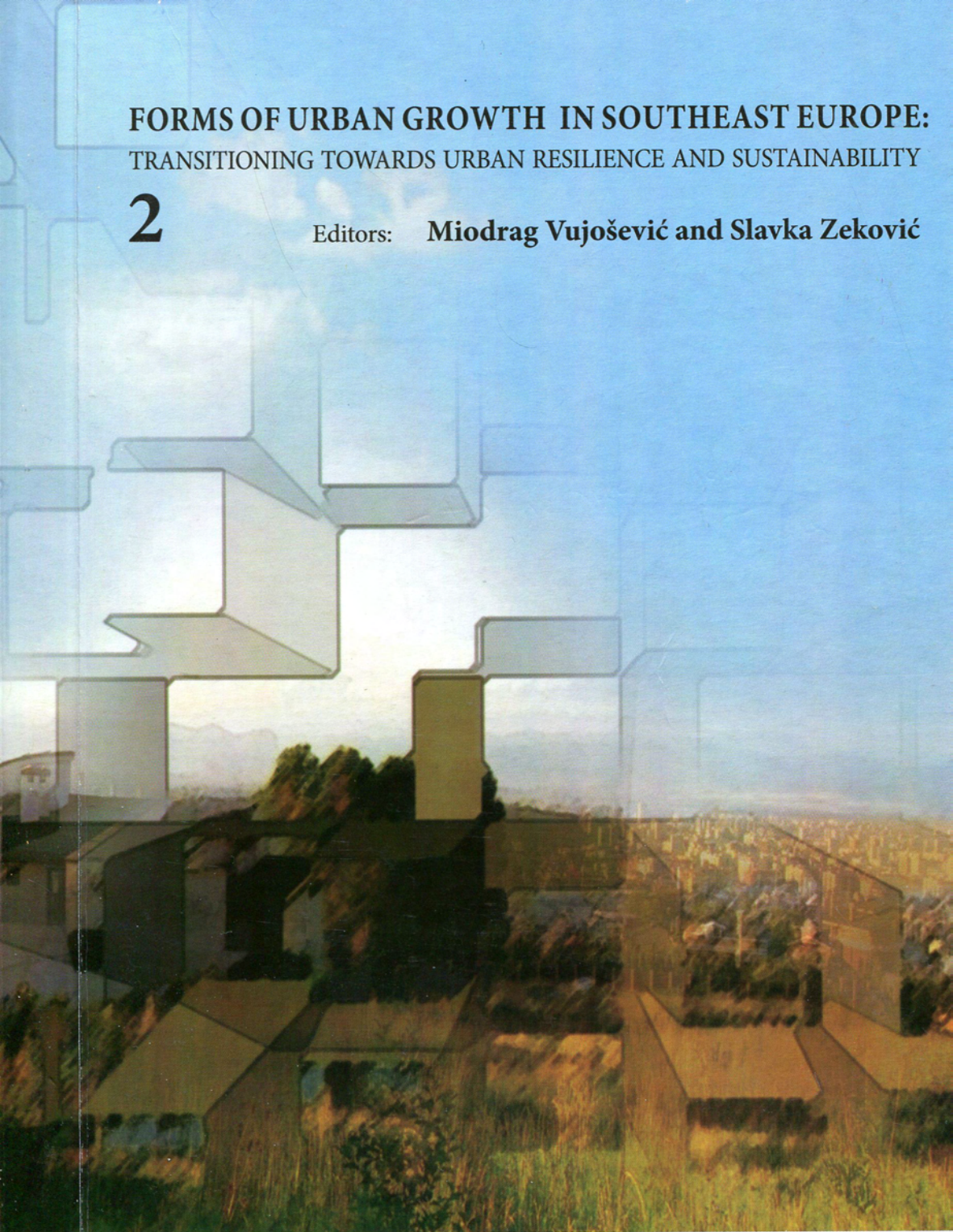


FORMS OF URBAN GROWTH IN SOUTHEAST EUROPE: TRANSITIONING TOWARDS URBAN RESILIENCE AND SUSTAINABILITY

2

Editors: **Miodrag Vujošević and Slavka Zeković**



TURAS

TRANSITIONING TOWARDS URBAN
RESILIENCE AND SUSTAINABILITY



**FORMS OF URBAN
G R O W T H I N
SOUTHEAST EUROPE:**

**TRANSITIONING
TOWARDS URBAN
RESILIENCE AND
SUSTAINABILITY**

VOLUME 2

Edited by

**Miodrag Vujošević
Slavka Zeković**

This book has been prepared and published with the financial support by the European Union FP7-ENV.2011.2.1.5-1 (TURAS Project) Grant Agreement no. 282834.

Information about the TURAS Project is available on the Internet at <http://www.turas-cities.org/>

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Miodrag Vujošević and Slavka Zeković

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Citation

Miodrag Vujošević and Slavka Zeković, 2016. *Forms of Urban Growth in Southeast Europe: Transitioning towards Urban Resilience and Sustainability. Vol. 2.* Varna: Varna Free University & Institute of Architecture and Urban & Spatial Planning of Serbia.

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Published by

Varna Free University

KK “Chaika”, Varna 9007, Bulgaria

in cooperation with

Institute of Architecture and Urban & Spatial Planning of Serbia

Bulevar Kralja Aleksandra 73/II, 11000 Belgrade, Serbia

Printed by

Reklama consult EOOD

18 “Zhelezni vrata” St, Stara Zagora, Bulgaria

ISBN 978-954-305-429-9

**THE ROLE OF MARKET AND
STRATEGIC PLANNING AND
GOVERNANCE IN URBAN GROWTH
AND DEVELOPMENT: THE CASE
OF THE METROPOLITAN AREA OF
BELGRADE (SERBIA)**

**Compendium of contributions of the
IAUS team to the Project TURaS**



T U R A S

TRANSITIONING TOWARDS URBAN
RESILIENCE AND SUSTAINABILITY

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Preface

This Compendium (Volume II) presents the results of the research carried out within the scientific project Transition towards Urban Resilience and Sustainability (TURaS) funded by the Seventh Framework Programme (Grant agreement no: 282834) of the EC. It is the second volume of the book *Forms of urban growth in Southeast Europe – transitioning towards urban resilience and sustainability*. The purpose of the volume is twofold: first, to present the contributions and achievements of the IAUS TURaS team related to WP5 of the TURaS Project (deliverables, specific aims, tasks, etc.), and second, to contribute to the guidelines for controlling urban sprawl and the strategic governance of resilient and sustainable urban development. This research was carried on over a period of almost five years (2011-2016), within the framework defined by the general and specific aims and goals of the TURaS Project.

The TURaS Project has created some innovations, urban transition strategies and new guidance tools and mechanisms in fields such as: climate change adaptation, urban sprawl, collaborative decision-making related to building urban resilience, improving communication among the actors involved, the promotion of adaptive governance and new green infrastructure.

Apart from being engaged in the various tasks, themes and issues of WP5 (Fifth Work package), the IAUS TURaS team also participated in a number of common themes (work packages) from the Project, namely, on methodological issues, the definition of key notions (categories), the dissemination and implementation of research results, and so on. From the very beginning of this Project, the team insisted on making a distinction between similar and yet different notions of urban adaptability, that is, urban resistance, urban resilience, and urban

stability, as well as on distinguishing between the implications of these differences for their respective utilization through various policy packages.

Within WP5, the research focused on the following themes, issues, and tasks: 1) Comparative research on urban sprawl in the metropolitan regions of Belgrade, Rome and Sofia, from a past, present and future perspective, by means of applying of appropriate ICT tools; 2) Research on the urban preferences, attitudes and motives of citizens; 3) Research on urban migrations and broader urbo-demographic dynamics; 4) Analysis of legislation and strategic documents on urban and regional development; 5) Market analysis and research on the relations between planning and market instruments; and 6) Policy measures and instruments for the control and limitation of urban growth and urban sprawl, and concomitant recommendations, guidelines and policy tools for local development authorities and the public at large regarding the monitoring and evaluation of urban growth and sprawl.

The contributions are presented here as original papers, as selected parts of already published original papers (mostly abstracts and conclusions), or as recently reworked, amended, revised or corrected reports, etc. Also, this selection has been extracted from various contributions to WP5 (e.g., milestones, deliverables, etc.), with a view above all to present the application of innovative approaches and methodologies in this sphere. The accent has been placed, first and foremost, on the development of the Belgrade metropolitan area, then on its comparison with the development of pertinent areas of Rome and Sofia, and third, on other directly or indirectly related issues. Thereby, this Compendium offers a generous selection of key contributions by the IAUS TURaS team and provides important research material on urban growth, sprawl, resilience and related aspects (fields).

In order to keep it within a manageable size, most of the literature replicated here has been produced by the IAUS TURaS team, with a view to appropriately present work on urban resilience issues proper (that is, within TURaS), and/or other work on urban resilience, urban sustainability and related issues, that the IAUS team has been addressing and working on over an extended period of time.

The contributions are in chronological order, either of when they were prepared or when they were presented.

All contributors to Volume 2 are employed in the Institute of Architecture and Urban & Spatial Planning of Serbia, dr Miodrag Vujošević and dr Slavka Zeković are scientific advisors, dr Jasna Petrić is a senior research fellow, dr Nikola Krunić and dr Tamara Maričić are research fellows, and Tanja Bajić, MA, is a research associate.

Belgrade, September 2016

PART I

COMPENDIUM OF THE IAUS CONTRIBUTIONS TO THE RESEARCH OF URBAN GROWTH & SPRAWL (2011-2016)

1.

RESEARCH OF RESIDENTIAL PREFERENCES, ATTITUDES AND MOTIVES, TRENDS OF URBAN MIGRATION

- 1.1. Residential preferences towards urban and suburban areas and their relationship with demographic characteristics

Jasna Petrić

- 1.2. Urban sprawl under the influence of residential choice – case study of settlement Kaluđerica in Belgrade

Jasna Petrić, Tanja Bajić and Jelena Basarić

- 1.3. Variability of suburban preference in a post-socialist Belgrade

Jasna Petrić and Tanja Bajić

- 1.4. Fuel poverty and perception on housing and environmental quality in Belgrade's informal settlement Kaluđerica

Tanja Bajić, Jasna Petrić and Teodora Nikolić



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TRANSITIONING TOWARDS URBAN
RESILIENCE AND SUSTAINABILITY

1.1. Residential preferences towards urban and suburban areas and their relationship with demographic characteristics

Jasna Petrić, Rezidencijalne preferencije ka gradskim i prigradskim područjima i povezanost sa njihovim demografskim karakteristikama, Paper is published in *Arhitektura i Urbanizam* (in Serbian), No. 38, December 2013, pp. 3-8.

This contribution presents a minor part of the paper that was originally published in a journal *Arhitektura i Urbanizam*. Here we enclose its abstract and conclusions from the paper.

Abstract

Urban sprawl is, among all, also the result of voluntary or induced resettlement of population from the inner city to urban periphery, or by in-migration to peripheral parts of cities where the origin of migrants is in other settlements. The focus of this paper is on the influence that residential preferences have on suburbanization, with the emphasis on analysis of the residential choice and certain population groups' tendencies to prioritise living in suburbs or the inner-city living. Theoretical considerations which are set in this paper initiate with residential preference components and the hypothesis of change in dominant motives for residential choice throughout family and individual's lifecycle. Then, the demographic data have been analysed according to the latest Census results in the two pilot-areas of urban and suburban type in Belgrade. Additional research on residential preferences are founded on preparation of specific questionnaire which would enable application of more powerful statistical techniques, especially a wider use of measuring scales for the variables deriving from the questionnaire, and formulation of a model for prediction of different population groups' residential preferences in urban and suburban settings.

Conclusion

Different residential preferences of people are reflected at the mosaic of urban and suburban neighbourhoods of a broader city-region, while making the large impact on urban sprawl. Certain regularities in population distribution can be observed according to demographic profiles of typical urban or suburban areas, however for determination of true reasons that orient certain population groups towards certain types of residential neighbourhoods, there should be conducted a questionnaire survey on a representative sample, i.e. a special questionnaire should be designed in order to capture various components of residential preferences. General assumption is that people would always give advantage to residence in the area with: lower crime rates, lower environmental pollution, higher quality and

better accessibility of health, education and other services, lower living costs, good neighbourhood relationships, etc. Such aspirations are not necessarily anti-urban and they may be modified due to compromises which are made at the household level in terms of putting a greater importance to better supply and quality of services provided by the urban area as compared to potentially reduced pollution and higher security of living in a suburb. Having in view that research on residential preferences could be exposed to subjective evaluation and interpretation, in order to avoid potential traps of subjectivity, after careful preparation of the questionnaire, it is necessary to apply appropriate statistical analyses over the obtained data, namely to use all the advantages exhibited through performance of the appropriate measuring scales like the described one called SUZAS (Scale of total satisfaction with the area of living).

The exercise of residential preferences is directly linked to the economic power of citizens. In that sense, different prices of the real estate in the inner or periphery parts of the city can influence a modification of the dominant preferences. With that in view, a direction for future research should be oriented to examination of the link between the price of living (including the market price of the place of residence) and preferences of households which were faced with the change (growth or decline) in number of their members.

1.2. Urban sprawl under the influence of residential choice – case study of settlement Kaluđerica in Belgrade

Jasna Petrić, Tanja Bajić and Jelena Basarić, Nekontrolisano širenje grada pod uticajem faktora rezidencijalnog izbora – primer naselja Kaluđerica u Beogradu, in Lukić, B., Radosavljević, Z., Đorđević, A., Marić, M. (Eds.) *Conference Proceedings of the Fifth scientific-professional congress with the international participation “Local Self-governance in planning and organisation of space and settlements”*, Zlatibor, 03-05. April 2014. - Belgrade: Asocijacija prostornih planera Srbije: Geografski fakultet, pp. 421-427.

This contribution presents a minor part of the paper that was originally presented at the national scientific-professional congress „*Local Self-governance in planning and organisation of space and settlements*“, and published in the proceedings. Here we enclose its abstract and conclusions from the paper.

Abstract

Theoretical notions on urban sprawl may be empirically tested at the metropolitan level. The dynamics of urban land-use and distribution of population, as well as the socio-economic changes have been particularly exhibited in big cities,

which have been largely exposed to the factors of uncertainty. Having in view that urban sprawl is also under the influence of conscious or “imposed” residential choice, this paper analyses suburban residential preferences’ components, with the example of a settlement Kaluđerica within the Belgrade Metropolitan Area. The applied methodology is founded on a questionnaire survey in order to collect, and then to analyse the data on motives for suburban residential choice. Also, the reasons for potential compromise of such residential choice have been analysed. Regarding a wider research context of the impact of a housing/residential choice on urban sprawl, it can be concluded that the development of a model for prediction of residential preferences of different population groups towards suburban areas may significantly improve future activities by which urban sprawl is considered as cyclical process in which transformation and adaptability play the key roles.

Conclusions

Factors of residential choice exhibit their influence on urban and suburban areas of the broader city territory, and simultaneously they reflect either on its urban sprawl or compactness. In order to substantiate reasons why certain population groups decide to live in a suburb, and which are the perceived qualities (attractiveness) of that area, it is important to conduct a questionnaire regarding various components of residential preferences. Having that residential preference research is susceptible to subjective evaluation and interpretation, in order to overcome this potential barrier, it is required to perform adequate statistical methods for the analyses of the obtained data, where models for prediction of residential preference variability bring many advantages.

Aspirations towards area with: well organised public transport system, good neighbourly relationships, feeling of safety and security, organised and accessible health, education and other services, environmental quality, etc. do not have to necessarily relate to either suburban or urban areas. They may be modified because of the compromises made at the household level in respect to larger emphasis on better choice of services that are provided, shorter trips for conducting everyday activities, residential attachment, all of which potentially exist in the urban areas, as opposed to alleged security and peace, closer relationships with the neighbours and less pollution in the suburban areas. The questionnaire survey which was conducted in Kaluđerica showed that attachment to this neighbourhood was high, which was largely correlated with well organised public transport system, yet there were also 65% of respondents who would consider to change their present neighbourhood for some of the inner urban areas.

1.3. Variability of suburban preference in a post-socialist Belgrade

Jasna Petrić and Tanja Bajić, In MOKRYS, Michal (Ed.), BADURA, Stefan (Ed.) *Proceedings in Human and Social Sciences at the Commom Conference*, Zilina, October 5-9, 2015, EDIS – Publishing Institution of the University of Zilina, Slovak Republik, pp.134-139.

This contribution presents a minor part of the paper that was originally presented at the international conference „Commom“, and published in the proceedings. Here we enclose its abstract and rephrased conclusions from the paper.

Abstract

The debate over urban sprawl and its impacts is overarching and closely linked to voluntary or induced resettlement of population from the inner city or from other urban or rural settlements to the urban periphery. Residential preference drive of urban sprawl could diverse in post-socialist countries from a typical suburbanization process in the West. According to different age and income structure, people may look for the same amenities in their preferred type of neighborhood, yet the diversity of motives and the ability to fulfil the key aspirations explain a drive towards inner or peripheral city development. In this paper, a suburban case-study neighborhood in Belgrade metropolitan area was analyzed in terms of variability and continuity of residential preferences. Questionnaire survey has been conducted for obtaining the results on motives that drive people to settle in a suburban neighborhood, their satisfaction with life in it, and variability of suburban preference.

Conclusion

For understanding of what makes people to prioritise suburban over urban areas, it is necessary to investigate all the underlying components of residential preferences, especially in view of adaptability and flexibility of suburban preference. Residential preferences of suburban population of Belgrade (post-socialist city), show divergences from the residential preference in some cities of the Western world. The key drivers for settling in suburbs during the socialist period were: the lack of available housing in the urban areas of Belgrade to accommodate all the immigrating population from rural and smaller urban centres as well as the absence of urban planning treatment over the “agricultural land” at the urban periphery which opened the way for intensification of sprawl.

In the post-socialist period, suburban preference is still more influenced by economic rather than the life-style motives. Since people of the analysed Belgrade suburb do not dominantly rely on private cars and the respective public transport system is organised, latter is highly evaluated among the respondents as the required facility.

Both suburban and urban residents in Belgrade are found to equally value some of the residential preference components, e.g. emotional attachment to the

neighbourhood (some links with the place of origin), social and environmental context (physical and social infrastructure provision), physical planning issues (accessibility of the places of daily activities by public transport or on foot), and environmental quality.

It is important to say that attitudes of suburban residents in present Belgrade are not necessarily anti-urban. Given the opportunity, more than half of the respondents in the suburban area would consider to move from it to the urban part of Belgrade. Ultimately, this choice would mainly depend on the economic reasons: means to afford required size of a house or flat; property values; and ownership of the house, to name a few.

1.4. Fuel poverty and perception on housing and environmental quality in Belgrade's informal settlement Kaluđerica

Tanja Bajić, Jasna Petrić and Teodora Nikolić, *SPATIUM International Review*, 35, 2016, pp. 1-9.

This contribution presents a minor part of the paper that was originally published in international journal *Spatium*. Here we enclose its abstract and conclusions from the paper.

Abstract

Informal development is a specific form of urban sprawl and one of the main challenges for the sustainable development of major cities in Serbia. In this paper we examine this phenomenon with regard to the influence of spatial and urban vulnerabilities of the informal settlements on the housing and environmental deprivation, especially in the context of inhabitants' vulnerability to fuel poverty. The empirical research was carried out on the example of Belgrade's suburban settlement Kaluđerica. The statistical analysis of the results has shown that the observed energy characteristics of housing have no relevant influence on households' financial burden of energy expenditure, but that they considerably influence households' perception on thermal comfort. The relation between a limited access to public services and the lack of amenities in the settlement and noted high household expenditure on transport has proved to be a particularly important indicator. Based on the perception on overall life commodities, a poor quality of the environment has been recognized as a key factor of deprivation related to housing.

Conclusions

This paper analyses the influence of spatial and urban issues of the informal suburban development in Serbia on certain aspects of the inhabitants' deprivation in these areas. As a specific indicator of housing and material deprivation in informal settlements, the risk of fuel poverty has been examined, taking into consideration a low level of energy efficiency of the housing facilities, the lack of efficient heating

systems, higher transportation costs, as well as a significant share of the households with lower income. The Survey on Fuel Poverty directly addressed the indicators of this phenomenon, while the Survey on Residential Preferences included the indicators of the population's perceptions on housing amenities of the settlement, especially the ones relevant for the aspect of deprivation in relation to the housing environment. The assumption of households' vulnerability to fuel poverty has been confirmed in Kaluderica, since 66% of its households spend over 20% of their monthly income on energy and transportation (Bajić and Petrić, 2015).

The research results show that spatial and urban factors have a significant influence on the transport expenditure, while on the other hand they have a limited influence on energy expenditure of the household. The lack of public and commercial amenities in Kaluderica increases the need for inhabitants to use private cars, especially for weekly shopping, sports and recreation, use of green and open spaces, and to reach restaurants, pubs and cafes and cultural facilities. This need is certainly emphasized by an inadequate coverage of the public transportation network, i.e. by a considerable distance of the newly built parts of the settlement from the nearest bus stops. Applied statistical analyses established that heating systems and energy efficiency characteristics of the buildings, primarily in terms of the applied thermal insulation, had no relevant influence on the household electricity expenditure, nor on the share of electricity costs compared to household income. However, it has been noted that the households living in unfinished homes and using solid fuel stoves, often combined with electric thermal storage heaters, have significantly lower expenditures and set aside a smaller share of their income for energy than the households living in thermally insulated houses heated by the central heating systems. On the other hand, it has been proved that these two variables influence thermal comfort to a significant degree, i.e. that satisfaction with the air temperature in flats or houses is much higher with the respondents living in houses with thermal insulation or with the central heating system, which is directly linked to the possibility of heating larger living spaces during the heating season. These findings imply that for many households in Kaluderica facing the issue of fuel poverty means recouring to risky methods of energy saving, i.e. the reduction of living space to be heated and the usage of cheaper and lower quality fuel for heating, which besides inadequate thermal comfort, also involves a high risk on the health of the inhabitants (UNDP, 2004). Electricity bills in arrears have not been recorded, but there is a possibility that the respondents have not been completely honest in presenting possible financial issues. In this, as well as in other indicators of fuel poverty, we should bear in mind a limited sample of the surveyed households as a potential restriction in determining the relevance of the obtained results.

Based on the respondents' perceptions on the overall living and housing amenities, low hygiene levels and environment protection recognized as important factors of the housing deprivation have been singled out as key factors of dissatisfaction with the housing neighborhood. This is another crucial indicator of the current state of urban sprawl in Serbia, where living on the outskirts does not imply achieving a "higher" quality of life in a natural, unpolluted environment.

2.

RESEARCH ON NATIONAL AND LOCAL LEGISLATION, DOCUMENTS AND PLANS REGARDING CONVERSION OF RURAL AND FORESTRY LAND INTO BUILDING LAND, DEVELOPMENT OF CONVERTED LAND (ZONING)

2.1. Survey of planning documents - standards and regulations, spatial and master plans, plans for regional development

Slavka Zeković and Miodrag Vujošević

2.2. A brief review of legal and regulatory framework (spatial regulations and planning instruments) related to urban growth/sprawl and land market in Serbia (and Belgrade)

Slavka Zeković and Miodrag Vujošević



T U R A S

TRANSITIONING TOWARDS URBAN
RESILIENCE AND SUSTAINABILITY

2.1. Survey of planning documents - standards and regulations, spatial and master plans, plans for regional development

Slavka Zeković and Miodrag Vujošević

This contribution represents a revised version of reports for TURaS. It is comprised of two parts. In the first part, a number of national and local legal provisions on the utilization of agricultural and forest lands, respective conversion into urban (construction) lands and zoning in Serbia is presented. In the second part, the provisions of some national and local (Belgrade) strategic documents with regard to land use and urban construction policy are briefly discussed.

2.1.1. National and local legal provisions in Serbia on the utilization of agricultural and forest land, respective conversion into urban (construction) land and zoning: legal basis and procedures

2.1.1.1. Introduction

All key aspects of the utilization and management of agricultural and forest lands, respective conversion into urban (construction) lands and zoning have been defined by a number of national and local legal acts (laws, legal decisions, ordinances, regulations, etc.), which have been passed and subsequently renewed/modified in the more recent period over the past decade or so, e.g.:¹

- *The Planning and Construction Act* (2003; 2009; 2010; 2011–2015; henceforth: PCA);
- *The Act on Agricultural Land* (2006; 2009 and 2015; henceforth: AAL);
- *The Forestry Act* (2010; 2012 and 2015, henceforth: FA);
- *The Act on National Land Cadastre* (2009; and 2010; henceforth: ANLC);
- *General Regulation on the Parceling-out and Construction of Land Lots* (2011);

¹ All sources (acts and other legal regulations, strategic documents, etc.) are available at the Institute of Architecture and Urban & Spatial Planning of Serbia, Belgrade.

- *Ordinance on the Conversion of Land-lease to Land-property* (2010 and 2011);
- *Legal Decision on the Land Zoning in the Belgrade City Area* (2009; 2010; 2011; and 2015);
- *The Law on converting the land-use right into the right on property of construction land* (2015).

2.1.1.2. Legal regulatory framework defining the conversion of agricultural and forestry land into urban and construction land: general aspects

The *Planning and Construction Act* (henceforth: PCA, initially passed in 2009, than modified and supplemented in 2009, 2010, and 2011–2015) defined key legal provisions regarding the status and planned use (“planning destinations”) of urban and construction land (henceforth: UCL). A general intention of the Act is to use UCL for construction and other related purposes in legal, regular and rational way, in accord with the “planning destinations”, as defined by respective urban planning documents (Article 82 of the PCA). However, the planning documents in question (various urban plans and regulations) must not change the property status of UCL. What urban development documents may define pertains to the conversion of UCL, from agricultural land to construction land. The Land Cadastre should be informed about this change in due time, so that it may appropriately keep evidence of it (Article 87 of the PCA). The PCA stipulates that a proper compensation ought to be paid for this conversion, by the owner of the property lot, and should be fulfilled prior to issuing the planning use permit. To note, this provision of the PCA does not apply to the changes based on the respective legal acts and development planning documents adopted before 1992. Also, this does not apply either to the “objects” under the procedure of legalization (based on the PCA as well) or to the construction projects of general interest (for the Republic of Serbia, autonomous provinces or local authorities (“local autonomous territorial units”).

In the particular case of the land conversion made possible on the basis of the respective spatial and urban development documents (stipulated by the pertinent legal acts, and based on appropriate by-laws, issued by the sector minister/ministry), usually a new parceling out of land plots is implied, which should be specified by a general and detailed regulation plan (Article 28 of the PCA). The Land Cadastre should keep regular and detailed evidence of these changes (properly mapped) as well, upon which local fiscal authority is informed (Articles 66 and 67 of the PCA). Also, all interested parties are guaranteed access to relevant information on the matter. Regarding this, in legal changes introduced in 2011, a new instrument was promulgated, i.e., redistribution of urban land/ urban land readjustment/ urban land management (*urbana komasacija*), which applies to the conversion of construction land into public property and/or for public purposes. The idea behind introducing this new instrument is to define a more rational utilization of small and fragmented

urban plots.² The pertinent procedure is initiated and organized by responsible local authority (*jedinica lokalne samouprave*).

It should be mentioned that the penalty provisions (fines) of the PCA are set forth at a relatively low level, for breaching of more or less all cases, e.g., illegal construction, improper issuing of planning/construction permit, etc. (Articles 203 and Article 210 of the PCA).

2.1.1.3. National and local regulations on zoning and land use densities

In the case of general/master urban plan and general regulation plan, the PCA (Articles 24–26), put in use a number of development planning instruments that apply to zoning, viz.: parcelling out of land for specific purposes, the so-called “compact land tracts” (*posebne prostorne celine*) and zones; major (predominant) use of land within the zoning schemes and compact land tracts; obligatory detailed zoning regulation; and regulations on spatial organization and construction for urban lands for which detailed regulation is not obligatory by law. The preparation of a detailed regulation plan is obligatory for all settlements, or their part. In Article 27 of the PCA, appropriate and detailed provisions are put forward: type of predominant “objects”; categories of “objects” that are not allowed for construction in the designated zones; rules for parcelling out and re-parcelling out of urban plots; allowed maximum construction/occupancy index of plots; major/predominant use of urban land (mostly as a percentage of total area), applying either to single land plots or to compact planned areas; etc. Also, some provisions are defined by a general by-law of 2011 (to denote a rule book, or book of regulations, and similar), stipulating nine (9) predominant types of land use (Table 1), as in the case of maximum construction index and occupancy rate.

Many commentators have been pointing to a number of flaws in the current system and practice of managing urban land in Serbia. In the first place, a large number of pertinent provisions have not been harmonized with the main courses in transitional reform and change. Second, it is still not fully known to which extent would future institutionalization of new norms and instruments affect the realization of strategic sustainable spatial and urban development and land use policy at national, regional, and local levels. The urban land market is undeveloped, and therefore the basic regulatory mechanisms and institutions, as well as more up-to-date ways of financing urban land development are not established yet. In the conditions of an undeveloped market, the mechanism of urban land rent is incomplete and distorted, and it does not contribute to a rational use of urban land and to socially acceptable distribution of costs and profits among various parties. In essence, basic approach is still predominantly administrative. The above has a number of negative consequences, also applying to zoning regulations and land use.

² Regarding agricultural land, this instrument (*urbana komasacija*) is paralleled by another measure, i.e., *arondacija*, which pertains to the redistribution of land around a village so that each farmer’s holdings, formerly scattered, will be in one place.

Table 1. Maximum construction index and maximum occupancy rate, by predominant (major) land use zones

Zones and predominant use	Maximum allowed construction index	Maximum allowed occupancy index (as % of total use)
Weekend zones/houses	0.3	25
Rural areas	0.5	30
Family-house zones and areas in low density settlements	1.0	40
Housing areas in medium density settlements (two or more types of housing construction)	1.5	50
Mixed uses in medium density settlements (two or more types of housing construction)	1.7	60
Industrial and other economic zones	1.5	60
General and housing uses in high-density areas	2.5	60
Central urban and business zones	4.0	80

Apart from the above, special provisions have been made for the category of “other specific areas and zones, specific objects, infrastructural objects, etc.”

In effect, in the majority of cities and towns, zoning regulations and pertinent taxing have not been harmonized with broader strategic spatial and urban development aims. Apart from that, zoning regulations and practices only laterally follow the market signals, barometers and instruments. Rather, in the majority of cases, the sole purpose, especially regarding the taxing, goes to generating local revenues. Consequently, the local practices of zoning regulations mostly follow this purpose, and the number of designated zones is determined on the basis of scope and ease of local tax (revenue) collection. Apart from that, the number of zones in urban and town centres of Serbia varies significantly, from only 8 (eight) zones of specific uses in Belgrade, via the medium range bracket of 52 (Velika Plana), 55 (Zrenjanin), 60 (Kraljevo), 97 (Požega), etc., to some extremely diversified zoning specifications, e.g., 423 (Kragujevac). In the cases of the overwhelmingly normative (administrative) zoning regulations, this approach will in general negatively influence the market value of land and related assets, by decreasing them, which particularly holds true regarding the tenders for leasing or purchasing urban (construction) land in public ownership. It should be noted that this practice has almost nothing to do with the planning standards and norms for zoning established

by spatial and urban planners, but basically originates from a lack of political will at national, regional and local levels to introduce new legislative, institutional and organizational adjustments which would direct the course of events to more rational and effective purposes, again, in accord with strategic objectives regarding sustainable spatial/urban development.

2.1.1.4. The utilization of agricultural land and its conversion

Basic legal act in the sphere of agriculture (henceforth: AAL, 2006; 2009 and 2015) stipulates a rigorous protection of arable land for agricultural and related purposes only, whereby its conversion to other purposes is allowed conditionally, on the fulfilment of a number of preconditions, also formulated and defined by law. This applies to the most productive class categories of agricultural land, i.e., I to IV (Article 3, Article 15 and Articles 22 of the AAL). The exceptions to this are also defined, and non-agricultural utilization is allowed by law for land of inferior quality only, for some specific purposes, viz. (Article 22 of AAL): artificial (cultivated) meadows and pastures; new and ameliorated forests; exploitation of mineral resources and related solid waste landfills; and in other cases of general public interest. For all listed cases, special permits (*saglasnost*) are necessitated, issued by the responsible sector ministry. Apart from that, in all cases of conversion of agricultural land to other allowed purposes, the appropriate compensation (*naknada za promenu namene obradivog poljoprivrednog zemljišta i korišćenje u nepoljoprivredne svrhe*) is levied, following pertinent procedure (Article 24), at the level of 50% of the market value of arable land in question, or, in the case of artificial (cultivated) meadows and pastures, and forests, at the level of 20% of market value of urban construction land (Article 25 of the AAL). Local authorities are held responsible for the implementation and administration of legally predefined procedures. On the other hand, the revenues belong both to the Republic of Serbia (60%) and to the local authority (40%). They should all be directed to the protection and utilization of local agricultural land. The law also defines a number of exemptions to this legal obligation, in total some 10 of them, for specific cases related to: family (small) farming; cemeteries; water regulation and management; local agricultural infrastructure; afforestation; agricultural protection belts; etc.

Penalty provisions have also been defined.

With regard to all the above-mentioned legal instruments, it should be emphasized that there is intention to follow appropriate EU legislation in this sphere (e.g., 2004/35/EC Soil Framework Directive, COM 179/2002, etc.).

This also applies to the issue of the restitution of formerly nationalized agricultural land. This instrument was initially launched at the end of the 1980s, and has now been almost completely implemented. The World Bank estimated in 2004 (*Serbian investment climate*, WB, 2004), that approximately 85-90% of total agricultural land in Serbia is now privately owned, the rest being owned either by the state (public) sector or agricultural cooperatives. The publicly owned agricultural land is managed via the responsible sector ministry and its agencies (Article 60 of the AAL), based on the appropriate programs of utilization and related schemes,

adopted by local authorities. The law also stipulates the leasehold of publicly owned agricultural lands to other parties (Article 61a of the AAL), for utilization purposes other than agricultural (e.g., the utilization of natural resources, energy, etc.), at appropriately defined compensation rates (*naknada za korišćenje poljoprivrednog zemljišta u državnoj svojini za korišćenje u nepoljoprivredne svrhe*).

There is a specific problem stemming from the legal opportunity to convert publicly-owned agricultural land to other property statuses and regimes which was introduced in 1992 and subsequently modified (in 1996 and 2006). This particularly applies to the most attractive sites in the peri-urban areas of the broader Belgrade area. Although the law stipulated conversion at market values (prices), in practice it directed the main course of changes, at first to avoid cheap sale of former agricultural land in public (state) property to private actors, and, secondly, to its subsequent and almost immediate conversion to non-agricultural purposes, mostly to expensive housing and business zones/complexes, and to some other economic purposes as well, within the overall process of “tycoonization” of Serbian economy and society at large. Only in 2009 (Article 11 of the AAL) and 2015 did the law introduce some provisions intending to prevent the selling out of publicly-owned agricultural land.

In the meantime, on at least 27 such sites, out of total of some 50 peri-urban areas, the former agricultural lands deteriorated, often paralleled by illegal construction on the newly converted sites. The scope of this negative trend is tremendous, indicated by the fact that some 20,000 hectares of former agricultural land have been converted to non-agricultural purposes. While the estimated total number of illegal “objects” in Serbia centres around the 1.6 million, around 400,000 of them have been evidenced in the broader Belgrade area (3.224 km²).

2.1.1.5. Forest land utilization

The *Forestry Act* of 2010, 2012 and 2015 defines the propositions on the appropriate utilization of forest lands, based on the pertinent programmes. It also allows for conversion of forestry lands to other purposes, and lists (Article 10), e.g., in the cases of: general public interest; natural disasters; redistribution of land (*komasacija* and *arondacija*, to be applied to agricultural lands); renewable energy; etc. Also, exemptions to this rule are indicated. The financial compensation for the conversion of forest land, to be paid by the interested party, may in some cases reach the value 10 times larger than its current market value. The collected revenues either go to the Budget of the Republic of Serbia or to the Budget of the Autonomous Province.

2.1.1.6. The Act on National Land Cadastre (2009 and 2010)

The rules and procedures regarding the evidence on urban/construction lands and assets are set forth by *The Act on National Land Cadastre* (2009; and 2010). The Republic Geodetic Authority is the responsible institution/organization in this administrative sphere (Article 115 of the ANLTC). The law insists on keeping

regular evidence on the pertinent changes, based on periodic surveys, performed by the Republic Geodetic Authority, as well as on regular reports provided by responsible national and local institutions and organizations. The ANLTC set forth detailed description of the evidence on legal, physical and other attributes and parameters of the land and asset uses that should be kept on regular basis, also including the evidence on changes. It is the priority to establish a digitalized evidence of geo-spatial data, in the first place for large settlements, i.e., cities and towns, within the integrated and centralized geodesy information system, comprised of a number of mutually related data bases (*geodetsko-katastarski informacioni sistem*). In this regard, practices of the EU have been fairly well followed, with a view to establish and keep the so-called “National infrastructure of geo-spatial data” (NIGD), also on the basis of the EU *Directive INSPIRE (Infrastructure for Spatial Information in the European Community)*, as well as on other related EU standards (Article 160 of the ANLTC). According to Article 161 of the ANLTC, NIGD is comprised of a large number of meta-data, services and sets of geo-data on all key attributes and parameters, for all strategic policy sectors/themes (viz., technical infrastructure, environmental protection, telecommunications, mineral resources and energy sources, water management, cultural and natural heritage, public health and demography, spatial development documents, etc.). The central authority (Republic Geodetic Authority) is responsible for the provision of open access to the NIGD to interested users, via the pertinent geo-site, as well as for some restrictions in that respect and related protection of data (Article 164 of the ANLTC).

There is a need here to point to a certain lack of current legal provisions with regard to the assessment of the market value of land and related assets. Namely, the Republic Geodetic Authority, albeit being in the first place a regulatory body (agency), is also responsible both for defining procedures and rules for the assessment of market value of assets, and for performing the assessments itself (Article 10 and Article 151 of the ANLTC)! This basically reflects a conflict of interests within this agency, which is of administrative, technical and other nature. This provision is paralleled by a related provision of the PCA, and pertinent by-laws, which stipulate that civil (structural/construction) engineers should in the first place act as court experts on the matter, organized via the National Association of Evaluators. This reduces the scope of expertise in a way which is not acceptable, thereby excluding many other relevant experts, e.g., economists, financial experts, tax law experts, mathematicians and statisticians, and so forth, placing to the forefront the interests of the so-called “construction industry lobby”.

2.1.1.7. Regulatory framework for the privatization of urban land and the conversion of leasehold on urban land in public ownership into property right

For some time, at least two possible modes of urban/construction land privatization had been discussed, viz., the so-called “privatization after restitution”,

and the “privatisation now and denationalization in the course of the process”.³ However, in 2009 the *PCA* was adopted, also regulating the issue of privatization. That is to say, a legal act, which is not *sui generis* for regulating property matters, defines the legal basis for ownership transformation, also regarding urban/construction land, which is the most valuable territorial and economic asset of Serbia (Articles 99–103). Article 101 of the *PCA* enables the conversion of the right to use state-owned urban construction land into the right of private property to private persons, without compensation, via submission of a request within one year of the Act's enactment. Legal entities established by the state, provinces and municipalities are allowed to convert the right to use of urban construction land into the right of public property, without compensation, within the same period. Individuals with the lease right on other state-owned construction land are enabled to remain liable to pay the lease. Article 103 provides that in case of state-owned construction/urban land with right to use held by companies and other legal entities that have reached this status during the process of privatization or are insolvent, the right to use can be converted into property right by reimbursing the market value of the land minus the cost of its acquisition. Article 108 establishes that the Government of the Republic of Serbia stipulates the determination of compensation based on the substitution of rights with compensation, even though it is stated in Article 103 that this should be the market value. The key problem is that the *PCA* does not define regulatory rules, market mechanisms, institutions and instruments for conducting the construction/urban land policies (particularly for land valuation), and administering land transactions. The Act stipulates that the market value (estimate) of this fee is to be determined by the Government (Tax Administration, Ministry of Finance).

In Serbia there is still no systematic data on the estimated value of state-owned land assets, which raises the related question of ascribing the market value of public land subject to the conversion for a fee. An assessments of the value of the entire state-owned urban construction land, as well as of some other indicators, is presented in Table 2.

It is also unknown how much of the state-owned urban construction land will remain in public use, and how much of it the municipalities and the state would take over. The value of construction land considerably exceeds the value of privatized enterprises in Serbia. The estimated volume of profits from privatization through selling the public companies in Serbia is around 4.15 billion Euros. According to the data from the Agency for Privatization, in the 2001–2010 period €2.8 billion was

³Restitution and related issues are complex and challenging to address. According to data published by the Network for restitution in Serbia (*Политика*, 3. август 2009), citizens claim about 6 billion m² of land, of which 3 billion m² of agricultural, 109-120 million m² of construction and 430 million m² of forest land. On the territory of Belgrade, 1,018 parcels (2,652 ha) of construction land were nationalized/expropriated, which amounts to about one quarter of the total reported nationalized/expropriated construction land in Serbia.

realized and €1.35 billion was invested in the process of privatizing 2,362 enterprises.

Table 2. An Assessment of Urban Land Values and Related Indicators for Serbia and Belgrade City, 2005

Indicator	Serbia	Belgrade
Total urban land (in ha)	695,415	123,673
Share of urban land in the total area (in %)	9.0	38.3
Urban land in state ownership (in ha)	194,441	63,005
Area of urban land outside the municipal boundaries (in %)	47.5	15.3
Share of the real estate sector in GDP (in %)	4.23	8.4
Share of real estate business in employment (March 2008, in %)	3.68	7.35
Urban land for restitution (in ha)	10,900	2,652

Source: Zeković (2009).

Thus, the *PCA* of 2009 established the legal basis for a “back door”, i.e., for a non-formalized privatization of construction land to “sneak into” the property system via a non-property regulating act. The land is subjected to blatant “profitization”, which brings the greatest benefits to the most privileged “users” of plots who acquired the right of use either by buying them at bargain prices from the former owners or in the process of privatization of state-owned enterprises. Not only does the new legislation fail to calculate the restitution of construction land (and other real estate), but this also still brings potential investors on shaky legal grounds when buying construction/urban land.

Subsequently, three ordinances (*uredbe*) were issued by the Government (two in 2010, and one in 2011), with a view to determine the market value of urban/construction land liable to conversion from leasehold to property right, defining the pertinent procedure and method of evaluation. Local authorities are responsible to manage and administer this issue. In terms of professional expertise, the entire procedure is based on the pertinent appraisals of court experts, mostly construction engineers and other licensed actors. Secondly, spatial and urban development documents may also establish a basis for the conversion of leasehold to property right, with the exception of “planned destinations” for public uses. Many authoritative commentators have already pointed to a number of flaws in new legal formulas, and especially to the lack of a more substantive professional knowledge to corroborate the new approach, which is basically a sort of “quasi-market” solution. Apart from that, there have been comments from many sides that the role of state institutions and organizations is over-emphasized for that matter.

2.1.2. National, regional and local spatial and urban planning policy documents: land use policy

2.1.2.1. Land use policy at national level

Spatial Development Strategy of the Republic of Serbia 2009-2013-2020/Српске стратегија просторног развоја Републике Србије 2009-2013-2020 was adopted in 2009, as a preparatory step for *The Spatial Plan of the Republic of Serbia from 2010 to 2020/Просторни план Републике Србије од 2010. до 2020. године*, which was adopted in 2010 (henceforth: *Plan of 2010*). In the *ex post* evaluation of the implementation of goals, aims and objectives of the previous national spatial plan (henceforth: *Plan of 1996*), it has been pointed out to many negative trends in the overall utilization of space in Serbia (Table 3). In the 1993–2010 period some 53,700ha of agricultural land was lost for other uses. Its conversion to various uses was labelled as “other uses”, however, mostly comprised of urban/construction land. To a large part, this has resulted from a number of current problems, viz.: massive illegal construction; construction of technical infrastructure; conversion of former agricultural land to other uses (ca. 59,400ha); etc. Here, the privatization of state (“social”) agricultural estates (*kombinati*) is of a particular relevance, paralleled by the increase in “brown-field” investments in the peri-urban zones of the largest cities and towns in Serbia. In 1995 “Other uses” increased to more than 1 million ha, out of which 695,400ha (67.4%) of urban/construction land, and 337,000ha (32.6%) of other categories (water surfaces, etc.). Apart from that, and contrary to the planned increase of forest land to almost 30% of total surface area, its share in 2010 was almost the same as in 1993, i.e., 25.5%.

Table 3. Planned land use in the *Spatial Plan* of Serbia 1996 and its realization

	Year	Agricultural land (km ²)	%	Forest land (km ²)	%	Other uses (km ²)	%
Planned	1993	51,452	66.4	19,838	25.6	6,184	8,0
	2010	48,350	62.4	23,094	29.8	6,030	7.8
Realized	2010	50,915	65.7	19,781	25.5	6,778	8.8
Planned balance sheet	1993/2010	- 3,102	- 4.0	3,256	4.2	- 154	- 0.2
Realized balance sheet	1993/2010	- 537	- 0.7	-57	-0.1	594	0.8

Source: The Spatial Plan of Republic Serbia (1996), The Spatial plan of the Republic Serbia (2010), and data of the Statistical Office of the Republic of Serbia, Municipalities and Regions in Serbia 2010 (2011).

In 2005 the total area of urban/construction land reached 695,41ha, i.e., ca. 9% of the total surface area. Its biggest share was recorded in the broader Belgrade area (regional level, NUTS 2), i.e., 38.4% (Table 4).

The share of the so-called “urban construction land” in total construction land area reached 28.0%, the so-called “construction land in urban areas” comprised 24.6%, and 47.5% went to construction land outside urban areas. In the Belgrade area, the share of urban construction land in the total area is the biggest in Serbia (50.9%). The total surface area of urban construction land in Serbia is 194,441ha, inhabited by 4.22 million people, with average density of 21.7 inhabitants/ha. Out of total of 1994,441 ha of public (state) land in Serbia, the City of Belgrade occupies 63,005ha. The surface of total land in private ownership in the City of Belgrade is 1,972.95km² or 61.2% (RGZ, 2013).

Table 4. The share of urban/construction land in total surface area

Area	Land (in ha)			Construction land (in %)		
	Total	Construction land	%	Total	Urban	Other
Serbia (without Kosovo&Metohija)	7,747,400	695,415	9.0	100.0	28.0	72.0
Belgrade Region (NUTS 2)	322,400	123,673	38.4	100.0	50.9	49.1

Source: Documentation of the Institute of Architecture and Urban & Regional Planning of Serbia.

The *Plan* of 2010 set forth a number of long-term goals (until 2010) for the utilization of land, also in the sphere of urban/construction land use. This plan predicts a further decrease in agricultural land in this period, for another 1,179,300ha, i.e., by 23.3%, as compared to 2010. In the same period, the surface area of forest lands would increase by 928,500ha (41.2%). The biggest increase percentage goes to urban/construction land, i.e., 250,800ha, which is 56.7% as compared to 2010 (Table 5).

Table 5. Planned land uses in the *Spatial Plan* of Serbia, 2010.

	Year	Agricultural land (km ²)	%	Forest land (km ²)	%	Other uses	%
	2010	50,530	62.4	22,524	29.1	4,420	5.7
Planned uses	2020	38,737	50.0	31,809	41.0	6,928	9.0
Planned balance (change)	2010/2010	-11,793	-23.3	9,285	41.2	2,508	-56.7

Especially, the decreasing share of arable land in total agricultural land will continue, mostly due to its deterioration and/or conversion of the most fertile lands into urban/construction land and other categories.

In recent years two reports have been disseminated, viz., on the environmental situation in Serbia (*Извештај о стању животне средине у Републици Србији 2010*), and on the soils condition and protection (*Извештај о стању земљишта у Србији 2009*), both based on the relevant national data bases (national land cadastres) from the *Corine Land Cover*.

According to the sources of the *Corine Land Cover* (2006), in Serbia agricultural land comprises 58.18% of the total surface area, forest lands 11.82%, the so-called “artificial area” (including also urban areas) comprises 3.4% of the total, this category of land use recording the biggest increase of 3,947ha in the 1990–2000 period, and the rest belonging to the wetlands and water basins. A negative trend of diminishing wetlands started in that period, with the decrease in this category for 119ha. The surface of water basins increased by 2,343 ha, mostly in new artificial lakes (reservoirs). The land use pattern in Serbia is less diversified than in some other countries, comprising 28 of 44 classes (categories) of the CLC list.

Table 6. Artificial area in Serbia (without Kosovo and Metohija, 2006)

Category	Surface (ha)	%
Urban (artificial) area	264,235	
Continuous urban area	214	0.003
Scattered urban area	223,953	2.89
Industrial and commercial area	19,232	0.248
Road and railway networks	1,180	0.015
Ports	363	0.005
Airports	1,876	0.024
Mining sites	9,436	0.122
Waste sites	1,677	0.022
Construction sites	540	0.001
Green urban areas	3,469	0.045
Sports and leisure area	2,295	0.03

Source: Corine Land Cover (CLC), Map for Serbia, EEA, Luxembourg, Evrogeomatika, d.o.o., Belgrade, 2007.

It should be emphasized that some data from the *Corine Land Cover* considerably differ from official (Serbian) data, especially those on the artificial surface area (Table 6).

In a 2009 report, based on *Corine Land Cover (2007)*, in the 1990–2006 period urban/construction land increased by 11,502ha (at annual average of 719ha). During the 1990–2000 period an increase of 5,923ha was recorded, mostly resulting from conversion of agricultural land (89.3%), forest land (9.2%), wetland (0.2%) and natural grassland (0.2%). In the 2000–2006 period, recorded increase in urban/construction land resulted from the conversion of agricultural land (74.4%), forest land (24.7%), wetland (0.8%) and natural grassland (0,1%). In total, in this period the conversion of agricultural and forest land into urban/construction land was intensified, most probably as a result of increased investments in economic, commercial and urban development. The average annual reclaiming over total period (1990–2006) was 351ha, out of which 127 ha of industrial and commercial uses, 2ha of transport infrastructure, and 239 ha of construction sites and waste deposit sites (according to the CORINE LAND COVER/CLC, Chart for Serbia, EEA, Luxembourg, Evrogeomatika, d.o.o., Belgrade, 2007).

Master Urban Plan of Belgrade 2003, amended 2005, 2007, 2009 and 2014

The *Master Urban Plan of Belgrade* (henceforth: *MUP*) was adopted in 2003 (published in the Official Gazette of the City of Belgrade: *Генерални план Београда 2021., Службени лист града Београда, 27/2003*), and subsequently amended in 2005, 2007, 2009 and 2014 (also published in the same Gazette). No major changes have been introduced in terms of **key (strategic) direction of urban development** via previous changes. Many of these centred on a more precise formulation of the provisions of the *MUP* of 2003, also including an appropriate modification of the planned urban land use. The urge for changes stemmed from a number of exogenous and endogenous factors, including a necessity to undertake some technical corrections to the initial *MUP*, viz.: a need for a better positioning of the Broader Belgrade Area on the strategic road direction to the Southern Adriatic (Montenegro); harmonization of the *MUP* with new demands regarding some systems of technical infrastructure (energy, transportation, etc.); harmonization of the *MUP* with regard to the construction and/or rehabilitation of a number of inner city traffic routes; conversion of some former economic areas into new usage (mostly commercial, housing and public services); support for a better implementation of previous urban plans (including cartographic and other technical presentation); introducing better construction rules for five key systems of technical infrastructure; innovation pertaining to better protection of cultural heritage; etc.

The *MUP* 2003 covered the area of 77,600ha, within the Broader Belgrade Area of some 3,000km² (p. 907). The *MUP* was structured as follows: 1) **Development problems and prospects of Belgrade** (901–913). This part dwelled on a number of issues, viz.: European dimension of development; society; demography (population); economy; urban land use; environment; analysis of the past development of inner urban area (“gradsko tkivo”, that is, “urban tissue”); and

short analysis and *ex post* evaluation of previous urban plans. As for the inner urban area, it was stated that the development in the previous decade was characterized as "...lost control over urban development process" (909), with the following key problems – to cope with in the MUP: poor implementation of urban plans; chaotic and illegal housing construction⁴; semi-legal housing; problem of approved construction, yet not realized (urban land use); sprawl of poor urban areas and slums; decrease and even extinction of the existing industrial zones; increase in the "kiosk economy"; devastation of the transportation systems; insufficiently regulated use of agricultural lands in the broader urban area (to note, contrary to the previous period, when it had been planned-regulated); enormous increase in non-hygienic waste garbage areas; illegal use of utilities; and devastation of urban image of Belgrade. 2) **Legislative framework, goals, method and concept.** As for the **general urban development goals** (913–915),⁵ these comprised: development of Belgrade as the capital city of Serbia (paralleled by the so-called "de-metropolization", that is, striking development balance vis-à-vis other parts of Serbia, 908); development of Belgrade as a European metropolis, a multimodal nodal point at the crossroads of European Corridors VII and X; Danubian direction of its development; development in harmony with nature ("Beograd u dosluhu sa prirodom", 914); Belgrade developing in accord with the sustainability paradigm; development with a view to protect and preserve "complex city memories"; a "rounded" outlook of Belgrade; Belgrade as economically vital city; "Belgrade, a city for all people"; a well-connected and accessible city; and developing Belgrade as a city of culture. Also, an improvement of the governance system for the entire metropolitan area of Belgrade was stipulated (901). These goals were further elaborated and detailed within the respective areas which made the scope of the MUP. 3) **The physical scope of the MUP, and its sub-areas and zones.** 4) **Planned land-uses**, for key urban functions/activities (housing; economy – stipulated increase of the total size of economic zones in 17 large economic zones, from 1,159ha in 2001 to 2,949ha in 2021 /p. 936–937/, largely outside the inner urban areas, and a smaller increase, from 436ha in 2001 to 575ha in 2021, in a large number of dispersed areas; commercial activities and inner city centres for Belgrade, Zemun and New Belgrade; public services /education, health, culture, sports and leisure, etc./; green areas; agricultural areas; and water surface areas). 5) **Environmental protection** (space, modern architectural heritage, natural areas, water utilization areas, etc.). 6) **Transportation and other technical infrastructure** (by types, urban functions and activities, also including water management and utilization systems). 7) **Specific spatial and urban areas (zones)** (1000–1039): 9 central city zones, 13 mid-urban zones, and 15 another outer urban zones – description, planned usage and construction and building rules. 8) **Estimated costs of stipulated urban development and reconstruction** (for priority development and reconstruction, by

⁴ Occasionally referred to as "spontaneous housing construction".

⁵ To note, these are here presented slightly rephrased, to avoid idiosyncrasies in the verbalization of goals in the MUP, sometimes non-translatable.

key urban activities/urban functions, that is, housing, urban centres, economic zones, public social services, sports and leisure, urban green areas, transportation and other technical infrastructure), approximated at some 11.5 billion € for the 2001–2021 period (1040). 9) **Natural hazards and peace and war defence** – spatial and urban regulation aspects, by specific accidents, areas and zones. 10) **Implementation of the MUP in the first mid-terms period (2001–2006), monitoring, control, and improving the process of implementation.** 11) **Urban construction and renewal rules**, by key urban functions and activities, and by specific areas and zones (urban plots). 12) **Concluding provisions.**

It should be emphasized that in the *MUP* there is **no stipulation explicitly forbidding urban sprawl**. Instead, the accent is put onto better control of this process (1), better equipping of urban sprawl zones with technical infrastructure and public services (utilities, amenities, and so on) (2), better control of spatio-ecological (“environmental”) aspects of development (3), and better control of illegal construction (4). In the recent years, following the introduction of pertinent overall (Serbian) legislative changes, two other aspects have been put high on this agenda, that is, controlled and partially approved legalization of illegal construction (5), and conversion, also controlled and partially approved, of leasehold of urban land into urban land property (6). The exemptions to this were only few specific cases, for example, the case of housing zones, in which, instead of further sprawl of (new) housing areas, the maintenance and improvement of the existing housing stock should come to the fore as a priority (907).

The territory covered by the *Master Urban Plan of Belgrade 2021/Генерални план Београда 2021* (2003)⁶ (henceforth: MUP) of 2003 with a few changes (the last one in 2014) amounts to 77,600ha, 84% of which is urban construction land (state owned) and 1% construction land in societal (“joint”/“communal”) property. Over the 2001–2021 the largest decrease went to agricultural land, from its share of 51.1% to 27.8%, mostly for industrial parks along the key transport routes, followed by the increase in green surfaces of various kinds. Consequently, a sharp increase in total green surfaces is predicted. In absolute terms, the largest changes go to economic zones (3,155ha), transport zones (2,269ha), housing zones (1,888ha) and commercial zones and centres (1,336ha), respectively, with analogous rise in their respective percentage shares. In terms of spatial distribution and organization, four broad areas were defined by the MUP, out of total of 77,602ha, viz.: 1) Central zone (3,706ha); 2) Intermediate zone (8,532ha); 3) Outer zone (21,962ha); and 4) Fringe zone (43,902ha). This also pertains to the conundrum of illegal construction, as some 400,000 buildings of the kind have been placed so far (in 2016). The total number of ca. 1.6 million of illegal “objects” is estimated for Serbia. Basic data and indicators are presented in Table 7.

⁶ The *Plan* of 2003 (henceforth: UMP) was amended in 2005, 2006, 2007, 2009 and 2014 (henceforth: AUMP).

Table 7. Planned land uses (Urban Master Plan of Belgrade, 2003, and Amended Urban Master Plan of Belgrade, 2006)

	Current use (2001)	Planned increase (UMP 2003) 2021-2001	Total (UMP 2003)	Planned increase (AUMP, 2006/2) 2021-2001	Total (AUMP 2006/2) and change of its share (in %)
Housing	12,571.65	1,570.25	14,141.90	318.10	14,460 (16.2; 18.64)
Economic zones	1,595.22	1,929.35	3,524.57	1,226.43	4,751
Commercial zones and centres	667.98	1,147.60	1,815.58	188.42	2,004 (2.6; 6,12)
Public services and centres	1,123.10	275.04	1,398	47.86	1,446 (0.86; 2.58)
Sports and leisure zones	685.87	502.01	1,187.88	-90.88	1,097 (1.45; 1.86)
Green surfaces	11,365.27	9,044.64	20,409.91	-357.91	20,052 (14.65; 25.85)
Agricultural zones	39,657.32	-15,904.12	23,753	-2,173.20	21,580 (51.1; 27.82)
Water surface	4,071.05	101.16	4,172.21		4,172 (5.25; 5.38)
Cemeteries	344.69	144.51	489.20		489 (0.44; 0.63)
Transport zones	4,424.15	1503.56	5,927.71	765.29	6,693 (5.70; 8.62)
Public amenities and utilities	345.30	436.40	781.70	76.30	858 (0.44; 1.08)
Undeveloped land	750.39	-750.39	0.0	0.0	0.0 (0.97; 0)
Total	77,602.00		77,602.00		77,602.00

The MUP points out the main development directions till 2021 for suburban areas along “Ibarska magistrala”, highways to Niš and Zagreb, in direction to: Zemun, Batajnica, Avala, Pančevo, Smederevo, and Zrenjanin (Figure 1).

The MUP of Belgrade (2003) also defined a number of specific urban parameters regarding the occupancy rates and construction indexes, urban regulations, etc., by planned land (urban) uses, compact urban zones (*urbanističke*

celine), and key urban functions (housing, economic activities, transport, commercial zones and urban centres, etc.). These are based on standard gross and net densities, with a view to ultimately determine the spatial capacity of construction for specific uses.

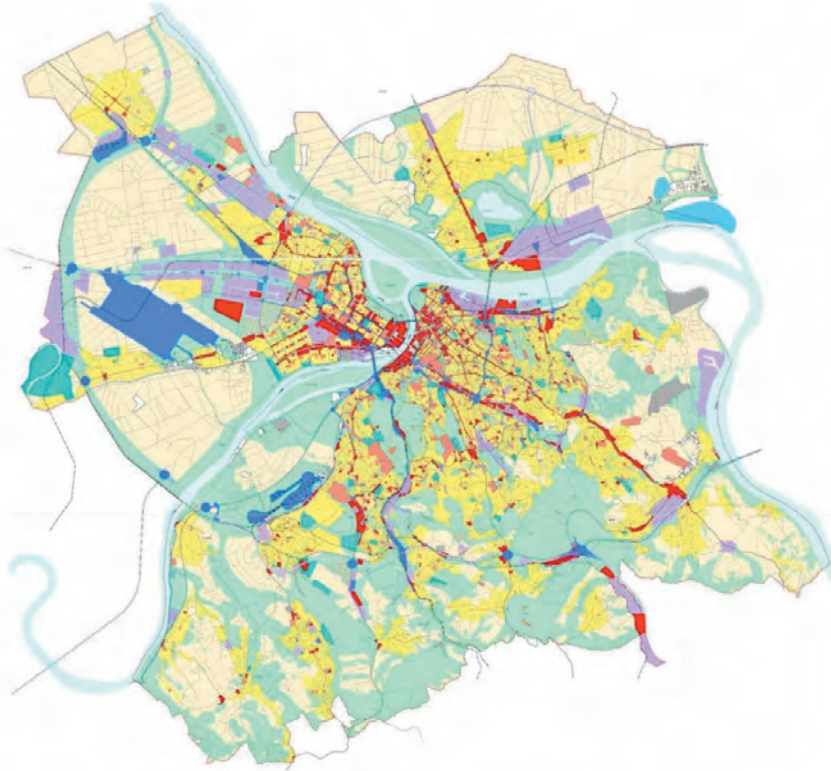


Figure 1. Master Urban Plan of Belgrade 2003, amendments 2005, 2007, 2009 and 2014

Source: http://www.urbel.com/default.aspx?ID=uzb_GeneralniPlanovi&LN

Another strategic document dealt with the issue of diminishing agricultural land in the broader Belgrade area, viz., *Стратегија развоја пољопривреде Београда до 2015./Agricultural Strategy of Belgrade until 2015 (2009)*. It has been found that, despite the volatilities of privatization and market from the beginning of post-socialist transition, Belgrade succeeded to keep the key agricultural estate in this area (*Poljoprivredni kombinat Beograd*) in public property, reflecting the fact that out of 223,128ha of total agricultural land, 43,354 ha (19,43%) are still publicly owned (in year 2006). Only ca 1000ha of arable land is still disputed regarding its ownership status. Data from two sources on the agricultural land in the area of the City of Belgrade are different. According to the data provided by official statistical office of Serbia (RZS, 2012), in 2011 the size of agricultural land in the City of Belgrade was 212,000ha (or 215,414 ha, according to the *Opštine i regioni u*

Republiki Srbiji, 2012), and 130,000 ha, according to the Agricultural Census (2012). According to the Republic Geodetic Authority (2013), the size of total agricultural land in the area of the City of Belgrade was 136,214.07 ha, that is 79,200 ha less than according to the former source. This indicates a dramatic decrease in the size of agricultural land, as well as an intensive urban sprawl.

Based on the above data, the *Strategy* developed an elaborate approach and complex predictions with regard to future development trends, covering all relevant aspects of agriculture (product, investments, impact of endogenous and exogenous factors, etc.). As pertains to the size of agricultural land in the future, two alternative scenarios have been applied, the former focusing on the expected further decrease in total agricultural land, to the interval from ca 215,742 ha to 220,000 ha in 2015 (i.e., depending on the forecast technique applied).

The second alternative was elaborated starting from the assumption that the size of agricultural land until 2015 will match the so-called “technological potential”, market at ca 222,308 ha. This would however imply undertaking a number of policy measures, with a view to prevent the further decreasing of agricultural lands, covering all relevant aspects, viz.: concept of privatization of large agricultural estates; rational utilization of publicly owned land; improving market mechanism and instruments for agricultural land; etc.

The strategic aim in the sphere of urban land management is establishment of a new governance model, based on market principles and on correcting their imperfections, by means of embedded general public interests. Some goals of the MUP related to urban expansion and urban renewal contradict each other. For example, urban renewal is strongly stipulated for, in parallel to the increase of ca. 50% of built urban land which is predicted at the same time. The MUP aims to promote the available advantages and enhanced competitiveness of the city to attract foreign investments. The MUP foresees large structural transformation of river waterfronts, with an important market dimension. The application of conventional instruments in land-use policy (development fees, taxes) illustrates a weak connection with market. A direct impact of market and investor interests is, for e.g., present in urban rezoning of the Port Belgrade proposed by the MUP Amendment (2006), and “Belgrade Waterfront” project (2014). In the competition for European cities and regions of future, organized by the Financial Times in 2006, Belgrade was announced as the “City of future of the South Europe”.

Specific strategic aims referring to the development of suburban areas were defined as: 1) denationalization of both the ownership and management of urban (construction) land, correction of marketization, mainly in social respect and 2) de-metropolization putting into effect more dynamic development of other parts of Serbia than the Belgrade metropolitan area, and thereby lessening its population and economic burden. The importance of the following aims should be emphasized: 1) urban reconstruction, 2) registration of illegal construction, 3) completion of built residential areas in terms of their function, 4) provision of new areas for housing, 5) enabling distribution of the planned activities and jobs in suburbs, etc.

Regarding the large-scale illegal housing construction, Belgrade MUP presents the spontaneously developed settlements and areas in the category “housing and housing tissue”, as well as “economic activity and economic zones”. The MUP envisages further sprawl and enlargement of existing and creation of new economic zones. In suburban areas the MUP envisages an increase in the surfaces under the transport infrastructure by 39% (from the existing 2,319.7 ha to 3,216.65 ha). The MUP does not propose substantial improvement of access to suburbs by public transportation. Due to the global economic and financial crisis the implementation rate of strategic directions and projects defined by the MUP is slowed down.

The MUP foresees measures for stopping semi-legal and illegal upgrade and construction of illegal buildings.

The provisions of the MUP (2003) were more precisely formulated in Amendments (2006, 2009, 2014), especially on strategic urban development and planned land use.

2.1.2.2. Land use policy and administration in Belgrade area

Data on the size of urban land in the City of Belgrade (Republic Geodetic Authority) are different from those provided by the Republic Land Cadastre. According to the Republic Land Cadastre (2013), total surface area of urban/construction land of the City of Belgrade is 111,260.72 ha (1,112.6 km²), out of which 46,919.9 ha in the area of 10 urban municipalities, and 64,340.84 ha in the seven suburban municipalities (Table 8, and Figure 2).

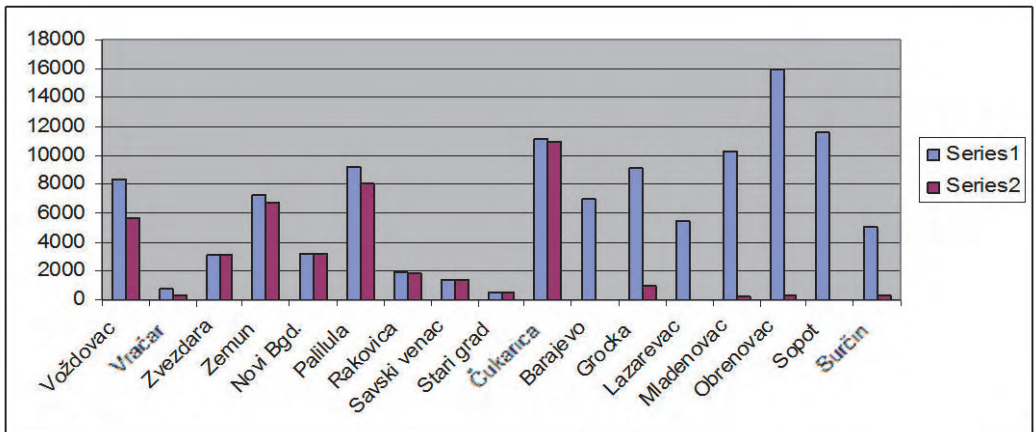
It is of particular relevance to emphasize that the above findings contradict supplemented data. For example, it has been indicated that the size of construction land for the City of Belgrade was 360 km² in 2001 (Republic Geodetic Authority), and 359.95 km² in 2011. This process is paralleled by the increase in Belgrade population in the same period by 4.2%. According to the data provided by the Statistical Office of the Republic of Serbia the size of construction land in Belgrade was some three times less than that provided by the Republic Geodetic Authority /Republic Land Cadastre (2013).

As in other parts of Serbia, the land policy of Belgrade is based on the *Planning and Construction Act* (2010). Specific to Belgrade is the City’s *Decision on Construction/Urban Land* and *Decision on Criteria and Standards for Determining the Fees for Land Development* (2015). As is the case in other parts of Serbia, Belgrade’s land policy has not been substantially transformed in the transition period. It is managed via zoning of construction land and determining initial amounts for compensation and lease by employing criteria and standards. These criteria and standards are established in an inconsistent way and do not correspond to actual real estate value at the Belgrade’s market. Similarly to other places in Serbia, zoning systems and differentiation for certain purposes are not based on relevant market factors, monitoring of transactions and prices of land and real estate, planned solutions, standards, information systems, and relevant modern fiscal, economic and market instruments and institutional arrangements. Construction land policy in Belgrade practically does not exist and the partial

changes in the institutional framework that regulates this area, as well as in organizational adjustments, have not introduced the necessary reforms to this policy that would be crucial for further development of the city.

Table 8. Total construction land in the City of Belgrade (in ha), 2012

Urban Municipalities	ha	Suburban Municipalities	ha
Voždovac	8,359.01	Barajevo	6,933.53
Vračar	748.64	Grocka	9,078.88
Zvezdara	3,107.18	Lazarevac	5,513.69
Zemun	7,259.16	Mladenovac	10,260.92
Novi Beograd	3,198.85	Obrenovac	15,932.94
Palilula	9,191.49	Sopot	11,555.26
Rakovica	1,963.37	Surčin	5,065.62
Savski venac	1,408.91		
Stari grad	537.98		
Čukarica	11,145.23		
Total	46,919.9	Total	64,340.84
Total urban and suburban		111,260.7	



Series 1: Total construction land (total, all uses)

Series 2: Urban construction land (urban construction land)

Figure 2. Total construction land and urban construction land in the City of Belgrade (in ha), 2012

Undeveloped state-owned construction land is subject to lease for a fixed time period up to 99 years, which is estimated based on the purpose, area and the amortization period of the structure. The leasing procedure is conducted at a public auction for facilities up to 10,000m² of gross construction area (*bruto građevinska površina*), where the minimal amount of lease and the lessee's obligations (payment of state-owned infrastructure) are determined in the announcement for an open tender. Initial value of the lease is determined by zone (5 zones and an extra zone in 2010) and purpose of the object (objects of public services, housing-individual, buildings, commercial-manufacturing, business-service and business-commercial): I (central) zone covers 3,706ha, II (intermediate) zone 8,532ha, outer zone 21,962ha, and fringe zone covers 43,902ha. In 2001 the size of total urban construction land was 45,692ha (or 63.005ha, according to the Republic Geodetic Authority. In total, 57 urban compact zones (*urbanističke celine*) have been defined, 22 in I and II zone, 15 in III, and 20 in IV zone. The boundaries of zones coincide with statistical territorial units. The largest initial lease amount is paid by business-commercial objects if located in the so-called extra-zone (20.48 RSD or 20 euro cents/m² of useful area). Lease prices range from 1:3.3 for structures for public services to 1:6.31 for individual housing structures. For business-service facilities the range is 1:4.29, and for business-commercial it is 1:5.33. The widest range is in Zone I, i.e., 1:7.26.

From the standpoint of urban sprawl and the policy of urban/construction land, specific regulations for Belgrade are the City's *Decision on Construction/Urban Land (2015)*, *Decision on Criteria and Standards for Determining the Fees for Land Development (2015)* and *City's Decision on determination of zones in territory of Belgrade City (2015)*, with 9 zones. The development fee for construction land for commercial buildings in 2015 (236.6 €/m²) was up to 37.5 times higher per m² in the zone I (CBD) in relation to the price per 1m² for housing in the peripheral zone of Belgrade (6.3 € in zone VIII). From 2015 there is no land development fee for the economic/industrial zones. Initial value of the land development fees is determined by the purpose of the object and the zone (the above-mentioned central, intermediate, outer and fringe zones - ca. eight zones and zone of specific purpose) – see Figure 3. New land development fees range from 1:25 for commercial structures to 1:30 for housing and public services (in 2015).

Now, the built/developed state-owned construction land is subject to lease for a period up to 5 years, which is estimated based on the purpose, area and the market value. The lease agreement of construction land in public ownership can be concluded for a period up to 99 years. The law provides the conversion of the land leasing into property right in accordance with the PCA and by-laws. Compared to the market value of the site/location, one can cast doubt on the mechanisms of their determination by local and republic administrative methods derived from regulations. For example, currently, along highways and other development corridors of Belgrade there is no single square meter of land open for construction. Construction land is being sold at prices ranging from 50-1500 EUR/m². This situation could have a discouraging effect on potential investors.

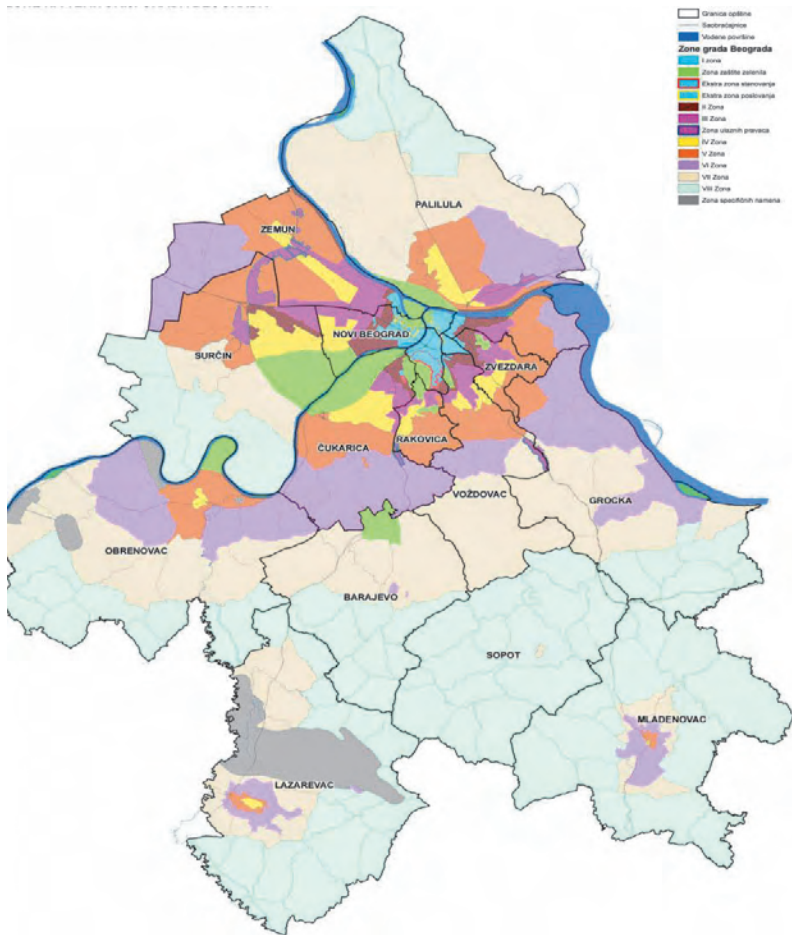


Figure 3. Urban Land in Belgrade – Zones (I-VIII and the zone for a specific purpose)

Source: http://www.beoland.com/images/zemljiste/propisi/Odluka_o_odredjivanju_zona_dec_2015.pdf

Zone boundaries, which are also used for the purpose of determining the initial rental fee, are established (by municipal ordinance) based on the market value of the location, which is defined by “attractiveness and business, traffic coverage and accessibility, scope and diversity of supply within the zone, number of users visiting the zone, special benefits for certain purposes...” (Figure 4 and Figure 5). This reflects a general intention to harness land development policy for more strategic purposes, viz., to improve position of Belgrade metropolitan area in a broader geographical context (cf. *Стратегија развоја трговине Београда 2015/Strategy of Belgrade Commerce Development 2015*), based, first, on its geostrategic position at the crossroads of European Corridors VII and X, and, second, on the

attractiveness of this area and its commercial zones. The Port of Belgrade is a linchpin of the territorial capital of Belgrade metropolitan area, and also has a prominent role in the utilization of overall territorial capital of Serbia. According to the UMP and AUMP (2003; 2006), a further conversion of some 200ha of the port-transportation function is scheduled for business, housing, commercial and other purposes, with a view to develop a new urban centre in this area.

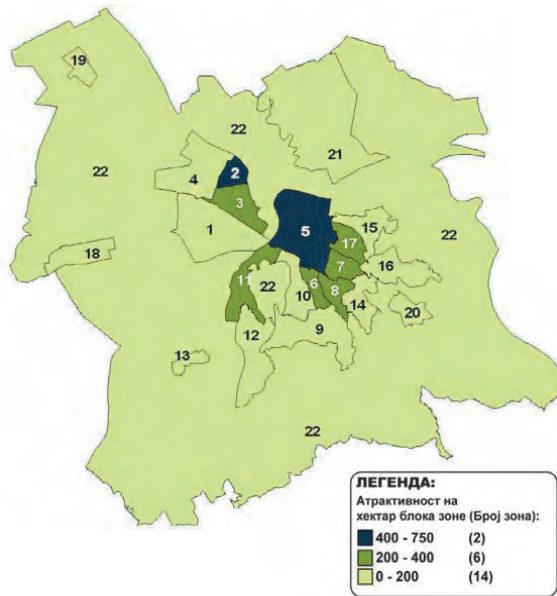


Figure 4. Belgrade’s zones ranked by the degree of attractiveness – current status

Source: Strategija razvoja trgovine u Beogradu do 2015, 2008.

Compared to the market value of the site/location, one can cast doubt on the mechanisms of their determination by local and republic administrative methods derived from regulations. For example, locations within the urban construction land of Belgrade will not depend on turnover, i.e., they are driven by market mechanisms of supply and demand. The turnover of land is collateral and related to the buying and selling of facilities. The location market operates informally, i.e., through transactions of structures only. Currently, along highways and other development corridors of Belgrade there is no single square meter of land open for construction. Construction land is being sold at prices ranging from 50-1,500 EUR/m². This situation could have a discouraging effect on potential investors.

The total area of office space in Belgrade amounts to 2.85 million m², 253.784 m² or about 9% of which is owned by the City of Belgrade. By the year 2015 it is planned to build new areas covering about 0.53 million m², mainly by development of the shopping malls. All office space is classified by the business benefits in four zones, namely: extra, I, II and III. Office space lease rates have been decreasing

since 2004 from 23 EUR/m² to about 7 EUR/m² in 2010, and 10-13 EUR/m² in the centre, 14–17 EUR/m² in New Belgrade in 2015.

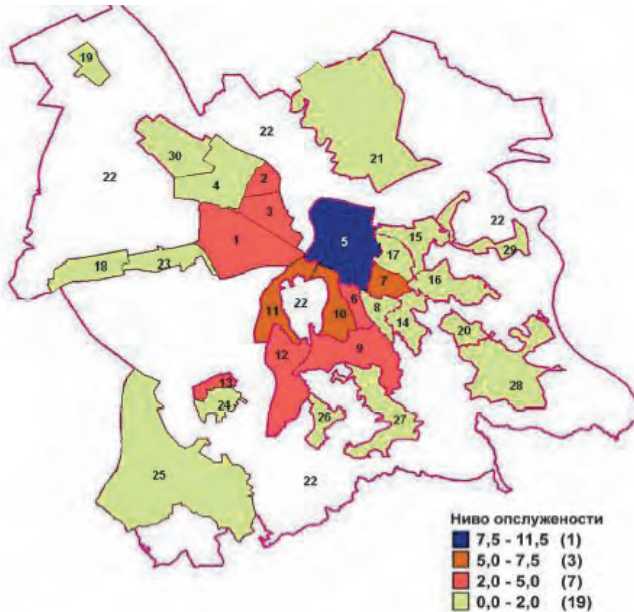


Figure 5. Area of Belgrade ranked according to accessibility to public transport

Source: Strategija razvoja trgovine u Beogradu do 2015, 2008.

2.1.2.3. Concluding remarks

- Urban/construction land policy in all parts of Serbia suffers from a number of insufficiencies, legal, procedural and substantive. System and practices are inferior to better standards, albeit in recent years a strong effort has been demonstrated to introduce better practices, in accord with EU norms and standards. On the one hand, the promulgated system has a number of “in-built” flaws. On the other, the practice has been lagging behind with regard to many more innovative stipulations. Particularly, urban land market is undeveloped, and therefore basic regulatory mechanisms and institutions, as well as more up-to-date ways of financing urban land development, have not been established yet. Essentially, basic approach is still predominantly administrative. That has a number of negative consequences, directly and indirectly influencing the key course of developments regarding many specific issues, viz., zoning regulations, traditional economic tools of urban land policy (development fee, land-use fee, local utilities taxes), which proved as particularly vulnerable and of no benefit for limiting urban sprawl. Zeković (2009) pointed to the following key characteristics of the current situation:
- Weaknesses of the current information system;

- Inefficient use of urban land;
- The administrative way of determining the user of land by decision of a competent agency of the local authorities;
- Unfavourable political dimension of the land management system in the period of transition, as well as its unfavourable social dimension;
- Basically non-transformed land policy in many cities and towns of Serbia, including Belgrade land policy;
- Limited construction and investment;
- Decrease in local land revenue, deficiency of locations and other related problems, mostly resulting from reduced fiscal effects due to less efficient use of urban land, dependency of fiscal revenues on market values of real estate (as a tax base), and similar – by means of which state and local communities lose enormous potential tax revenues in land transactions;
- Still unresolved numerous problems regarding determination of urban rent;
- A considerable lack of locations with regulated and furnished infrastructure that are suitable for commercial and industrial purposes (“productive investments”) in the majority of Serbian cities, thereby favouring the development of “green-field” investments, and neglecting the use of “brown-field” sites, as well as favouring development of new housing in the urban fringe (peripheral urban and suburban areas) along the Pan-European corridor X;
- The enacted legislation itself presents problems as well. The Planning and Construction Act (2009, with amendments from 2010–2015) and the Ordinance on conversion of right of use into right of ownership (2010) enable the holders of privatized land to convert their rights of use into the right of ownership. This legislative solution would be economically acceptable if the Government had not adopted the aforementioned decree which includes the overall cost of capital and property under expenses of acquiring the rights of use;
- The lack of appropriate policies and instruments influenced the process of the suburbanization in the City of Belgrade which continued incessantly in the years after the promulgation of the MUP 2003/2009 (as well as escalation of urban sprawl from the 1970s till the 1990s. By the end of the 1990s the spontaneous suburbanization had ended. But, during that time, due to large refugee inflow, sprawl has continued through massive construction of illegal buildings in a new speculative way, sometimes with the support of local governments (e.g. in the municipality of Zemun in Belgrade, see Zeković, et al., 2016);
- The politics play the main role in the land policy situation. There seems to exist a lack of political will, as the main reason for the delay in the privatization of urban land. The system “defect” in the rules and regulations regarding construction land management has in fact “caught on” very well to the fertile

ground of privatization of location-wise attractive enterprises, complexes, and zones;

- A lack of a more innovative and complex approaches regarding ex ante, ex post and ex continuo evaluation of decision making (e.g., RIA/Regulatory Impact Assessment, TIA/Territorial Impact Assessment, etc.);
- A lack of more innovative and flexible urban land policy tools, e.g.: contemporary urban rezoning, tradable development rights, trading density for benefits – density bonus policy, contemporary models of infrastructure financing, viz., municipal bonds, governmental bonds, financial derivatives – CDS, etc., regulatory arrangements of the Public-Private-Partnership, effective models for reinvesting, land value capture tax as a funding source for urban investment, as well as potential introduction of the Global Land Tool Network, GLTN, etc.
- Dramatic decrease of the size of agricultural land in the Belgrade City Area, paralleling intensive urban sprawl and massive illegal construction, as dominant form of urban sprawl (Zekovic et al., 2015), equally in the Belgrade Metropolitan Region and elsewhere in Serbia;
- The MUP does not identify suburbanization and sprawl as specific issues and does not explicitly stipulate any respective measures. Widespread illegal housing development in suburbs has been studied by the plan and measures have been outlined. The policy of the MUP concerning suburbs comprises (1) better control of this process (sprawl), (2) better equipment of peri-urban zones with technical infrastructure and public services, (3) better control of environmental development, (4) better control of illegal construction in the MUP, (5) legalization of illegal construction, and (6) conversion of land ownership and leasehold, as well as conversion of rural to urban;
- The MUP zoning does not serve as a basis for determination of development fees or any fiscal instruments although the zoning was the main instrument of the master plan to regulate the development of suburban areas, but, in case of Belgrade with insufficient success. The implementation of the MUP is made by elaboration of planning documentation (Detailed Regulation Plans/DRPs). Approximately 1/4 of DRPs will be finished till 2017, while elaboration of 1/4 of DRPs for suburban and peripheral areas can be expected till 2025-2030. Urban zoning is not correlated to zoning for determining land development fee and property tax. Low development fees along road corridors and in suburbs directly support urban sprawl and limit financing the new infrastructure. These tools can help to solve, at least partially, some conundrums between key objectives, measures, planning solutions, urban land policy and its instruments in limitation of urban sprawl in Belgrade;
- The legislation/regulations have strong influence on urban expansion in Serbia and Belgrade and sprawl-induced consequences;
- Legal framework stimulates inefficient and ineffective usage of land resources in the Belgrade area. In Serbia, the legislation pertaining to spatial development,

land use and settlements regulation does not directly address urban sprawl. Urban sprawl is characterized by spontaneous urban expansion followed de facto by ex-post massive legalization or passing of legislation. Planning apparatus is based on the Planning and Construction Act with poor regulation of buildings' illegality, methods of conversion of land-use rights into property rights/ownership (privatization) and conversions of lease into property rights, loss of agricultural land, land consumption, while the key role is carried by ordinances; etc.

Acknowledgements:

This chapter is the result of the project “Transitioning towards Urban Resilience and Sustainability (TURaS)”, Contract No. 282834, which is financed within FP7 of the EC on topic ENV.2011.2.1.5-1; and project “Sustainable Spatial Development of Danube Region in Serbia”, No. TR 36036, latter two projects being financed by the Serbian Ministry of Education, Science and Technological Development in the period 2011-2016.

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2.2. A brief review of the Serbian legal and regulatory framework (spatial regulations and planning instruments) related to urban growth/sprawl and the land market applied to Belgrade

Slavka Zeković and Miodrag Vujošević

This is a brief review of the current legal framework which relates directly to urban sprawl and traditional planning tools, as well as to the tools of land-use control (zoning regulations, development fees, urban growth boundaries, green belts, infrastructure financing, land deposits, public-private-partnerships, etc.), and the conversion of agricultural land to urban land. We have listed and analyzed the main legal acts, regulations and some spatial/urban plans and planning instruments that have strong impacts on processes related to urban expansion and the land market in Serbia (applied to the Belgrade Metropolitan Area – BMA)⁷. The analysis indicates some existing spatial planning/urban management policies (tools, instruments), as well as their current role, and probable gaps related to the land market and to guiding and controlling urban growth/sprawl. The impact of current (or potential) laws and other regulations which regulate fields of urban sprawl, development and urban land policy can be measured and/or controlled in different ways which require a cross-sectoral approach (e.g. RIA/Regulatory Impact Assessment, indicators, C/B methods, evaluation methods, innovation projects, etc.). The expected impacts can support the scientific underpinning for the implementation of planning/urban land tools by strengthening the knowledge base for decision-making and its effectiveness, and for managing the costs and the effects of related measures and tools on limiting urban sprawl. The results should help policy makers to adapt the current tools and involve more flexible tools, increase the alignment of supra/national research and urban innovation programs, overcome current regulation gaps and identify effective policies for the transformation of suburbs to acceptable forms.

The current system and practice of managing urban land in Serbia have not been harmonized with the main courses of transitional reform and change. A great number of basic, conceptual problems have not been solved yet, even though their predictable institutionalization affects the implementation of sustainable spatial and

⁷ Wayne Batchis (2012) has argued that sprawl is less a reflection of consumer preferences and more a result of legal structures and court decisions that have encouraged sprawl development.

urban development and land use policy. The urban land market is undeveloped, and therefore the basic regulatory mechanisms and institutions, as well as more up-to-date ways of financing urban land development, have not been established yet. In the conditions of an undeveloped market, the mechanism of urban land rent is incomplete and distorted, and it does not contribute to the rational use of urban land and to the socially acceptable distribution of costs and profits among various parties. Essentially, the basic approach is still predominantly administrative. This leads to a number of negative consequences that also apply to zoning regulations, traditional economic tools of urban land policy (development fees, land-use fees, local utilities taxes) which have proved to be particularly vulnerable and powerless to limit urban sprawl.

Substantive and procedural aspects of the utilization of agricultural and forest lands, conversion into urban (construction) land and urban zoning in Serbia have been defined by a number of national and local legal acts (laws, legal decisions, ordinances, regulations, etc.), but without any mention of the urban sprawl process, and related instruments and measures. The general intention of the *Planning and Construction Act, 2009* (amended in 2011 and 2012) is to use urban and construction land for construction and other related purposes in a legal, regular and rational way, defined by urban planning documents. This Act, which is not *sui generis* for regulating property matters, defines the legal basis for ownership transformation (privatization of urban/construction land), i.e. 1) the conversion of the right to use state-owned urban construction land into the right of private property to private persons, without compensation, as well as legal entities established by the state, provinces and municipalities; and 2) in the case of state-owned construction/urban land with the right to use held by companies and other legal entities that have reached this status during the process of privatization or are insolvent, the right to use can be converted into a property right by reimbursing the market value of land. The Government of the Republic of Serbia legislates the determination of compensation based on the substitution of rights with compensation according to the “market value”, without defined regulatory rules, market mechanisms, institutions and instruments for conducting the construction/ urban land policies and administering land transactions. The *Act* stipulates that the market value (estimate) of this fee should be determined by the government (Tax Administration, Ministry of Finance), but the *Ordinance* (2011), and *Property Law* (2013) delegate this task to municipalities. In Serbia there has been a lack of appropriate legal provisions for assessing the market value of land and related assets, despite there being 28 laws, many ordinances, instructions, and town and/or local decisions, etc. There is still no systematic data on the estimated value of state-owned land assets, which raises the related question of ascribing the market value of public land subject to a conversion fee.

The *Planning and Construction Act* stipulates a number of development planning instruments for zoning, viz.: parceling out the land for specific purposes, so-called “compact land tracts” and zones; major use of land within the zoning schemes and compact land tracts; obligatory detailed zoning regulations; and

regulations on spatial organization and construction for urban land for which detailed regulation is not obligatory by law. The issue of the maximum construction index and occupancy rate has been regulated by a general by-law from 2011 and by ordinance (for 9 predominant types of land use). In the majority of Serbian cities, zoning regulations and pertinent taxing have not been harmonized with the broader strategic spatial and urban development aims and zoning regulations, and practices only laterally follow the market signals, barometers and instruments. In the majority of cases, especially regarding taxing, the number of zones in urban centers in Serbia varies significantly (9 zones in Belgrade). In the cases of the overwhelmingly administrative zoning regulations, this approach will generally have a negative impact on the market value of land and related assets, which particularly holds true regarding tenders for leasing or purchasing urban land in public ownership. This practice has almost nothing to do with the planning standards for zoning established by spatial and urban planners, but basically originates from a lack of political will at all territorial levels to introduce new legislative, institutional and organizational adjustments which would direct the course of events to more rational and effective purposes in accord with the strategic objectives of urban development.

2.2.1. Conversion of agricultural and forest land to urban land and urban sprawl

The *Forestry Act*, 2010, allows the conversion of forestry land to other purposes in some cases, with financial compensation which may be 10 times larger than the land's current market value. Following the *Act on Agricultural Land*, in cases where agricultural land is converted to other permitted purposes, the compensation is determined at a level of 50% of the market value of arable land. Special permits are requested, issued by the responsible ministry. The proper compensation should be paid for conversion from agricultural land to construction land by the owner of the property lot, and should be fulfilled prior to issuing the planning use permit. This provision does not apply to the changes based on legal acts and development planning documents adopted before 1992, to "objects" under the procedure of legalization or to construction projects of general interest (for the Republic of Serbia, provinces or local authorities). In the period 1993-2010, some 53,700 ha of agricultural land was lost, i.e. converted to other uses. This conversion was mostly to urban/construction land due to: a) massive illegal construction; b) construction of technical infrastructure; and c) conversion of former agricultural land to other uses (59,400 ha),⁸ all within the privatization of state (social) agricultural estates (*kombinati*), paralleled by the increase of green-field investments in the peri-urban zones of the largest cities in Serbia. The restitution of formerly nationalized agricultural land, launched at the end of 1980s, has now been almost completed but the restitution of urban land is still ongoing. In 2009 the law

⁸ This number applies to the category "other uses", which explains the difference between 53,700 ha and 59,400 ha.

introduced some provisions intended to prevent publicly-owned agricultural land being sold off. In at least 27 such sites, out of some 50 peri-urban areas in total, the former agricultural lands deteriorated, often paralleled by illegal construction on the newly converted sites. In 2006, 43,354 ha (19.4%) out of 223,128 ha of the total agricultural land in Belgrade City was still publicly owned. The scope of converted land is tremendous in the Belgrade area. According to the *MUP* of Belgrade and Land Registry data there was large-scale illegal construction of residential buildings in 2015 amounting to ca. 400,000. The majority of informal residents live in the compact type of housing, scattered over 34 zones and in 18 low density informal settlements in the surroundings. According to UNECE (2009), in the broader Belgrade area these settlements represent the key form of urban sprawl, covering 22% of the land for construction and taking up to 40% of residential areas. Land for the expansion of suburban housing is usually purchased from farmers.

From 4.69 million buildings in Serbia in 2015, there are 1.5 million (31,2%) illegal objects, and around 400,000 of them are in the broader Belgrade area (as a consequence of urban sprawl). In the period 1990-2013 three laws on the legalization of massive illegal buildings were adopted, but they have failed to regulate sprawl.

Out of all of the relevant legislative acts, regulations and planning documents, probably those dealing with the issues of privatization have had the greatest impact on urban development, especially on the development of peri-urban territories in Serbian towns and cities, particularly in Belgrade. In general, their impact has been negative. The *Planning and Construction Act* of 2009 might have made things even worse with its stipulations enabling the conversion of leasehold on urban (construction) land into property rights – without applying the proper tool of market pricing and other market instruments. From the standpoint of massive urban sprawl and the policy of urban/construction land, specific regulations for Belgrade are the City's *Decision on Construction/Urban Land* (2015), *Decision on Criteria and Standards for Determining the Fees for Land Development* (2015) and *Decision on determination of zones in the territory of Belgrade City* (2015), with 9 zones. The development fee for construction land for commercial buildings (576.6 €/m²) is up to 67 times higher per m² in the extra zone (CBD) than the price per m² for housing in the peripheral zone of Belgrade (8.6 € in zone VIII). Belgrade's land policy has not been substantially transformed in the transition period. It is managed via the zoning of construction land and determining the initial amounts for compensation and lease by employing the necessary criteria and standards. These criteria and standards are established in an inconsistent way and do not correspond with the actual real estate value on Belgrade's market. Zoning systems and differentiation for certain purposes are not based on relevant market factors, the monitoring of transactions and prices of land and real estate, planned solutions, standards, information systems, relevant modern fiscal, economic and market instruments or institutional arrangements. The partial changes in the institutional framework that regulates this area, as well as organizational adjustments, have not introduced the necessary reforms that would be crucial for further development of the city.

Locations within the urban construction land of Belgrade do not depend on turnover, i.e., they are not driven by market mechanisms of supply and demand. The turnover of land is collateral and related to the buying and selling of facilities. The location market operates both at a formalized and non-formalized level, i.e., through building-site transactions only. Currently, along the highways and development corridors of Belgrade, there is not a single m² of land open for the construction of industrial and commercial buildings.

Master Urban Plan of Belgrade. The *Master Urban Plan of Belgrade 2021* (2003, 2006, 2009), *MUP* (City Official Gazette, No. 27/2003, 63/2009) covering 77,600 ha addressed the problem of accelerating suburban development, mostly by the occupation of land for housing purposes in peripheral locations. Around 84% is public (state-owned) urban construction land, 1% has mixed ownership, and the rest (15%) is “non-construction land”. The indicated size of the *MUP* total area should be considered reliable and veritable, because at around the same time as it was written (2006) the Republic Bureau of Geodesy provided official data on the size of urban construction land at the *NUTS2* level (BMA) of 63,005 ha, which fairly well approximated the former data.

For the period 2001-2021, the *MUP* predicted a further decrease in agricultural land (by 18,007 ha, from its share of 51.1% to 27.8%) and an increase in green surfaces, as well as economic, commercial and industrial zones. To assess the scope of urban sprawl in the City of Belgrade, one should take into account the circumstances of unreliability and controversial data. In 2011 the total amount of agricultural land in the City of Belgrade was: 212,000-215,000 ha (according to statistics), 130,000 ha (*Agricultural Census*, 2012) or 136,214.07 ha (Republic Bureau of Geodesy, 2013), that is, some 79,200-85,000 ha less than total number of agricultural surfaces. All data indicate a dramatic decrease in the size of agricultural land in this area and intensive urban sprawl and/or urban growth. Some goals contained in the *MUP* are contradictory, i.e. related to both urban expansion and urban renewal/ reconstruction. For example, urban renewal was strongly stipulated, with a parallel increase of ca. 50% of built urban land which was predicted at the same time.

The other findings in the urban land policy are: weaknesses in the current information systems; inefficient use of urban land, a dramatic decrease in the size of agricultural land in Belgrade City and intensive urban sprawl; insufficient construction and investment; a decrease in local land revenue; a lack of supply locations; etc. There is a need to introduce a new evaluation approach, i.e., to estimate the effects of urban land policy in the city, as well as urban sprawl and the impact of laws and other regulations which regulate these fields. This can be measured and/or controlled by introducing sophisticated approaches in the management of construction land, with a view to stop, or even to redirect, the now mostly uncontrolled massive process of urban sprawl.

Corresponding provisions have not been followed by appropriate specific policies and instruments, or the redirecting of urban development into the BMA. The lack of appropriate policies and instruments resulted in the process of

suburbanization in the BMA continuing incessantly in the years after the promulgation of the *MUP, 2003/2009* (as well as the escalation of urban sprawl from the 1970s until the 1990s in accordance with the *MUP, 1972* and *1986*). By the end of the 1990s spontaneous suburbanization had ended. However, in the 1990s, due to a large refugee inflow, sprawl continued through the construction of illegal buildings in a new speculative way, sometimes with the support of local governments (e.g. in the Belgrade municipality of Zemun). The Belgrade *MUP* channeled sprawl in a few different directions: the Zemun, Batajnica, Kaludjerica, Zrenjanin route, the Ibar route, highway corridors, and so on. Infrastructure-driven urban sprawl is evident along the highway corridors of Belgrade-*Novi Sad*, Belgrade-*Zagreb*, the Ibar route, and along the airport corridor, in new industrial zones, commercial zones, in mixed peri-urban zones, and so on. Peri-urban growth was initiated by new housing, new SMEs, the dislocation of some capacities, etc. Some state-owned plots (under the ownership of earlier state/social companies/agriculture's "kombinat") have been privatized and used for housing, or commercial or industrial purposes. Sprawl and peri-urban transformation are mainly a combination of "ribbon", "leapfrogging" and "cluster" types, as well as "green" sprawl and "urban island in the green sea", compacted urban forms and dispersed low density urban forms. In the inner core of Belgrade there is "implosive" sprawl, and so on.

Analysis of the impact of the legislative framework on urban sprawl suggests that laws and regulations on the national, metropolitan and local level have a strong influence on the territorialization of urban growth/sprawl in Serbia and Belgrade with sprawl-induced consequences. We have assessed that some legal regulations for spatial planning/urban growth management policies (tools, instruments) are the main sources of urban sprawl (e.g. urban zoning and rules, land-use ordinances, the setup of urban boundaries, infrastructure regulations and the construction of new infrastructure, the cost of public transportation, etc.), which is also caused by the reduced possibility of having a local budget for the new common urban equipment. Those regulations are verified on a national or metropolitan/local level and their role is inefficient and ineffective in guiding and controlling urban growth/sprawl in Belgrade. In accordance with many models of urban growth, as the distance from city centre or key node of accessibility increases, the prices of urban land and housing (and often urban densities) are lower. The transportation costs (or costs of accessibility) are often higher, but, sometimes also lower (if there is public rail transportation, etc.). If the cost of transportation is lower, we can conclude that it is the main reason for urban expansion into the surroundings areas, as well as lower urban densities (and lower land prices).

Legal regulations and urban land policy are the main ways to influence the land market or to decrease/increase market demand by locking or limiting urban sprawl on account of the acceleration of urban growth or urban renewal/reconstruction as more acceptable processes.

The influence of infrastructure construction and finance on urban structures and the impacts of urban development on infrastructure costs (the so-called cost of

sprawl) have to be included in any urban sprawl analysis. In general, the level of infrastructure costs (including utilities) and costs of public services are mainly in correlation with urban densities: lower costs include a higher development density (urban, demographic, etc.), and vice versa. A number of cities/municipalities have introduced land construction fees for the construction of new buildings. *The Serbian Constitution* (2006) and *The Planning and Construction Act* (2009) set up a development fee (with the obligation of cities/municipalities to determine its value) as a tool which reflects the actual relationship between the costs of the utilities and public services and the level of the development fee. Due to considerable differences among cities/municipalities in Serbia regarding their fiscal capacity, the conditions for better urban planning and governance may well deteriorate, as may the possibility of managing urban sprawl.

Finally, we can conclude that the legal framework stimulates the in-efficient and in-effective usage of land resources in the Belgrade area, as well as the irregular and informal status of many settlements (in the suburbs and urban tissue). We recognize that both the legal framework and current metropolitan/urban planning and governance are keystones of urban (as well as national/regional) policies and their own sprawl-inducing results. In Serbia, the legislation on spatial development, land use and the regulation of settlements does not directly address urban sprawl. The laws and institutional changes made during the transition period have been poor, or they are the result of urban sprawl (massive illegal, irregular and informal construction) rather than the precondition/prevent framework. Urban sprawl has characterized spontaneous urban expansion followed *de facto* by ex-post massive legalization or passing of legislation. The planning apparatus is still based on *The Planning and Construction Act*, with poor regulation of: the legality of buildings, the methods of conversion of land-use rights into property rights/ownership (privatization), the loss of agricultural land, the evaluation of urban land, land consumption, etc., while “decisionism” has an important role via different ordinances (more than 25 in this *Act*). The strong effects of the following are also present: earlier urban growth boundaries in Belgrade *MUP*, urban zoning, building rules, land-use regulations, development fees, government and metropolitan regulations on both urban structures and urban sprawl (e.g. lower densities, loss of agricultural land, lack of infrastructure, lack of land-use control in the metropolitan area).



T U R A S

TRANSITIONING TOWARDS URBAN
RESILIENCE AND SUSTAINABILITY

3.

RESEARCH OF URBAN AND DEMOGRAPHIC DYNAMICS OF METROPOLITAN REGIONS

2.1. Population dynamics and land cover changes of urban areas
**Nikola Krunić, Marija Maksin, Saša Milijić, Olga Bakić and
Jasmina Đurđević**

2.2. Recent trends in population dynamics and land cover changes
in metropolitan areas
Nikola Krunić and Aleksandra Gajić



T U R A S

TRANSITIONING TOWARDS URBAN
RESILIENCE AND SUSTAINABILITY

3.1. Population dynamics and land cover changes of urban areas

Nikola Krunić, Marija Maksin, Saša Milijić, Olgica Bakić and Jasmina Đurđević, *Spatium*, no. 31, 2014, pp. 22-29

This contribution presents a minor part of the paper that was originally published in international journal *Spatium*. Here we enclose its abstract and conclusions from the paper.

Abstract

In order to enable efficient management of spatial development of cities, it is essential to analyse changes in land cover, in the “consumption” of land surrounding cities and the attained rationality with respect to the use of already urban land (reflected in the urban population density). This paper provides an overview of the land cover changes in the period between 1990 and 2006, and the potential correlation between the dynamics of the total population change, on the one hand, and the land cover change, on the other. The initial hypotheses of this paper are: (1) occupation and sealing of productive soil in peri-urban zones is not proportional to the population dynamics of cities and their metropolitan areas; and (2) expansion of soil sealing in peri-urban zones is not significantly affected by the differences with regard to the natural surroundings and historical development of cities, nor by these cities being developed cities or cities in transition, capitalistic or post-socialist cities etc. These hypotheses are tested and confirmed in the cases of three capital cities in South and Southeast Europe. Regarding the changes in population density, it can be concluded that central/inner-city municipalities became less populated, with sometimes very significant decrease in population density, but without any land cover change, which indicates “depopulation”. At the same time outer-city and peripheral municipalities also suffered a decline in population density, while their urban zones extended.

Concluding remarks

Relevant references, suggest that there exists no clear cause and effect relationship between the expansion of soil sealing in peri-urban zones and differences with regard to the natural surroundings and historical development of cities, nor by these cities being developed cities or cities in transition, capitalistic or

post-socialist cities etc. Nevertheless, it can be concluded that different factors caused similar trends in soil sealing in peri-urban zones in the case study cities.

There are some differences between the respective size of the administrative areas of case study cities: the City of Belgrade (3223.2 km²), the City of Rome (1286.1 km²) and the City of Sofia (1342.9 km²). Belgrade has the smallest urban area, or UMZ, in comparison to its administrative area (183.5 km², i.e. 5.7%). Likewise, although Sofia has a larger administrative area than Rome, its urban area (259.1 km², i.e. 19.3%), or UMZ, is significantly smaller than in case of Rome (398 km², i.e. 31%).

Certain differences are also observable with regard to the population changes. Population of the City of Belgrade increased moderately, in total, for the index of 103.3. The most significant increase of population size was recorded predominantly in peripheral municipalities, while a significant decrease was observed in inner-city municipalities. Contrary to Belgrade, population of the City of Rome slightly decreased in total, for the index of 96.6. Again, the most significant increase of population size was noted primarily in some peripheral municipalities. In contrast to this demographic trend, all inner-city municipalities suffered a significant “depopulation”. Population of the City of Sofia also increased moderately, in total, for the index of 103.5. The population size most notably rose in some central municipalities, whereas some inner-city municipalities, as well as the north-eastern peripheral municipality, experienced “depopulation” to a considerable extent.

There were also differences in the dynamics of spatial changes. Namely, while the UMZ of Belgrade extended for about 33 km², the UMZ of Rome and Sofia extended for about 30 km² and 7 km² respectively. It is interesting to note that spatial dynamics of the UMZ or respective artificial surfaces have accelerated after the year of 2000 in the cases of all the three cities. Development of the UMZ of all the three cities was a dynamical process which differed throughout the observed period. There was an obvious correlation between the sealing degree and the intensity of human activity.

Land cover pattern also changed, concurrently with UMZ development and dynamics. Artificial surfaces development corresponded with the UMZ changes and dynamics. In all the three cases, artificial surfaces were mainly developed at the expense of agricultural areas. By using CLC land cover classification it was not possible to track changes inside artificial surfaces, i.e. in the cities’ urban tissues.

Occupation and sealing of productive soil in peri-urban zones was not proportional to the population dynamics of the cities. Regarding the changes in population density, it can be concluded that central/inner-city municipalities became less populated, with sometimes very significant decrease in population density, but without any land cover change, which indicates “depopulation”. At the same time outer-city and peripheral municipalities also suffered a decline in population density, while their urban zones extended (in cases where high “antropogenisation” was detected).

Further extension of urban zones and “filling” within the existing urban block have been observed since 2006 in all the three cities. Detected trends in land cover changes and population dynamics should be taken into account when planning and developing both central and peri-urban city areas. Apart from further research of causalities in land cover changes, successful management of cities necessitates understanding of the citizens’ preferences concerning the surroundings they live in on the one hand, and interests of investors, local authorities and other subjects of overall urban development on the other hand.

3.2. Recent trends in population dynamics and land cover changes in metropolitan areas

Nikola Krunić and Aleksandra Gajić

3.2.1. Introduction

This paper presents re-analysed, updated and revisited findings of previous internal reports for the TURAS Project (published internally on the project website: Krunić, 2013; Krunić et al., 2014a) and published papers (Krunić et al., 2014b). In this contribution additional research has been undertaken for the year 2012, with a view to analyse the relationship between the dynamics of the total population change, on the one hand, and the correspondence of the land cover change, on the other. The analyses were performed at the level of administrative units at local level (“municipalities”) within the metropolitan areas, i.e. cities of Belgrade, Sofia and Rome. The following indicators have been utilized to this end, viz.: absolute (total) population; population size dynamics; population density (measured via the number of inhabitants per unit of artificial land area, that is, “land surface”); the structure of land cover by category (Corine Land Cover); changes within the abovementioned land cover categories, respectively; and the ratio between total and artificial surface of the administrative units. Also, changes within the structure of migrants and commuters have also been analysed, but only for the City of Belgrade.

This survey covers the municipalities (administrative units) of three cities, viz.: Belgrade, Rome and Sofia. To note, there is a significant difference regarding the administrative division in two cities, that is, Belgrade and Rome. The previous administrative division of the City of Belgrade comprised 16 municipalities, but currently comprises 17 municipalities. Compared to that, considerable changes have taken place in the case of the City of Rome, now comprising 15 administrative units, as compared to its previous size of 19 administrative units. According to the available information, no change of the kind has taken place with regard to the administrative division of the City of Sofia.

Due to the inconsistency of data, the findings of this analysis should be interpreted as conditional. Relevant data sets for population dynamics often do not

match data sets on land cover changes for the same time period. Nevertheless, the obtained results are fairly reliable, and represent a solid base for future research, either in terms of looking for specific insights, or for the purpose of more general analyses.

3.2.2. Case study - Metropolitan areas of Belgrade, Sofia and Rome

The selected case study cities of Belgrade, Rome and Sofia differ considerably in terms of their geographical position and surroundings, historical and social conditions, and established political systems. Beside the observed land cover changes which were intensified in the mid-20th century, the important common feature of the three cities is the fact that they have been developing in the conditions of formally organised legal, spatial and urban planning systems, though with very different experiences regarding the implementation of planned urban development at the local administrative level. This problem is especially noticeable in the analysed period (Maksin-Mićić and Perišić, 2005; Montanari and Staniscia, 2012; RIMED Report 13, 2005; Krunić et al., 2014b).

3.2.2.1. The City of Belgrade

Similarly to other post-socialist cities, the development of the City of Belgrade commenced with the process of suburbanization, which was initiated at the end of the 1960s and intensified during the 1970s and 1980s when the construction of new settlements was planned. In parallel with this process commenced the process of deurbanization, followed by population decrease in the city centre, and increasing demographic development along with illegal/unplanned construction with low density in the peri-urban zone around the whole city (Grčić, 1993; Živanović Miljković, 2008; Spalević, 2010; Petrić and Krunić, 2013, Krunić et al., 2014b). As a result, Belgrade did not manage to maintain its compactness – from the year 2000 onwards, the dominating process had the characteristics of urban sprawl.

3.2.2.2. The City of Sofia

The main changes in the development of the City of Sofia were initiated in the 1960s with the construction of residential areas around the urban core. By 1990, the city grew up managing to keep clear and compact urban form. After the 1990s, the urban development was characterized by growth inside and outside the city boundaries (Hirt and Kovachev, 2006). The process of urban sprawl occurred spontaneously along the roads axis and periphery of the City (RIMED Report 13, 2005). The largest population increase was registered in low density suburban areas. Slaev (2012) notes that the reason for these process lies in the expansion of the housing market in the first decade of the 21st century.

3.2.2.3. The City of Rome

In the City of Rome, the first changes occurred during the intensive population growth in the period of the 1960s and 1970s, when originally compact city started to gain a more dispersed urban form. In the period of stable population growth, after the 1980s, socio-economic changes lead to urban growth which was followed with rapid sprawl and land use changes in suburban areas. Montanari and Staniscia (2012) observe that the movement of economic activities from cores towards suburbs in metropolitan areas in Rome, which took place in the 1991–2001 period, was of small scale and scattered, due to job growth and the continuing attractiveness of the city centre for many tertiary sector businesses.

3.2.3. Methodological Framework

Initially, the analysis of land use changes was based on researching the possibilities for application of the MOLAND (Monitoring Land Use / Cover Dynamics) technology for detecting, understanding and predicting the land use change process for the metropolitan areas. The MOLAND was a research project carried out at the Institute for Environment and Sustainability of the European Commission's Joint Research Centre (JRC). The aim of the MOLAND Program was to provide a spatial planning tool that can be used for assessing, monitoring and modelling the development of urban and regional environments. The most important product of this project is the developing of an urban growth model, which is used to assess the likely impact of current spatial planning and policies on future land use development. To date, this specific methodology has been applied to around forty urban areas in Europe. The MOLAND comprises three interrelated fields: 1. CHANGE (Change detection) – where land use changes are measured, and merged with socioeconomic data sets; 2. UNDERSTAND (Understanding) – where a number of environmental indicators are identified with the aim to be used for measuring the sustainability of the study area; and 3. FORECAST (Development of scenarios) – where an urban growth developing models with different scenarios are created, using dynamic models based on cellular automata concepts. This research covered the first field of MOLAD methodology – measuring land use change and population dynamics. The MOLAND develops land use classification which is based on the CORINE land cover classification (CLC), adding a forth, more detailed level for artificial and natural surfaces. Due to the lack of appropriate data sources for creating MOLAND extended land use classification, we used basic CLC data sets for this research.

3.2.4. Results

The results of the conducted analysis and respective comments about the following demographic and spatial features and processes are given: population dynamics, population density, land cover structures and land cover changes. The analysis covered the 1990–2012 period, with respective and necessary estimations

according to the statistical data about population provided by the official national statistical authorities. Regarding migration and commuting, the analysis was conducted for the City of Belgrade based on the available statistical data for the 1990–2011 period, while the data for the City of Sofia and the City of Rome were not provided.

3.2.4.1. General trends in development of metropolitan areas - Urban Morphological Zone

Urban Morphological Zone (UMZ) is defined as “a set of urban areas laying less than 200m apart” (ETCTE, 2013). Those urban areas are defined from land cover classes contributing to the urban tissue and function. The Corine Land Cover classes used to build the Urban Morphological Zone data set are the following ones:

- Core Classes (111 – Continuous urban fabric, 112 – Discontinuous urban fabric, 121 – Industrial or commercial units, 141 – Green urban areas)
- Enlarged core classes: 123 (Port areas), 124 (Airports) and 142 (Sport and leisure facilities), are also considered if they are neighbours to the core classes or to one of them touching the core classes.
- 122 (Road and rail networks) and 511 (Water courses), when neighbours to the enlarged core classes, cut by 300m buffer.
- Forests and scrub (311, 312, 313, 322, 323, 324), when they are completely within the core classes.

Although the data about the UMZ for Belgrade were not officially provided, they were reconstructed using the same UMZ methodology. The UMZ of the City of Belgrade for the observed 1990–2012 period was changed and extended by the index of 146.1 overall, the UMZ of the City of Sofia was slightly extended, by the index of 105.1, and the UMZ of the City of Rome extended by the index of 109.4 (Table 1).

Table 1. Changes of the UMZ 1990-2012

City	UMZ 1990 (km ²)	UMZ 2012 (km ²)	Change Index
Belgrade	172.9	252.6	146.1
Sofia	169.8	178.5	105.1
Rome	267.0	292.0	109.4

3.2.4.2. The City of Belgrade

Municipalities with the largest share of artificial surfaces (ratio between the total area of the municipality – TA and total artificial surfaces – AS) in the City of Belgrade in 2012 were inner-city municipalities: Vračar (1.0), Savski Venac (1.00) and Stari Grad (0.82). Contrary to this, artificial surfaces in the peripheral municipalities occupied less than 10% of the total land: Sopot (0.05), Barajevo (0.07), Palilula (0.09) and Mladenovac (0.09). During the observed period, land

cover of the City of Belgrade slightly changed in favour of artificial surfaces. The CLC land cover changed in the general process of transition from “natural” land cover to artificial surfaces.

In total, artificial surfaces covered about 22% more in 2012 than in 1990, at the expense of agricultural areas which decreased by 4%. In terms of the dynamics of land occupancy (“antropogenisation”)⁹, considerable changes took place in general, and particularly in the following municipalities: Barajevo (250.3), Palilula (170.6), Lazarevac (149.7), Zemun (143.5), Rakovica (130.1) and Voždovac (130.0). A minor occurrence of “deantropogenisation” was detected in the municipality of Čukarica (98.1) (Table 2, Figure 1 and Figure 2).

Table 2. City of Belgrade – population development and spatial changes

	Municipality	Population Change Index 2011/1991	1990		2012*	
			Population Density (inh/ha)	Artificial/Total Area Ratio	Populat. Density (inh/ha)	Artificial/Total Area Ratio
1	Barajevo	125.2	35	0.03	18	0.07
2	Voždovac	98.0	62	0.18	47	0.23
3	Vračar	80.8	241	1.00	195	1.00
4	Grocka	120.8	22	0.11	25	0.12
5	Zvezdara	108.1	95	0.47	92	0.53
6	Zemun	115.1	47	0.21	38	0.30
7	Lazarevac	99.6	20	0.08	13	0.12
8	Mladenovac	94.2	25	0.07	18	0.09
9	Novi Beograd	95.6	94	0.59	80	0.66
10	Obrenovac	103.3	17	0.10	18	0.10
11	Palilula	110.8	63	0.06	41	0.09
12	Rakovica	111.1	76	0.43	65	0.55
13	Savski Venac	82.0	34	1.00	28	1.00
14	Sopot	99.2	16	0.05	15	0.05
15	Stari Grad	68.4	159	0.82	109	0.82
16	Surčin	123.0	13	0.10	13	0.12
17	Čukarica	117.2	35	0.28	41	0.28
	Mean	103.1	62	0.33	50	0.36

**Based on demographic datasets for the year 2011.*

⁹ Dynamics of land occupancy (“antropogenisation”) represent a change of artificial surfaces in the observed period.

The population of the **City of Belgrade** increased moderately in the analysed period (Table 2). The most significant rise in population size (measured by 1991–2011 change ratio) was recorded predominantly in peripheral municipalities: Barajevo (125.2), Surčin (123.0), Grocka (120.8) and Čukarica (117.2). Contrary to this demographic trend, a significant decrease (“depopulation”) was recorded in three inner-city municipalities (Stari Grad – 68.4, Vračar – 80.8 and Savski Venac – 82.0), as well as in the peripheral municipality of Mladenovac (94.2).

According to the available digital data on soil imperviousness (**Soil sealing**) in 2012, around 22% of the City of Belgrade was covered with a certain degree of soil sealing (Table 3). This data represents free open access database available via Internet, which indicates the sealed surfaces due to anthropogenic impact, (Burghardt, 2006). As such, they directly reflect the percentage of built-up land given in the scale from 0 to 100 (Figure 5.). Its main use is the characterization of the human impact on the environment. The database is developed by the European Environment Agency (EEA) and is available in two spatial resolutions of 20 m and 100 m, respectively. The database with the resolution of 100 m was selected for the purpose of this research.

However, compared to the same data from 2006, an increase in the total area covered by impermeable anthropogenic materials can be noted, which is measured by the total number of pixels that have a certain value of soil sealing degree (SSD). On the other hand, an increase (21%) in soil sealing values within the existing pixels indicates the increase in built-up density. The main changes in the soil coverage with impermeable materials in the observed period were noted in municipalities Palilula, Zemun and Barajevo.

Regarding the population density of the City of Belgrade in the year 2012, here measured by the ratio between the total population and total artificial surfaces area (inhabitants/ha), the most populated were inner-city municipalities Vračar (195) and Stari Grad (109), whereas the lowest densities were observed in the peripheral municipalities: Surčin (13), Lazarevac (13), Sopot (15), Barajevo (18) Obrenovac (18) and Mladenovac (18). During the observed period and in relation to land cover changes (1990–2012), population density considerably increased in the municipalities of Čukarica (index 119.5), Grocka (114.8), Obrenovac (103.0) and Surčin (101.3). Contrary to this, a substantial drop in population density was observed in most municipalities where high “antropogenisation” was detected: Barajevo (50.0), Palilula (65.0), Lazarevac (66.5), Mladenovac (74.2) and Voždovac (75.4). It is important to note that population density also decreased in the inner-city municipalities of Stari Grad (68.6) and Vračar (80.8), without land cover change, thus indicating “depopulation”. (Table 2, Figure 3).

Table 3. City of Belgrade-spatial Distribution of SSD values

	Municipality	SSD pixels ratio 2006-2012 (Change Index)	2006		2012	
			Sum SSD values	Mean SSD values	Sum SSD values	Mean SSD value
1	Barajevo	106.0	41235	11.8	51208	13.8
2	Voždovac	102.7	125130	29.2	136113	30.9
3	Vračar	100.0	24338	84.2	24724	85.6
4	Grocka	99.3	140933	20.8	136276	20.2
5	Zvezdara	99.8	83017	45.7	87316	48.2
6	Zemun	108.8	209247	43.4	320146	61.1
7	Lazarevac	84.1	334193	32.0	269998	30.8
8	Mladenovac	101.5	117729	20.5	107192	18.4
9	Novi Beograd	101.7	152114	55.9	173117	62.5
10	Obrenovac	105.5	132127	18.6	158799	21.2
11	Palilula	119.5	209717	34.8	512792	71.1
12	Rakovica	99.7	53829	35.2	56435	37.0
13	Savski Venac	99.9	70797	54.7	71398	55.2
14	Sopot	103.2	50523	12.6	51792	12.6
15	Stari Grad	100.4	36012	79.3	36664	80.4
16	Surčin	104.9	129220	31.1	143066	32.9
17	Čukarica	104.1	155094	32.3	173724	34.7
	<i>ΣMean</i>	<i>101.8</i>	<i>2065255</i>	<i>37.8</i>	<i>2510760</i>	<i>42.15</i>

The share of migrants in total population slightly increased in the observed period (106.6). In 2011, the most intensive migration processes occurred in the peripheral municipalities Grocka, Barajevo, Palilula, Surčin, where more than 55% of total population was migrant population. In the structure of migrants the majority of migrants were from other regions (51%) with the biggest share in the municipalities of Rakovica (63%), Zvezdara (62%), Vračar (60%), and Stari Grad (58%). Migrants from other countries participate significantly in the total structure of migrants, with the largest share in the following municipalities: Zemun (44%), Novi Beograd (39%) and Savski Venac (34%) (Table 4).

Table 4. Structure of migrants 1990 and 2011 (%)

	Municipality	Migration change index 1991-2011	1991			2011			
			Same municipality	Other municipality	Other country	Same municipality	Other municipality	Other region	Other country
1	Barajevo	138.0	17.0	66.1	17.0	7.8	48.4	24.3	17.2
2	Voždovac	104.3	1.3	53.3	45.4	1.7	9.1	57.5	28.6
3	Vračar	94.3	0.0	49.1	50.9	0.0	4.6	60.2	29.7
4	Grocka	120.2	11.1	66.7	22.2	7.8	35.2	38.9	16.1
5	Zvezdara	104.9	0.0	54.7	45.3	0.0	6.5	62.3	28.2
6	Zemun	105.8	2.0	35.3	62.6	0.8	4.8	48.2	43.5
7	Lazarevac	94.2	43.5	37.9	18.6	24.0	11.8	47.4	14.6
8	Mladenovac	94.1	34.0	47.1	18.9	13.3	17.0	51.4	15.0
9	Novi Beograd	97.8	0.0	41.7	58.3	0.0	4.0	53.6	38.8
10	Obrenovac	111.0	28.3	50.6	21.0	22.3	22.1	36.7	16.7
11	Palilula	110.1	4.5	51.0	44.5	8.6	14.5	49.6	25.0
12	Rakovica	98.2	0.0	54.5	45.5	0.0	6.7	62.6	28.3
13	Savski Venac	98.3	0.0	45.2	54.8	0.0	4.3	55.3	33.7
14	Sopot	124.9	34.0	52.4	13.6	19.8	39.2	24.6	14.3
15	Stari Grad	96.5	0.0	46.3	53.7	0.0	4.4	58.4	31.5
16	Surčin	114.3	21.6	40.4	38.0	6.5	28.9	33.1	28.9
17	Čukarica	104.5	5.9	54.3	39.8	3.8	12.9	52.1	28.3

Daily urban systems have an important role in determining size and influence of the urban centre on surrounding areas. Daily urban systems consist of the city and its surroundings between which exists an interaction manifested in labour migration and residents who commute to satisfy their need for social, economic and cultural character (Tošić et al., 2009). In the development of daily urban systems labour mobility represent an important indicator of spatial and functional dependencies of the centre and the periphery.

Daily urban systems are specific, dynamic, diversified and unique forms of connections and relationships between urban settlements and regional or local environment, arising from the specific geographic, demographic, social and economic conditions (Krunić, 2012). Their development is correlated with the increased mobility of the population and the orientation of labour to live outside the urban core (Van der Laan, et al; 1998).

Regarding daily migration, in the observed period commuting increased in almost all municipalities, with the total increase index of 117.8. The highest increase of commuters was in the following municipalities: Zvezdara (210.1-Index), Novi Beograd (169.5) and Palilula (130.3), while in the municipalities of Zemun (44) and Lazarevac (98.4) there was a decrease in commuting. In 2011, the majority of commuters were employed in other municipalities, which is not very noticeable in

the peripheral municipalities of Surčin (79%), Barajevo (77%), Grocka (74%), and Čukarica (72%) (Table 5, Figure 4).

Table 5. Commuters 1991-2011 (%)

	Municipality	Commuting 1991-2011 (Change Index)	1991			2011		
			Same muni- cipality	Other muni- cipality	Other region	Same muni- cipality	Other muni- cipality	Other region
1	Barajevo	114.9	17.8	81.6	0.4	21.6	77.4	1.0
2	Voždovac	115.4	14.2	77.5	7.4	18.9	67.3	13.3
3	Vračar	116.1	0.9	57.4	37.6	0.0	47.5	48.9
4	Grocka	114.7	9.7	88.7	0.6	24.0	74.4	1.6
5	Zvezdara	210.7	3.0	57.6	32.2	0.0	55.5	42.6
6	Zemun	44.4	33.9	60.2	4.5	20.5	52.4	26.4
7	Lazarevac	98.4	91.3	7.9	0.1	87.4	8.2	4.4
8	Mladenovac	112.6	66.8	32.3	0.4	50.3	46.1	3.5
9	Novi Beograd	169.6	1.5	50.4	37.5	0.0	59.2	39.0
10	Obrenovac	111.1	49.7	49.3	0.5	50.7	47.1	2.1
11	Palilula	130.4	39.8	54.4	4.2	30.2	62.7	6.8
12	Rakovica	106.9	4.2	75.6	17.1	0.0	60.5	37.4
13	Savski Venac	115.4	1.2	58.0	37.1	0.0	44.6	52.1
14	Sopot	112.4	19.9	79.2	0.4	31.0	68.1	0.9
15	Stari Grad	101.4	3.6	53.2	39.2	0.0	46.2	51.4
16	Surčin*		0.0	0.0	0.0	18.7	79.3	2.0
17	Čukarica	110.3	21.7	73.7	3.6	19.2	72.5	7.9

* The municipality of Surčin was formed in 2004, while it previously administratively belonged to the municipality of Zemun. Statistical data on commuting were not available for 1991.



Legend

-  CITY OF BELGRADE
-  CLC - artificial surfaces - 1990
-  CLC - artificial surfaces - 2000
-  CLC - artificial surfaces - 2006
-  CLC - artificial surfaces - 2012

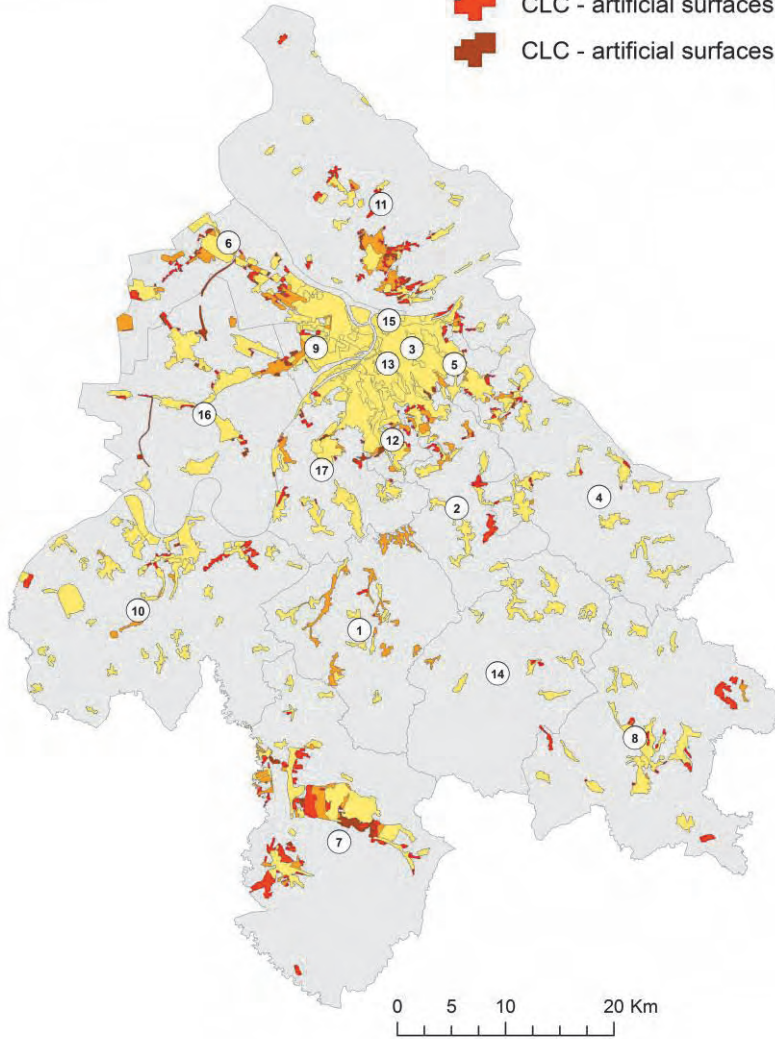


Figure 1. City of Belgrade – Artificial surfaces and land cover change (1990–2012)



Legend

- Artificial area 2012
- Change in artificial area 1990-2012
- < 100.1 (98.1)
- 100.1 - 125.0
- 125.1- 150.0
- 150.1 - 175.0
- > 175.1 (250.3)

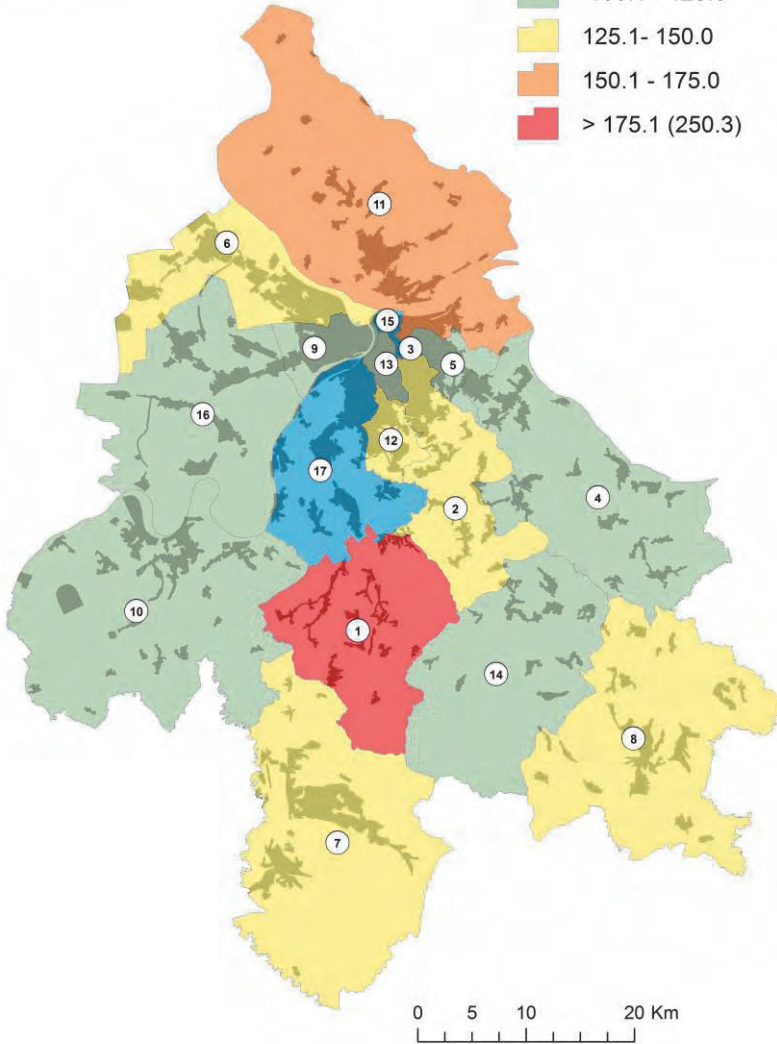








Figure 2. City of Belgrade – Dynamics of land occupancy (“antropogenization”) 1990-2012



Legend

-  Artificial area 2012
- Density change 1991-2011
 -  < 60.0 (50.0)
 -  60.1 - 80.0
 -  80.1 - 100.0
 -  100.1 - 110.0
 -  > 110.1 (119.5)

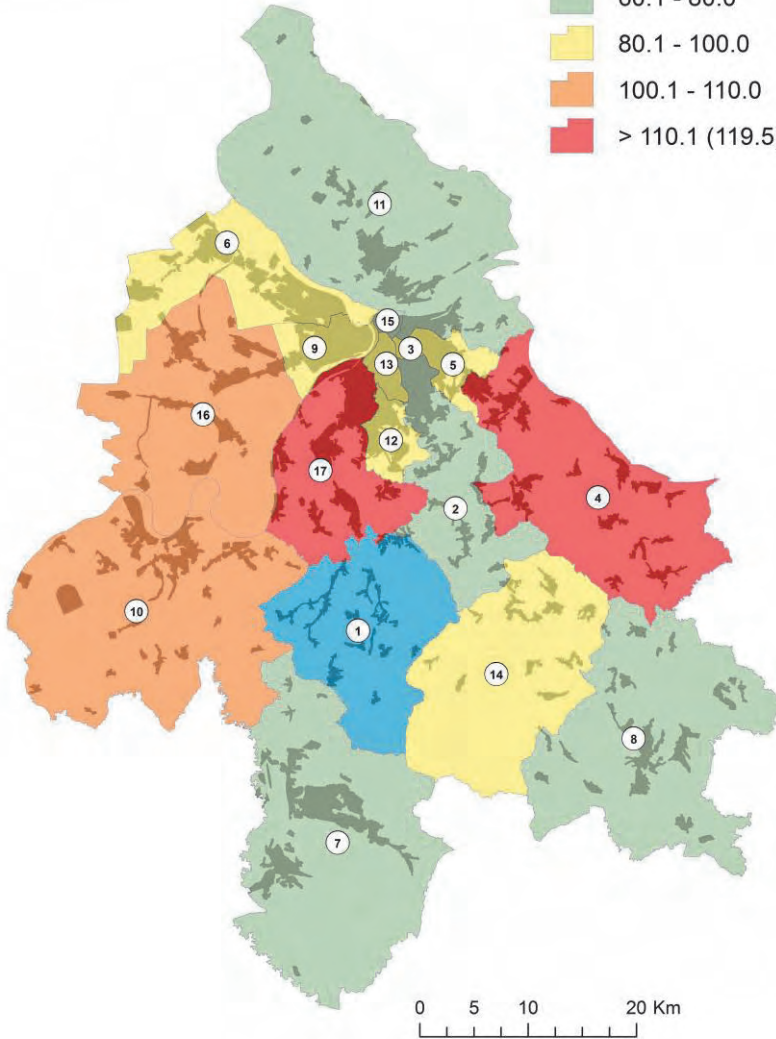


Figure 3. City of Belgrade – Population density changes within administrative units (1990–2012)



Legend

- Urban area 2012
- Commuting 1991-2011
- 44,4
- < 75,0
- 75,1 - 100,0
- 100,1 - 125,0
- > 125,1 (210,7)

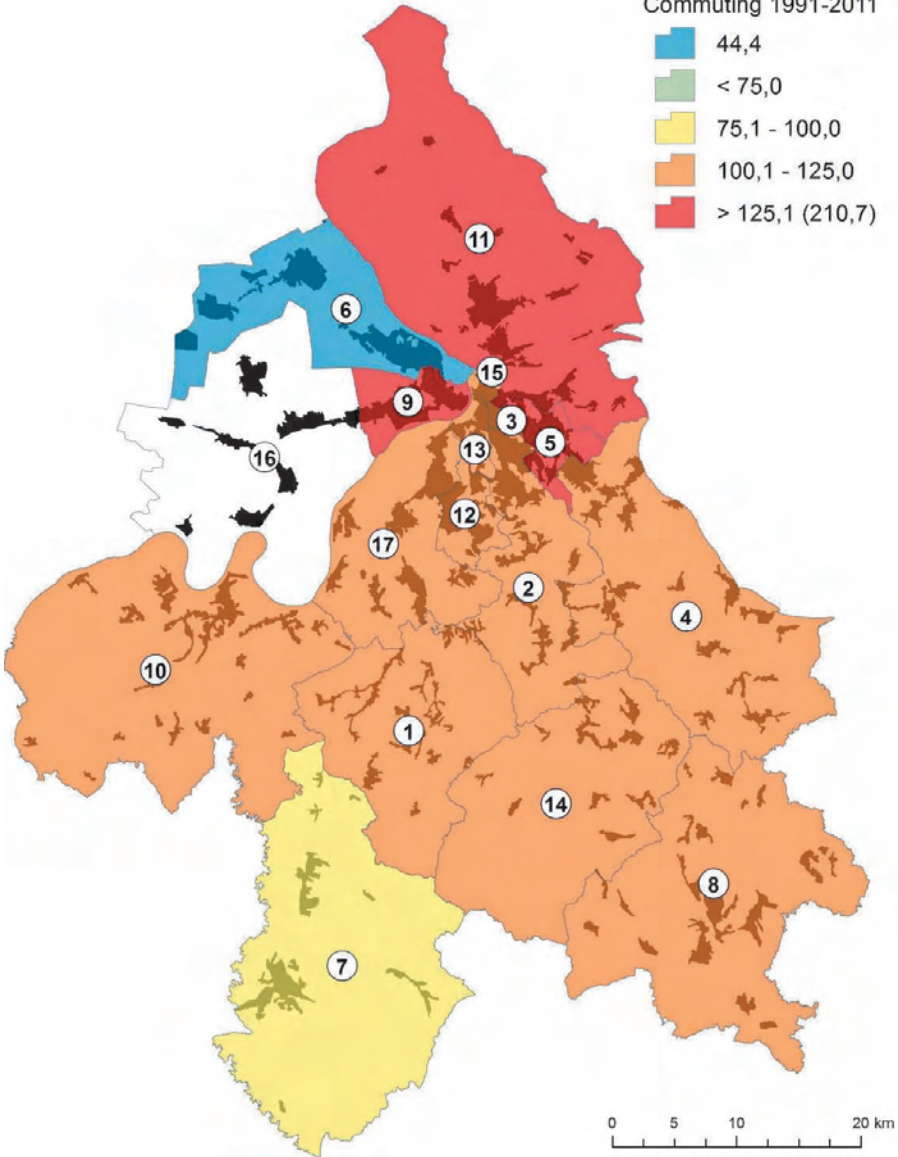


Figure 4. City of Belgrade – Commuting 1991 - 2011

3.2.4.3. The City of Sofia

Municipalities with the largest share of artificial surfaces in the **City of Sofia** in 2012 were inner-city municipalities of Oborishte, Krasno selo, Sredets, Vazrazhdane, Izgrev, Ilinden, Poduyane, and Slatina with artificial surfaces coverage up to 92–100%. Contrary to this, artificial surfaces in peripheral municipalities occupied less than 20% of the total land: Pancharevo, Novi Iskar, Kremikovtsi and Bankya. Regarding the land cover of the City of Sofia, there was a minor change in favour of artificial surfaces. Artificial surfaces accounted for about 1/5 of the total area in 2012.

Table 6. City of Sofia – population development and spatial changes

	Municipality	Population Change Index 1992/2011	1990		2012	
			Population Density (inh/ha)	Artificial/Total Area Ratio	Population Density (inh/ha)	Artificial/Total Area Ratio
1	Sredets	78.9	136	1.00	107	1.00
2	Vazrazhdane	92.4	138	1.00	128	1.00
3	Oborishte	88.6	132	1.00	117	1.00
4	Ilinden	94.7	104	1.00	99	1.00
5	Serdika	103.7	33	0.73	35	0.71
6	Poduyane	145.2	53	0.94	76	0.94
7	Slatina	117.9	45	0.91	51	0.93
8	Izgrev	101.2	73	1.00	73	1.00
9	Lozenets	138.5	54	0.77	64	0.90
10	Triaditsa	104.8	80	0.82	78	0.88
11	Krasno selo	108.3	128	1.00	138	1.00
12	Krasna Polyana	100.2	87	0.68	85	0.70
13	Nadezda	95.9	73	0.46	69	0.47
14	Iskar	97.8	45	0.56	44	0.57
15	Mladost	100.8	80	0.75	80	0.76
16	Studentski	150.4	80	0.65	113	0.69
17	Lyulin	100.5	126	0.43	117	0.47
18	Vitosha	159.7	18	0.18	24	0.21
19	Ovcha Kupel	147.0	38	0.24	44	0.29
20	Bankya	147.5	9	0.17	11	0.19
21	Pancharevo	124.0	12	0.05	14	0.05
22	Vrabnitsa	120.6	36	0.25	39	0.28
23	Novi Iskar	99.1	12	0.11	12	0.11
24	Kremikovtsi	54.1	10	0.16	6	0.14
	Mean	111.3	67	0.62	68	0.63

The CLC land cover changed in the general process of transition from “natural” land cover to artificial surfaces. In total, artificial surfaces coverage in 2012 was only about 0.1% higher than in 1990, at the expense of agricultural areas which, in total, decreased by 1%. With respect to the dynamics of “antropogenisation”, considerable changes occurred in general, but principally in the municipalities of the outer-city and periphery: Ovcha Kupel (by the 125.1 index), Vitosha (118.4) Lozenets (116.2), Bankya (115.7), and Vrabnitsa (110.9). A relatively modest rate of “deantropogenisation” was noticed in the municipality of Kremikovtsi (87.4), Novi Iskar (97.9) and Serdika (98.0) due to land recultivation, where previously exploited mine areas were reduced in favour of agricultural, forest and semi-natural areas (Table 6, Figure 5 and Figure 6).

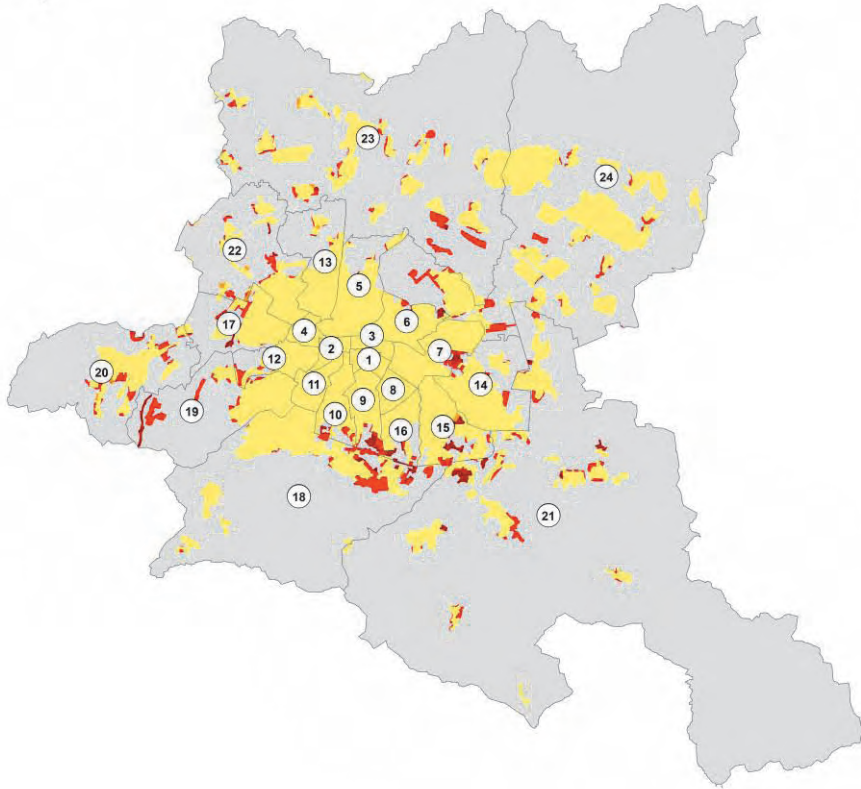
Similarly to the City of Belgrade, a moderate rise in the population of the **City of Sofia** was noted. The population size most significantly rose in some central municipalities (e.g. Poduyane – 145.2), but mostly in southern peripheral municipalities: Vitosha (159.7), Studentski (150.4), Bankya (147.5) and Ovcha Kupel (147.0) As opposed to this trend, some inner-city municipalities (e.g. Sredets – 78.9, Oborishte – 88.6 and Vazrazhdane – 92.4) went through a substantial “depopulation”, as well as north-eastern peripheral municipality of Kremikovtsi (54.1) (Table 6).

According to the data from 2012, only about 25% of the City of Sofia suffered a certain degree of sealing by anthropogenic impervious materials (Table 7). Compared to 2006 an increase of 26% in the total sum of SSD values can be noted. The increased number of pixels with the SSD values indicates the expansion of surfaces covered by anthropogenic materials with the highest index of change in municipalities Vitosha and Pancharevo.

The highest density in the **City of Sofia** in 2012 was present in some inner-city and outer-city municipalities (Krasno selo – 138, Vazrazhdane – 128 and Oborishte – 117). Extremely low densities were observed in the peripheral municipalities: Kremikovtsi (6), Bankya (11), Novi Iskar (12) and Pancharevo (14). Consequently, during the observed period and related to land cover changes, the population density noticeably increased in the municipalities of the outer-city and periphery: Poduyane (144.2), Studentski (141.2), Vitosha (134.9), Bankya (127.5), Lozenets (119.3), Ovcha Kupel (117.5). Quite the opposite trend, i.e. a significant decline in population density, was present in the majority of municipalities, particularly in Kremikovtsi (61.9) and Vazrazhdane (94), and also in the inner-city municipalities of Sredets (72) and Oborishte (86), without land cover change, thus indicating “depopulation”. (Table 6, Figure 7).

Table 7. City of Sofia-spatial Distribution of SSD values

	Municipality	SSD pixels ratio 2006-2012 (Change Index)	2006		2012	
			Sum SSD values	Mean SSD values	Sum SSD values	Mean SSD value
1	Sredets	100.4	19986	73.5	19827	72.6
2	Vazrazhdane	100.0	25219	87.6	25094	87.1
3	Oborishte	100.8	22474	85.1	21667	81.5
4	Ilinden	100.3	21632	70.7	21250	69.2
5	Serdika	101.4	90997	68.2	94348	69.7
6	Poduyane	100.6	68625	67.8	76162	74.8
7	Slatina	95.8	75230	63.4	78889	69.4
8	Izgreve	100.0	20856	64.4	20714	63.9
9	Lozenets	102.5	47009	65.1	47974	64.8
10	Triaditsa	102.2	44895	60.3	48350	63.5
11	Krasno selo	100.0	46724	77.2	47102	77.9
12	Krasna Polyana	102.2	35841	59.6	38477	62.7
13	Nadezda	100.5	67044	62.2	72097	66.6
14	Iskar	96.2	79320	57.4	86932	65.5
15	Mladost	98.7	87683	62.2	94752	68.2
16	Studentski	102.2	36911	57.0	40819	61.7
17	Lyulin	103.9	64478	53.8	79133	63.6
18	Vitosha	142.8	129135	44.8	422444	102.7
19	Ovcha Kupel	107.6	63369	45.8	75379	50.7
20	Bankya	104.0	37704	33.7	40110	34.5
21	Pancharevo	109.4	121164	36.3	186895	51.2
22	Vrabnitsa	103.7	69268	43.9	83848	51.3
23	Novi Iskar	100.2	112917	34.9	116504	35.9
24	Kremikovtsi	92.0	213180	48.0	189188	46.4
	<i>ΣMean</i>	<i>104.5</i>	<i>1601661</i>	<i>59.3</i>	<i>2027955</i>	<i>64.8</i>



Legend

-  CITY OF SOFIA
-  CLC- artificial surfaces - 1990
-  CLC - artificial surfaces - 2000
-  CLC - artificial surfaces - 2006
-  CLC - artificial surfaces - 2012

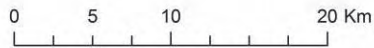
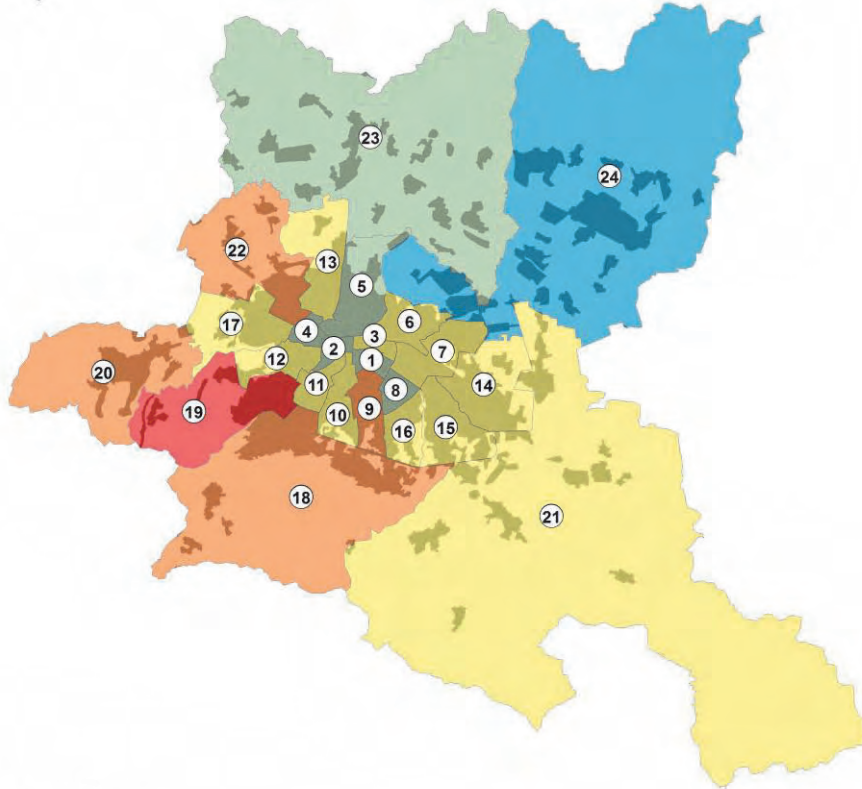


Figure 5. City of Sofia – Artificial surfaces and land cover change (1990–2012)



Legend



Artificial area 2012

Change in artificial area 1990-2012



< 90.0 (87.4)



90.1 - 100.0



100.1 - 110.0



110.1 - 120.0



> 120.1 (125.1)

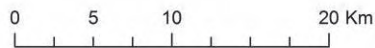
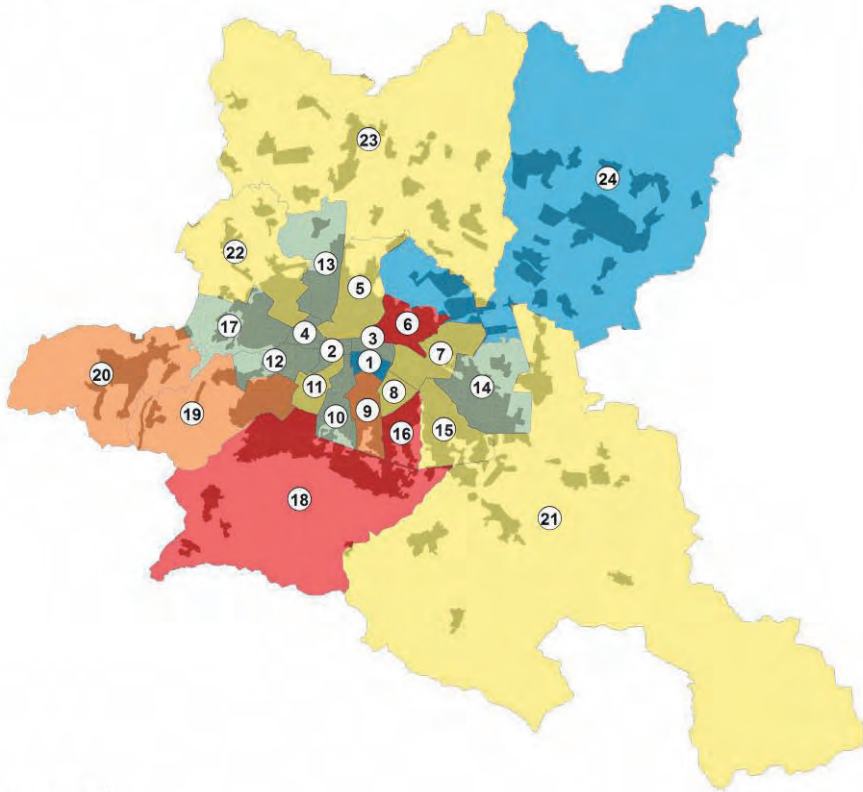


Figure 6. City of Sofia – Dynamics of land occupancy (“antropogenization”) 1990-2012



Legend

- Artificial area 2012
- Density change 1991-2011
- < 85.0 (61.9)
- 85.1 - 100.0
- 100.1 - 115.0
- 115.1 - 130.0
- > 130.1 (144.2)

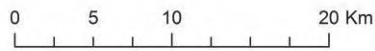


Figure 7. City of Sofia – Population density changes within administrative units (1990–2012)

3.2.4.4. The City of Rome

The data about land cover in 2012 for the **City of Rome** show that the inner-city municipalities I (0.98), II (0.98), V (0.72) and VII (0.69) had the greatest share of artificial surfaces. In contrast, less than 30% of the total land in peripheral municipalities was occupied by artificial surfaces: XIV (0.16), XV (0.21), IX (0.24), III (0.26), XIII (0.27) and X (0.29). Land cover of the City of Rome slightly changed in favour of artificial surfaces. In 2012 artificial surfaces covered around 1/3 of the total area. Similarly to Belgrade, the CLC land cover changed in the general process of transition from “natural” land cover to artificial surfaces. In total, artificial surfaces covered about 10% more in 2012 than in 1990, while agricultural areas decreased around 4%. In terms of the “antropogenisation”, there were substantial changes in almost all municipalities, particularly in municipalities VI (by the index 134.6), IV (118.9), IX (117.7) and XIII (115.6). A certain “deantropogenisation” was noticed in the municipality VIII (97.3) (Table 8, Figure 8 and Figure 9).

Table 8. City of Rome – population development and spatial changes

	Municipality	Population Change Index 2011/1991	1990		2012	
			Population Density(inh/ha)	Artificial/Total Area Ratio	Population Density (inh/ha)	Artificial/Total Area Ratio
1	I (Historical Center-Prati)	93.0	109	0.98	101	0.98
2	II(Parioli/Nomentano-San Lorenzo)	89.6	102	0.98	91	0.98
3	III (Monte Sacro)	95.0	96	0.23	80	0.26
4	IV (Tiburtina)	97.2	81	0.46	67	0.54
5	V (Prenestino/Centocelle)	88.7	153	0.67	127	0.72
6	VI (Delle Torri)	132.3	65	0.25	64	0.34
7	VII (San Giovanni/Cinecittà)	93.6	118	0.62	99	0.69
8	VIII (Appia Antica)	93.1	85	0.36	81	0.35
9	IX (Eur)	124.4	37	0.21	40	0.24
10	X (Ostia)	127.8	45	0.26	52	0.29
11	XI (Arvalia Portuense)	94.3	71	0.32	61	0.35
12	XII (Monte Verde)	90.4	71	0.31	62	0.31
13	XIII (Aurelia)	101.2	86	0.23	75	0.27
14	XIV (Monte Mario)	103.2	97	0.14	89	0.16
15	XV (Cassia Flaminia)	112.3	40	0.19	40	0.21
	Mean	101.7	84	0.41	75	0.45

The population of the **City of Rome** suffered a mild decline in the observed period. The most significant growth in population size was recorded primarily in some peripheral municipalities¹⁰: VI (132.3), X (127.8) and IX (124.4). The opposite demographic trend, i.e. considerable “depopulation”, was recorded in all inner-city municipalities, especially in municipalities V (88.7), II (89.6), XII (90.4) and municipality I (93.0) (Table 8).

In 2012 about 43% of the City of Rome was to a certain extent sealed by anthropogenic impervious materials (Table 9). Compared to 2006, there is an increase in the total number of pixels in each municipality, followed by slight enhancement of the SSD values, which indicates the spread of artificial surfaces. The major change in the number of pixels and SSD values in the observed period was present in municipalities VII, V and XV.

Table 9. City of Rome-spatial Distribution of SSD values

	Municipality	SSD pixels ratio 2006-2012 (Change Index)	2006		2012	
			Sum SSD values	Mean SSD values	Sum SSD values	Mean SSD value
1	I (Historical Center-Prati)	103.0	117690	64.5	132578	70.3
2	II (Parioli/Nomentano-San Lorenzo)	104.2	105298	63.9	112993	65.9
3	III (Monte Sacro)	101.2	152191	41.5	157740	42.5
4	IV (Tiburtina)	103.0	173753	52.6	185064	54.4
5	V (Prenestino/Centocelle)	106.1	145834	67.5	160578	70.1
6	VI (Delle Torri)	102.3	288178	50.0	307424	52.2
7	VII (San Giovanni/Cinecittà)	106.3	201865	58.8	226070	61.9
8	VIII (Appia Antica)	103.7	93672	44.4	100500	45.9
9	IX (Eur)	101.7	261183	38.2	273914	39.3
10	X (Ostia)	103.5	240853	45.2	255947	46.4
11	XI (Arvalia Portuense)	100.7	161639	46.8	167939	48.2
12	XII (Monte Verde)	104.2	113558	46.3	122307	47.8
13	XIII (Aurelia)	103.3	112315	43.4	118501	44.3
14	XIV (Monte Mario)	103.5	142161	38.4	152021	39.7
15	XV (Cassia Flaminia)	104.0	174684	31.3	185746	32.0
	Σ / Mean	103.1	2484874	48.8	2659322	50.7

¹⁰ The new administrative division of the City of Rome, which was adopted in 2013, was used in this research. In accordance with this division, the number of municipalities which belong to the administrative area of the City of Rome has been reduced from the previous 19 to the present 15 municipalities.

In 2012 the highest population density in the **City of Rome** was registered in the inner-city municipalities V (127), I (101) and VII (99), while the least populated were peripheral municipalities IX (40), XV (40) and X (52). Related to land cover changes, population density increased in the following municipalities: X (by the 116.0 index), IX (105.6), XV (100.1).

On the other hand, most municipalities with high “antropogenisation” experienced a considerable fall in population density: IV (81.7), V (82.6), III (83.6), VIII (84.0) and XI (85.9). In addition, population density also decreased in the inner-city municipalities I and II, without land cover change, which indicates “depopulation” (Table 8, Figure 10).

3.2.5. Brief discussion and concluding remarks

As already elaborated (Krunić et al. 2014b), it is hard to detect relationship between the expansion of soil sealing in periphery of the metropolitan areas and differences with regard to the natural surroundings, historical, social and economic development of the cities. Simply, different factors caused similar trends in land cover structure and population dynamics in the case study cities.

Occupation and sealing of productive soil in peri-urban zones was not proportional to the population dynamics of the cities. Population of the **City of Belgrade** increased moderately, in total, by the index of 105.3. The most significant increase in population size was recorded predominantly in peripheral municipalities, while a significant decrease was observed in inner-city municipalities. The population of the **City of Rome** slightly increased in total, by the index of 101.1. Again, the most significant increase in population size was noted primarily in some peripheral municipalities. In contrast to this demographic trend, all inner-city municipalities suffered a significant “depopulation”. The population of the **City of Sofia** also increased moderately in total, by the index of 108.5. The population size most notably rose in some central municipalities, whereas some inner-city municipalities, as well as the north-eastern peripheral municipality, experienced “depopulation” to a considerable extent.

There were also differences in the dynamics of spatial changes. Namely, while the UMZ of Belgrade extended for about 70km², the UMZ of Rome and Sofia extended for about 25km² and 9km² respectively. It is interesting to note that spatial dynamics of the UMZ or respective artificial surfaces have accelerated after the year 2000 in the cases of all three cities. The development of the UMZ of all three cities was a dynamical process which differed throughout the observed period. There was an obvious correlation between the sealing degree and the intensity of human activity.

Land cover pattern also changed, concurrently with the UMZ development and dynamics. Artificial surfaces development corresponded with the UMZ changes and dynamics. In all three cases, artificial surfaces were mainly developed at the expense of agricultural areas. By using the CLC land cover classification it was not possible to track changes inside artificial surfaces, i.e. in the cities’ urban tissues.

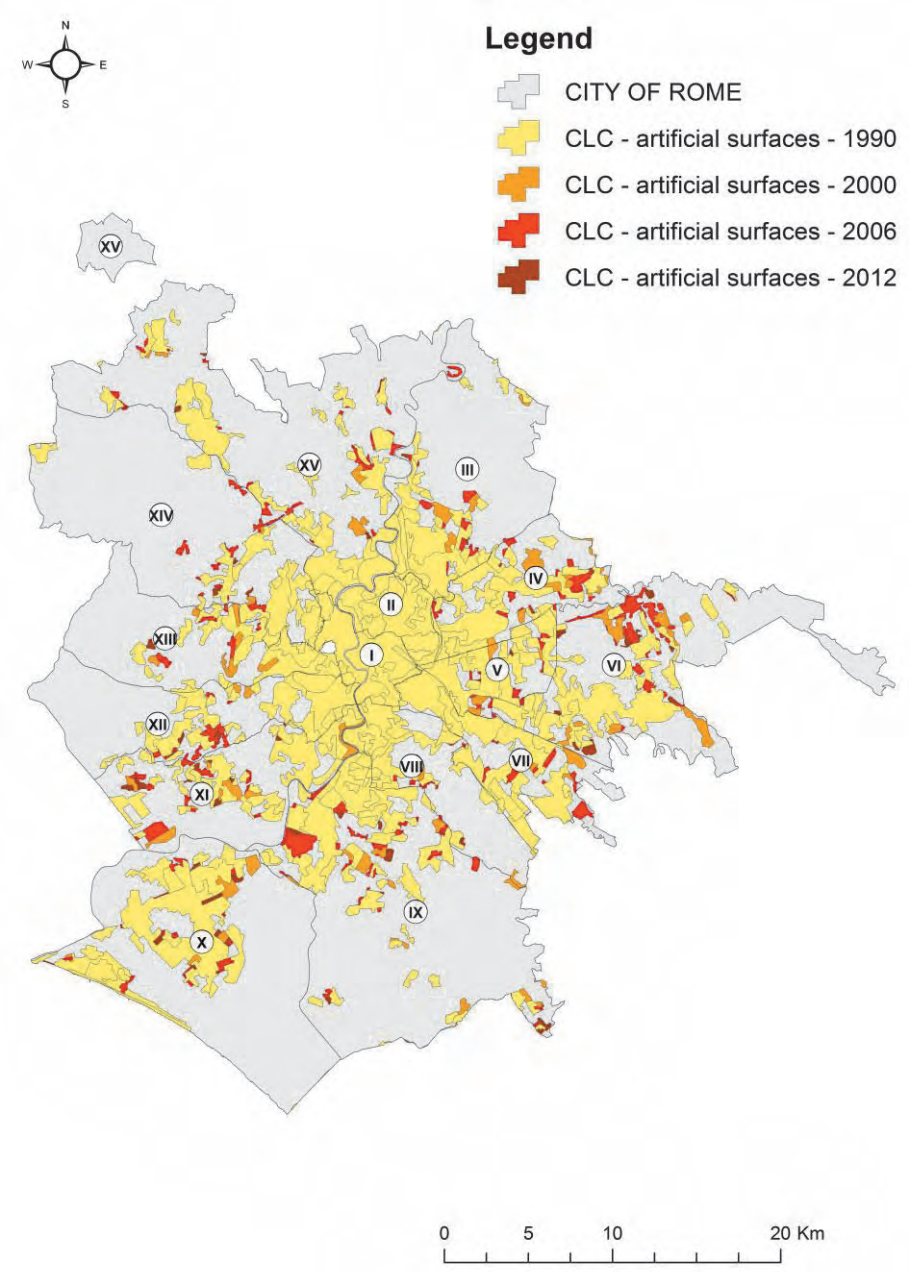


Figure 8. City of Rome – Artificial surfaces and land cover change (1990–2006)

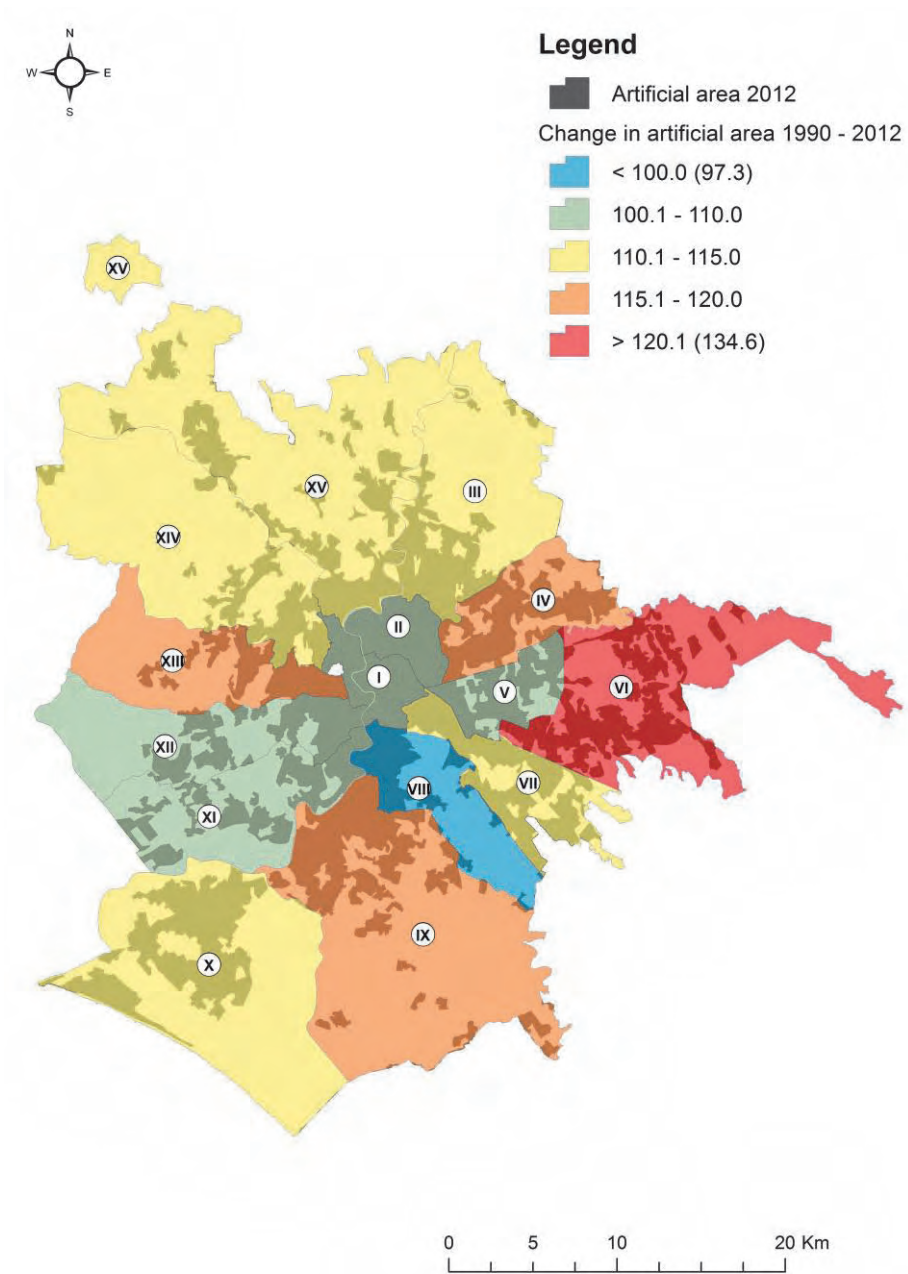


Figure 9. City of Rome – Dynamics of land occupancy (“antropogenization”) 1990-2012

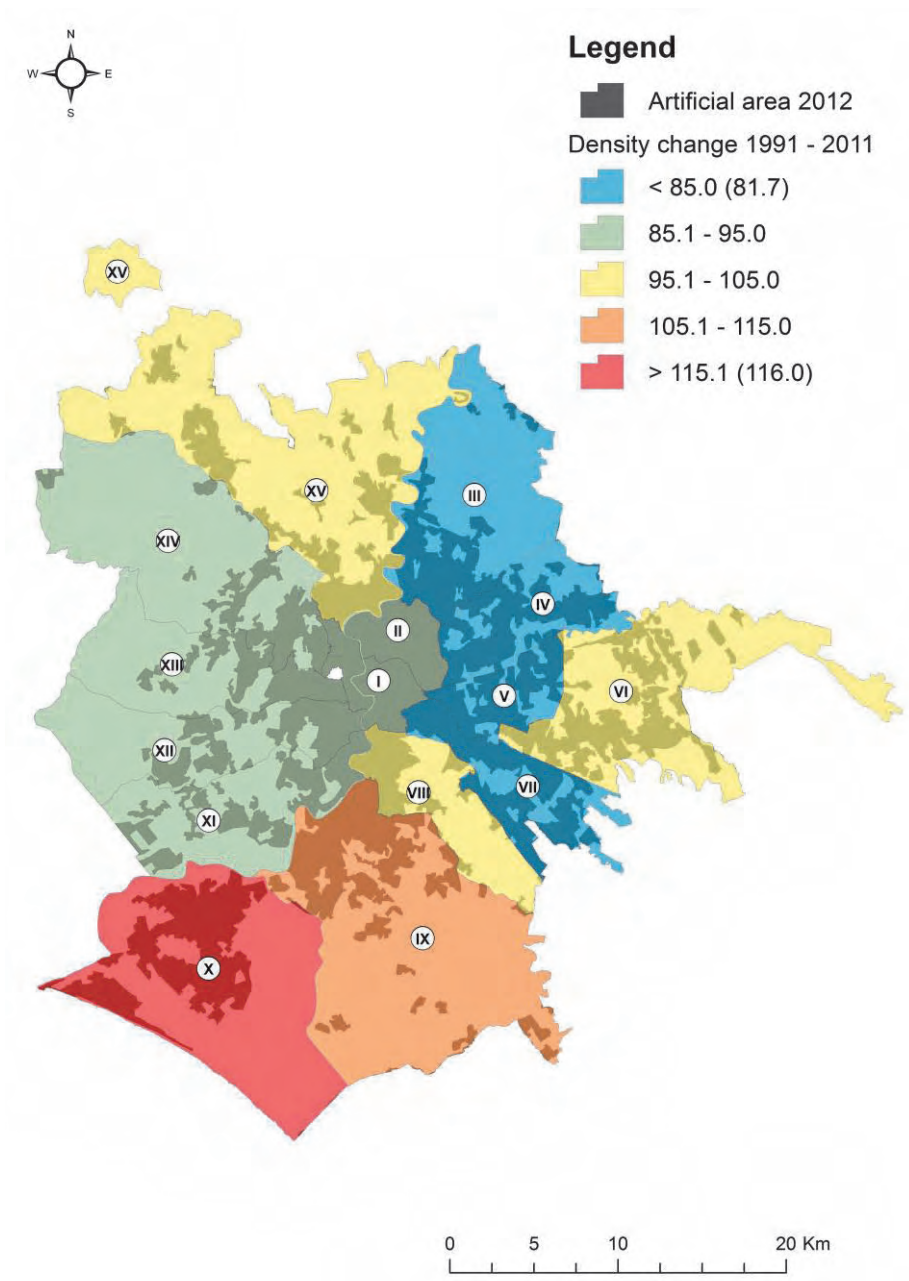


Figure 10. City of Rome – Population density changes within administrative units (1990–2012)

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T U R A S

TRANSITIONING TOWARDS URBAN
RESILIENCE AND SUSTAINABILITY

4.

MARKET ANALYSIS – LAND MARKET, DEMAND AND SUPPLY OF LAND AND PROPERTIES, HOUSING POLICY

4.1. Spatial regularization, planning instruments and urban land market in a post-socialist society: the case of Belgrade
Slavka Zeković, Miodrag Vujošević and Tamara Maričić

4.2. Market analysis of housing in Belgrade
Slavka Zeković, Miodrag Vujošević and Tamara Maričić

4.3. Transformation of housing policy in post-socialist city: the example of Belgrade
Slavka Zeković, Tamara Maričić and Marija Cvetinović



T U R A S

TRANSITIONING TOWARDS URBAN
RESILIENCE AND SUSTAINABILITY

4.1. Spatial regularization, planning instruments and urban land market in a post-socialist society: the case of Belgrade

Slavka Zeković, Miodrag Vujošević and Tamara Maričić, *9th Annual Conference of the International Academic Association for Planning Law and Property Rights*, University of Thessaly, Volos, Greece, 25-27 February 2015, pp. 162-163.

This contribution presents an abstract of the paper that was originally presented at the international conference of the International Academic Association for Planning Law and Property Rights, and published in the book of abstracts.

Abstract

Over the last three decades, Serbia has moved from a mixed centrally planned – deliberative – self-governing economy to a market-based economy, but the key institutional reforms are still not completed. Based on the contextual framework of post-socialist countries and theoretical background, the paper focuses on interaction between spatial regularization and existing planning instruments *versus* urban land market and land-use policy, and their impact on urban expansion in Belgrade metropolitan area (BMA). The intention is to clarify the implications of urban land use policies and their (im)balance with planning instruments and land market. Contextual framework of post-socialist Serbia, transformation of its urban land policy as well as the land development management in BMA illustrate complexities of spatial regularization, further emphasized by the delay of new urban land policy.

In the research conducted for TURAS project, we have found that the market-led processes of suburbanisation in the Belgrade metropolitan area as key driven force had resulted in different negative effects. The analysis indicates that the spatial and urban planning in BMA was influenced by the market, especially regarding the efficient regulation and governance of the suburban development. Belgrade population increased drastically during the 1990s (230,000 refugees came in this period from Croatia, Bosnia&Herzegovina and Kosovo&Metohija), which created enormous pressure on the existing housing market and land market. This process, along with already existing trend of urbanization, induced transformation of urban housing and land-use. In the paper we applied method of simple moving averages (i.e. urban population rates, land-use change, growth of GDP, housing rates, etc.) in

analyzing dynamics of urban land market and land-use change in BMA. This method aims to analyze data points by creating a series of averages of different subsets of the full data set for the relevant fields at short-term or long-term cycle. In comprehensive analysis of spatial transformations and urban land-use changes we have used primary data (Cadastre, 2011 Census of Population, Households and Dwellings in Serbia and National statistics). Key findings include: extremely inefficient urban land use and excessive urban sprawl (in two decades urban area has increased 298%; urban land consumption has increased from 233m² p.c. to 670m² p.c.); important role of urban land policy (untransformed instruments support urban sprawl), as well as massive illegal housing in BMA (0.2 million buildings) and Serbia (1.4 million). Urban land consumption (or land-take) in BMA compared to other cities indicates extremely high value as the indication of excessively intensive urban sprawl – more than in all other European cities (see Bertaud, 2012:342. *Planning and Construction Act* (2009, amended in 2011, 2012, 2014), which is not *sui generis* for regulating property matters, defines the legal basis for ownership transformation (privatization of urban/construction land), i.e., the conversion of the right to use state-owned urban construction land into the right of private property to private persons without compensation, and to legal entities established by the state, provinces and municipalities. Conversion of leasehold on urban land in public ownership into property right to privatized companies with conversion fee has been realized in only a few dozens of cases. The restitution of formerly nationalized agricultural land (started in the late 1980s) has been almost finished, but the restitution of urban land and other real estate is yet to come (10,900 ha of urban land in Serbia whereof 2,652 ha in BMA, as well as 382,462 buildings or part of buildings in Serbia).

We have concluded that there is imbalance between strategic goals (i.e. the controversial nature of the goals of urban renewal and a significant expansion of the construction area and new construction), spatial solutions and urban and land-use instruments in the BMA as consequences of uncoordinated urban planning instruments and measures, and the weaknesses of the management of spatial development, particularly in suburbs.

4.2. Market analysis of housing in Belgrade

Slavka Zeković, Miodrag Vujošević and Tamara Maričić

This contribution represents a report on the research for task 5.5 on the relations between market and regional & urban planning.

4.2.1. Introduction

A standard theoretical dictum says that the price dynamics in the sphere of urban (construction) land (as well as in most other development fields) is a result of the interplay of factors from two broad groups, i.e., market and planning (governance, “steering”, management, and similar). However, neither market nor planning exists in its “pure” form. They are always “imperfect”, and it is this “imperfection” that greatly determines the final outcome of this “game”. Apart from that, the specific geographical and historical characteristics (“fixities and givens”) of a concrete area (place, locale, region, state, nation, etc.) also render some influence, which may often play a significant role in this respect. Thereby, supply and demand of urban land are “two sides of the same coin”; since they cannot be determined in an isolated way, that is, without taking into account the influence of the “other side”. The ultimate aim of the market and planning function is to provide appropriate urban land for construction in terms of its quantity and quality.

The key **factors of demand for urban land** stem from the following groups: 1) Achieved development level of the area (measured by standard general and specific indicators, indexes, coefficients, etc., to reflect the general condition of economy, welfare, health and so forth). 2) Purchasing power of potential buyers. 3) Price of land and its availability for rent (leasehold). 4) Population dynamics. 5) Development prospects of the area (predictable prosperity, crisis, or stagnation, etc.). 6) Fiscal policy and related financial interventions (incentives, disincentives, and similar). 7) Planning policies, instruments and measures, by means of which the following are being determined: a) structure of urban land (number functions and their mixes); b) availability of public services (amenities, utilities, etc.); c) planned land uses (and respective conversions); d) zoning schemes determining land uses, land values and so forth; e) adjacent urban lands (structure, functions, value, technical equipment, etc.); f) quality of physical environment (natural, artificial, etc.), etc.

As for the **supply-side factors of urban land** (excluding physical assets), they belong to the following groups: 1) Physical characteristics of place (area). 2) Planning factors, determining: a) construction density (stipulated); b) planned “timing” of land supply (also including respective conversions of land use); c) flexibility of land supply, etc. 3) Land stock exchange (of urban land of various

uses). 4) Land speculation (especially under the circumstances of economic crisis). 5) Land use policy regarding monopoly. 6) Costs of land acquisition, spatial organization and equipment, determining the expected profits. 7) Land use fiscal policy, determining the size of urban land lots. 8) Procedural and administrative determinants. 9) Interest rate, determining the supply/demand dynamics, development costs and rent dynamics.

4.2.2. Key principles of urban land management (the so-called “stratified demand” aspect)

A standard approach in urban land planning and management rests on the estimation (assessment, appraisal, and so forth) of expected land demand. Usually, this takes the form of the so-called “functionally stratified and segmented demand”, via a number of approaches, methodologies and techniques, for various land purposes and uses, viz., housing construction, commercial and business uses, industrial uses, public services, etc., as presented hereinafter. For these and similar purposes (i.e. assessment), inputs are usually used, as defined in the pertinent development and related documents, as well as in the various regulatory and sector standards, rules, norms, etc.

The estimations of **demand for housing construction on urban land**, on one hand, are usually based on the relevant demographic forecasts and projections (size of population, age brackets, household structure, migration, purchasing power of households and individuals, potentials for affordable housing, etc.). On the other, here of priority significance are the census and other statistical sources on housing stock, such as age, size, renewal rate, spatial /regional distribution, urban/rural split, etc.

The estimations of **demand for commercial and business purposes and uses** are based on employment forecasts (usually for the time period of 10-15 years), distinctively for commerce, business, insurance, and other related services; and on the experientially acquired standards regarding the constructed office space in relative size (e.g. 20-30 m² per employed person). This approach is usually practiced in order to “translate” the relevant planning stipulations on economic and population growth into concrete parameters regarding requests for constructed space (surface area), e.g., via Floor Space Index (FSI), or Floor Area Ratio (FAR), measuring constructed space vis-à-vis total surface, etc. This “conversion” method differently applies to various uses within the given interval, for example, usually 2.0-5.0 for commercial uses in the central (downtown) zones, 0.5-2.0 in urban periphery, and so forth, also significantly varying among cities (towns) of various dominant functions. This procedure is typically performed as a sequence of iterative steps, within a structured framework of consecutive estimations. The above-mentioned indexes should be used very carefully; otherwise, the findings based on them will most predictably produce wrong signals to the market actors. To note, there will almost always be a difference, sometimes sharp, between the planning stipulations on the urban land use size and structure on the one hand, and practically calculated urban

land size and structure, based on experientially established standards (to be used as a “practical guide to everyday practice”) on the other.

For larger cities, as well as for metropolitan areas (as are the cases of Rome, Sofia and Belgrade), relevant are also the appropriate estimations of stratified international, regional and city demand for urban land. Similarly to the above-mentioned parameters, here the key indicators should also veritably present the following attributes, viz.: dominant or primary (out of mixed) urban land uses/functions (housing, commercial, business, open/public space, industrial areas, warehouse areas, etc.); planning/governance level (regional, local, city-town, zonal, blockwise, etc.); planning restrictions (regarding environmental protection of specific places or areas, per sector and/or per function); achieved quality of life (living standard, development level, etc.); the brown-field/green-field split; spatial and time distribution of demand; elasticity of urban land demand, etc.

4.2.3. The case of Belgrade metropolitan region (Greater Belgrade Area)

The amended Master Urban Plan (2006, 2007 and 2009) covered the planned area of 77,602 ha, out of which the construction land was pitched at 55,560 ha, which means that one part of agricultural, forest and water management lands was not included, as well as the relevant infrastructure corridors. To note, some marginal land of this kind was included into the construction land. Following the appropriate legal definitions, a separate category was defined, i.e., “urban construction land“, to cover 45,692 ha.¹¹

In the Master Urban Plan of Belgrade of 2003 (hereinafter MUP), which was amended most recently in 2009, it was stipulated that some 2004 ha would be used as commercial and/or urban land in the central area in 2021. This represents a gross exaggeration of more than 1,336 ha, as only 667.98 ha were used for these purposes in the year 2001. The extra amount of 1334 ha of urban land was planned in the MUP until 2021, calculated by means of FSI of 4 in the central zone of the city (exceptionally 5), and of FSI of 3 in the intermediate urban zone. (This follows a stipulation proposed by an appropriate by-law, i.e., the Rule regulating the parcelling out of construction lots and their regulation and construction – *Правилник о општим правилима за парцелацију, регулацију и изградњу*, Службени гласник Републике Србије, бр. 50/2011. The nominal values stipulated by the MUP are, of course, smaller.)

¹¹ This figure differed from that provided by the Republic Cadastre of Serbia, i.e., 63,000 ha.

Table 1. Existing (2001) and planned (2021) urban land uses according to the MUP (in ha)

	Current land-use (2001)	Planned increase (UMP 2003) 2001-2021	Total (UMP 2003)	Planned increase (AUMP, 2006/2) 2001-2021	Total (AUMP 2006/2)
Housing	12,571.65	1,570.25	14,141.90	318.10	14,460
Economic zones	1,595.22	1,929.35	3,524.57	1,226.43	4,751
Commercial zones and centres	667.98	1,147.60	1,815.58	188.42	2,004
Public services and centres	1,123.10	275.04	1,398	47.86	1,446
Sports and leisure zones	685.87	502.01	1,187.88	-90.88	1,097
Green areas	11,365.27	9,044.64	20,409.91	-357.91	20,052
Agricultural zones	39,657.32	-15,904.12	23,753	-2,173.20	21,580
Water surfaces	4,071.05	101.16	4,172.21		4,172
Cemeteries	344.69	144.51	489.20		489
Transport zones	4,424.15	1503.56	5,927.71	765.29	6,693
Public amenities and utilities	345.30	436.40	781.70	76.30	858
Undeveloped land	750.39	-750.39	0.0	0.0	0.0
Total	77,602.00		77,602.00		77,602.00

This would also imply that by 2021 in the Belgrade area covered by the Plan some new 534,000 jobs would be recorded in the business services sector, which is in sharp discrepancy with the current figures. In 10 city municipal communes (municipalities) of Belgrade, the total floor space was ca. 37.15 million m², and yet calculated by applying the above-mentioned iterative approach; this would amount to even 13.3 million m² of new business and commerce space! It should be understood that the stipulation from the MUP did not take into account the recent collapse of the real estate market in Europe, only the fact that the already existing (constructed) space has not been sufficiently utilized, as it has been largely oversized. In terms of spatial distribution and organization, four broad areas were defined by the MUP, out of a total of 77,602 ha, viz.: 1) Central zone (3,706 ha); 2)

Intermediate zone (8,532 ha); 3) Outer zone (21,962 ha), and 4) Border zone (43.902 ha). Within these, 57 specific urban zones were defined based on the above-mentioned broad zones, i.e., 22, 22, 15 and 20, respectively.¹² More detailed decomposition is presented in Table 1.

Table 2. Planned land-use structure (in %)

	Current land-use (2001)	Planned land-use
Housing	16,2	18,64
Economic zones	2,06	6,12
Commercial zones and centres	0,86	2,58
Public services and centres	1,45	1,86
Sports and leisure zones	0,88	1,42
Green areas	14,65	25,85
Agricultural zones	51,1	27,82
Water surfaces	5,25	5,38
Cemeteries	0,44	0,63
Transport zones	5,70	8,62
Public amenities and utilities	0,44	1,08
Undeveloped land	0,97	0,0
Total	100,0	100,0

To summarize, in the 2001-2021 time period, the largest reduction of the existing land uses should be undertaken in the agricultural sector, i.e., 18,007 ha (from 51.1% of its current share to 27.8% of its future share), primarily along the key transport routes. A part of that should be converted into industrial parks (zones), and the rest into greened open space, resulting ultimately in an increase of the latter, that is, 8,686.7 ha (from 14.65% of its current share to 25.85% of its future share, as presented in Table 1 and Table 2). In absolute terms, the largest changes will take place in the economic zones, transport zones, housing zones and commercial zones and centres, 3,155 ha, 2,269 ha, 1,888 ha, and 1,336 ha, respectively, with an analogous rise in their respective percentage shares.

As for the supply of urban land used for residential purposes (MUP), in the period 2001-2021, an increase of 1,888 ha has been planned, i.e., from 12,571.6 ha to 14,460 ha, which is ca. 15%; thereby, increasing its share in total urban land area in the Belgrade metropolitan area from 16.2% to 18.64% (see Table 2). Should one apply a low value of FSI (FSI=1), this would give a preliminary assessment that at

¹² To note, the borders of these areas and urban zones coincide with the statistical areas. However, the MUP has not been adjusted to the above-mentioned Republic Rule on the Parcelling Out of Construction Lots and their Regulation and Construction, as the latter was passed later than the MUP in 2011.

least 18.88 million m² of new residential gross space (floor) area could be built in accord with the planned stipulations, which would equal to between some 200,000 and 300,000 housing units (dwellings). Should a larger FSI be applied, this would consequently enlarge the number of housing units (dwellings).

4.2.4. General remarks about the practice of urban land management in the Belgrade City Area

According to the MUP (2003 and 2009), there have been a number of characteristics of the current system of urban (construction) land management in Belgrade,¹³ which would determine the main course of developments in this area for a longer period, viz.:

- Out of a total area of 77,600 ha, 84% of urban land is construction land proper, owned by the state and the City of Belgrade, 1% goes to mixed ownership, and the rest of 15% is categorized as non-construction land.
- Out of the total surface area, various City authorities use ca. 10% of urban land (6% is used by local municipalities, 2% by various directorates, and 2% is used by the City authorities proper); 2% is used by railway authorities; 11% is used by the Belgrade Agriculture Estate, and the rest is used by various statutory public and private users. (The owners of urban land are the state, i.e., the Republic of Serbia, and the City of Belgrade with its constituent municipalities.)
- By sectors, out of 77,600 ha, around 70% is agricultural; 5% is water management land; 7% is forest land, and some 3% of land is occupied by various buildings.
- Continuously built area covers some 22,000 ha (ca. 30% of total area).
- In administrative terms, a public enterprise, the Directorate of Construction Land and Development of Belgrade is responsible for urban (construction) land management. This public agency is responsible for leasing the urban land for various uses, via public tenders.
- There have been a number of specific agencies responsible for the management of various utilities and amenities.
- A number of ownership and management problems still stem from the legal (formal) status of urban land ownership, generated by the nationalization, confiscation and other forms of de-privatization of construction land undertaken after the Second World War. The Constitution of the Republic of Serbia still prevents the de-nationalization of construction land, viz.: for a general lack of urban land leasehold, greatly resulting from low housing rents and fees for communal services in the public sector (amenities and utilities); for a lack of proper legal and spatial and urban regulation, (rules of the “black market” often

¹³ It refers to the area covered by the MUP, the surface area of 77,600 ha, with some 296,000 land parcels (lots).

prevail over the officially promulgated rules and procedures); for a lack of proper market and other rent regulations- a large part of rent is appropriated without being properly taxed, and is thus kept by various kinds of “rent-seekers”; for a lack of a proper rent mechanism, a large number of the most attractive lots (sites) in the very central parts of the City of Belgrade have been occupied by stakeholders generating relatively low profits, thereby the problems of technical and social infrastructure in these parts have become ever more complex and not easily resolvable; for the lack of proper urban planning and regulation, especially regarding the proper “timing” of pertinent activities, there has been a widespread non-authorized parcelling out of urban land lots in the peripheral parts of the area covered by the MUP, and their illegal sale , followed by massive illegal construction; for the system and practice of mortgage loans and credits is still insufficiently developed, etc.

The Directorate responsible for urban land management and construction (Direkcija za građevinsko zemljište i izgradnju) is giving state- and city- owned un/developed urban land to usage up to 99 years, while the competent city and municipal authorities (serb. *sekretarijat*) are issuing construction permits for those locations. However, due to different reasons (including that resulting from the previous Law on Planning and Space Arrangement, there has not been a time limit for the activation of given locations, e.g. construction according to given construction permits) investors often did not start construction, e.g. they kept “empty” plots. According to data from the MUP (2009), in the last 5 years, the Directorate for urban land management has given to investors the plots on which it is possible to construct over 4 million of m² of housing and commercial floor-area (for which they later got building permits from competent authorities). Only 18% has been realised. That is considered to be one of the reasons for the deficit of free plots in Belgrade and for the low level of realisation of issued construction permits on state-owned urban construction land.

However, due to a lot of unfinished construction work and effectively non-activated land, there has been a general lack of properly spatially arranged urban land, which is ready for construction. (This pattern varies by municipalities of the City of Belgrade.)

Ultimately, it should be reiterated that corruption in Serbia is endemic, and according to many estimates, this country belongs to the group of the most corrupted states in Europe. This is also visible in the sphere of urban land management, especially regarding the public tenders for land. Despite the fact that fairly open and transparent procedures have been prescribed by law, in effect, a “hidden agenda” often dominates this scene along with the poorly-developed institutions of coordinated market-and-planning approach in urban land management and a system where strategic thinking, research and governance seems to have collapsed a long time ago.¹⁴

¹⁴ It seems that this ‘hidden agenda’ may have mostly influenced a stipulation to appear in the Amended MUP of 2006 regarding the Port of Belgrade, which has

There has been a strategic aim in the sphere of urban (construction) land management, established by the MUP in 2003 and also reiterated by the amended MUP in 2009, to establish a new governance model, based on, firstly, market principles and secondly, on correcting its imperfections by means of embedded general public interests. In 2003, the public sector occupied approximately 30% of the economic sphere in Serbia, as compared to 40-60% in the more developed European countries. Based on these general directions, specific strategic aims were defined in the following way by the MUP:¹⁵

- The first aim has been to denationalize both the ownership and management of urban (construction) land, as a key step to further marketization.
- The overall marketization should be corrected, in social respect, by specific protection of the stakeholders that would not sustain the volatilities of a more market-oriented system.
- Urban rent should play its genuine role in effecting the functioning of the urban land market, providing relevant information, and thereby taking into account the interests of all market stakeholders (“players”), in terms of ownership, property, leasehold, and so forth. Simultaneously, this would also have to protect the respective interests of all investors and financiers, them being either in public, private or other property sectors, directing the system and practice towards rational behaviour, management and husbandry of urban land.
- These would altogether introduce real market parameters, thereby providing predictable and veritable market signals to all the involved and potential parts.
- Consequently, new market principles would set the ground for the introduction of a number of proper market policies and instruments, to serve a number of specific goals and targets, viz.: faster activation of the already disposed urban lots (now under prolonged construction) both for reconstruction and new construction; delimitation of public and other urban lands, supported

considerably changed a corresponding strategic aim from the MUP of 2003. Namely, in its Part 7 (Spatial zones and urban areas of Belgrade), a stipulation of ultimate strategic significance for Belgrade and Serbia was introduced to convert 70 ha of its current use (port, warehouse and transport function) into ‘commercial, more profitable functions of the central City’, mostly business and housing and other ‘compatible’ uses (i.e., leisure, public space, etc.). This was paralleled by a decision to develop a new port, downstream of the Danube River in the Belgrade region; thereby one of the development hubs of Serbia, the key element in developing the Belgrade area as one of the ‘Gateway Cities’ (of South-eastern Europe, has been predictably and definitively crippled for a longer time period.

¹⁵ A specific provision was also proposed - the process of the so-called “de-metropolization of Serbia”, which should take place as soon as possible, meaning the putting into effect a more dynamic development of the other parts of Serbia than the Belgrade metropolitan area, and thereby lessening its population and economic burden (i.e., the pressure on its physical stock).

by appropriate cadastre and related services (electronic bases, systems of indicators, etc.); introduction of a rounded-off property evidence, fully coordinated with the cadastre; defining a long-term urban land policy in order to integrate various sector policies of all public stakeholders in the City of Belgrade constitutive municipal communes (e.g., tax policy, ownership management, physical land management, sustainable spatial and urban development policy, etc.); systematic preparation of detailed land arrangement (e.g., parcelling out of the urban lots) and development schemes, and their consecutive efficient and effective implementation; etc.

Almost a decade after the adoption of the MUP of 2003, almost none of the strategic goals have been achieved. Moreover, the Planning and Construction Act of 2009 may have even made things worse, with the stipulations providing for a conversion of leasehold on urban (construction) land into a property right – without applying the actual market prices to the urban land kept by the privatized companies! Nominally, the market prices of urban land are determined on the basis of a number of ordinances.

4.2.5. A preliminary analysis and assessment of housing market in the Belgrade area

Introductory comments

According to key strategic documents, housing construction in the wider Belgrade area should match the demand for housing space, as reflected both by the planning and market. The volume of construction is expected to satisfy both in quantitative and qualitative terms. The existing model of general management in this field sharply differs from that inherited from the previous system of socialist, political and ideological monopoly. In the former system, the so-called “societal (social) directed housing construction” was made possible because of, firstly, almost non-exhaustible quantities of disposable lands in the urban outskirts, mostly of agricultural use; secondly, the relatively low costs of their conversion to various urban uses, and thirdly, dominant social (collective) ownership of urban land. Planning played a key role in determining the supply and demand, paralleled by a minor, almost marginal role of planning. Under such circumstances, in the area of the City of Belgrade until towards the end of the 1980s, on average, 10,000 housing units (apartments, flats, houses, and similar) were built annually (e.g., 9,879 housing units were built in 1989). The transition to a post-socialist, mostly market-driven system, dismantled almost all the elements of the former system (with the exception of a small portion of the so-called “solidarity housing construction”), especially regarding institutional settings and financial mechanisms and sources, now directing the key course of changes towards the functioning of a “free urban land and housing market”. A large number of new players appeared in the housing arena, following the restructuring of the previously large construction companies, often ending in their bankruptcy. The new, in effect, spontaneous yet unfinished and provisional institutional and organizational settings proved hardly efficient in providing

adequate new housing construction. The annual average of construction drastically fell from 2,500 to 3,000 (in the time period 2000-2005) and from 4,000 to 6,000 (in the time period 2005-2011) housing units of various structures. However, the average number of constructed dwellings should be significantly larger, i.e. 16,690 units per year, if data from two consecutive population censuses (2002 and 2011) were applied. This difference may well be ascribed to a large-scale illegal construction of residential buildings (ca. 187,000 units in the City of Belgrade Area). The supply seems mostly to have failed to satisfy the demand in terms of quantity, structure and quality. This is not easily explainable vis-à-vis the fact that this sector recorded extremely high profit rates in this period, in effect, much higher than in the majority of other European countries, i.e., 30-200% and 5-20%, respectively. The recent (since 2008) economic and financial crisis only complicated the already deep flaws in the Serbian (Belgrade) system of housing and other assets market. Due to the evidently low elasticity of demand, profits fell sharply, thereby additionally complicating the already existing problems and flaws in the system, viz.: a lack of proper (completed) planning documents; poor information system, burdened with an extreme “asymmetry of information” among the market stakeholders; still very non-transparent system and practice of the cost management of urban lands, kept to utilize some quasi-market instruments from the previous system (e.g., fees for land reclamation and servicing); a lack of effective market instruments regarding public amenities and utilities; poor management of construction dynamics; long, complicated and slow procedures for the issuing of planning permits and construction permissions); non-effective and non-transparent judicial system, resulting in an enormous number of litigations and other unfinished cases; poor practice of license issuance, questioning the credibility of construction firms; legally accepted and stipulated legalization of illegal (“informal”) buildings, yet unresolved in many key aspects; etc. Particularly dysfunctional has been the case of the legalization of illegal buildings. On the basis of the *Planning and Construction Act* from 2003, in 2005 some 130,000 applications of this kind have been submitted in the Belgrade area, mostly for various housing units, of which only 3-5% has been resolved so far. Upon the amended *Act* (in 2009, 2010 and 2011), additional 57,000 requests have been placed, now totalling to 187,000 cases. The illegal status of a constructed building negatively affects its market value, even up to 25-30% of its market price. Based on the above-mentioned comments, in what follows a preliminary assessment of housing supply and demand is given in turn.

Housing demand

According to the so-called “first results” of the Census of Population, Households and Dwellings in the Republic of Serbia in 2011, 1,639,121 people were living in the City of Belgrade, in 604,134 households. In the same year, the total number of units reached 739,630, which was 167,897 more than in 2002, also indicating a surplus of 135,496 housing units over the number of households, i.e., some 100,000-120,000 tenants living in rented dwellings. In 2002, the housing stock of the City of Belgrade amounted to 586,889 units (35,928,256 m²), of which 571,733 are in private ownership. The population of 1,576,124 lived in 578,390

households. Some 39,000 units were permanently not used, and 3,456 were abandoned. Apart from that, 30,773 units were used for leisure and 3,283 for other service purposes.¹⁶ The MUP of 2006 presented a number of projections for the year 2021, viz.: the share of investment in the housing sector in total investment of 2% (ca. 2.1 billion €); the total number of new and/or completed housing units of 75,000 (600,000 m² of floor space), at average annual production of 7,500 units; the average household size of 2.9; gross floor space per household member of 22m²; NFS/GFS ratio of 1.25; the average size of housing unit 63.8 m² (NFS), i.e., 22 m² per household member; the average size of housing unit 80.0 m² (GFS); etc. The implementation of the aims during the first four years slightly differed from the forecast values: in general, demand surpassed supply, both in terms of size and spatial distribution; the reconstruction of the City zones became a first priority, as well as the transformation of some low density zones, with low quality housing stock, into areas of high density; “brownfields” also seem to have appeared among the priorities; etc. However, there has been no systematic and complete insight into the volume and structure of construction, apart from the fact that 6,416 housing units were completed in 2011, the total floor space of 379,681 m², out of that 6,018 (with 351,435m²) newly- constructed units. There are still a large number of uncompleted (under construction) units, varying in spatial terms (by the municipal communes of Belgrade), as could be seen in Table 3.

The average floor space of a new housing unit was 70.6 m². By the City ordinance, some 40% of the units were built in the Pplus6 storey buildings, ca. 20% in the Pplus1 and some 14% each in P+0 and Pplus4 storey buildings.

Table 3. Number of completed and uncompleted housing units in Belgrade (1995-2011)

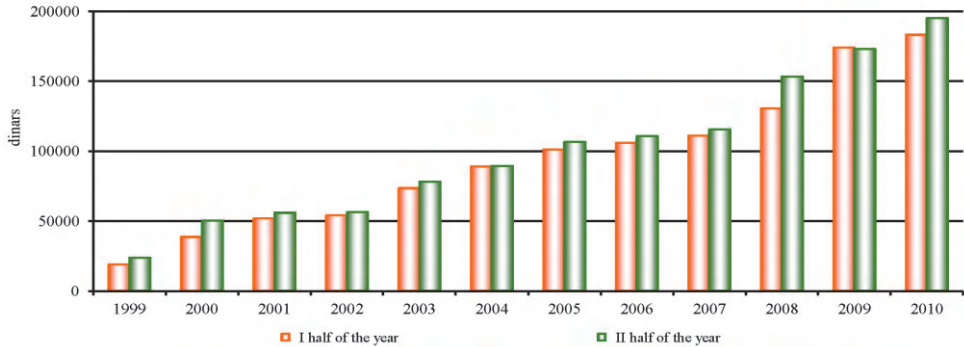
Year	Nr. of completed units	Floor space of completed units (m ²)	Nr. of uncompleted units	Completed units per 1,000 inhabitants	Nr. of demolished units	Average size of unit (m ²)
2011	6,416	379,681	11,657			59,2
2010	5,684	358,659	10,134	3.5	168	63,1
2004	3,673	242.050				65,9
2001	2,663	174.000				65,8
1995	3,280	210.312				64,1

It is of importance to note here that the Belgrade City area belongs to a very small group of Serbian regions with a steady increase of housing construction, which has not been the case in the majority of other regions, where the construction volume has been decreasing.¹⁷ An exception to this rule is the South Banat District,

¹⁶Saopštenje 90/2004, Institute for Informatics and Statistics, Belgrade

¹⁷Municipalities and districts in Serbia in 2011, The Statistical Office of the Republic of Serbia, Belgrade, 2011.

where only in May 2012 the volume of its housing construction surpassed that of the Belgrade City area, which also applies to the value of the newly-constructed housing stock (Graph 1).



Graph 1. Prices of new construction in 10 City municipalities¹⁸

Source: Statistical Yearbook of Belgrade, 2010, Institute for informatics and statistics, Belgrade

Price statistics on housing construction (Belgrade vis-à-vis Serbia)

There has been no systematic evidence on price statistics on housing construction for specific local areas. The official statistics cover only totals, for the Republic of Serbia, the Autonomous Province of Vojvodina and City of Belgrade. In 2012, according to another source the *National Corporation for House Loans Insurance / Nacionalna korporacija za osiguranje stambenih kredita*) an average price of 1 m² of housing space in the Belgrade area reached 1,291-1,252 € in 2008 (categories Q1 and Q2, respectively). The maximum for Q4 for the same year was also recorded in Belgrade, i.e., 1,507 €/m², and the minimum value was 1,100 €/m² (for Q2 in 2007). This resulted from a longer upward trend, since the price in Belgrade fluctuated within the range of 900-3,000 €/m² in the period 2004-2005, on average around 1,200 €/m² (no VAT included).¹⁹ Afterwards, in the period 2008-2012, the average value decreased for some 27% (the estimated value, see Table 4).

¹⁸ There had been a difference between the contracted and final prices for newly constructed dwellings in the period 1999-2002. The presented data showed contracted prices, for 10 City municipalities, viz.: Vračar, Voždovac, Zvezdara, Zemun, Novi Beograd, Palilula, Savski venac, Stari grad and Čukarica.

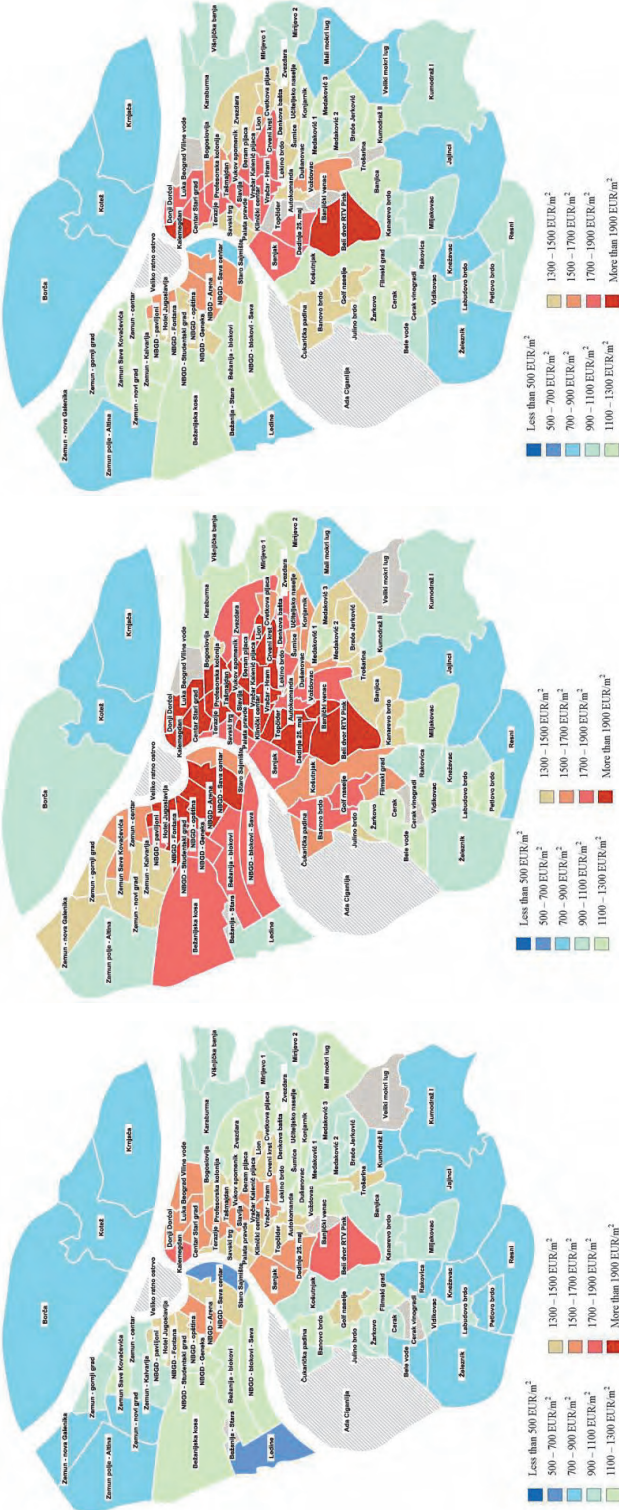
¹⁹ Announcement No. 181, LIV, 03.09.2004, GR20, The Republic Statistical Office



Table 4. Housing units price flow (Q1 2007–Q2 2012, in EUR/m²)

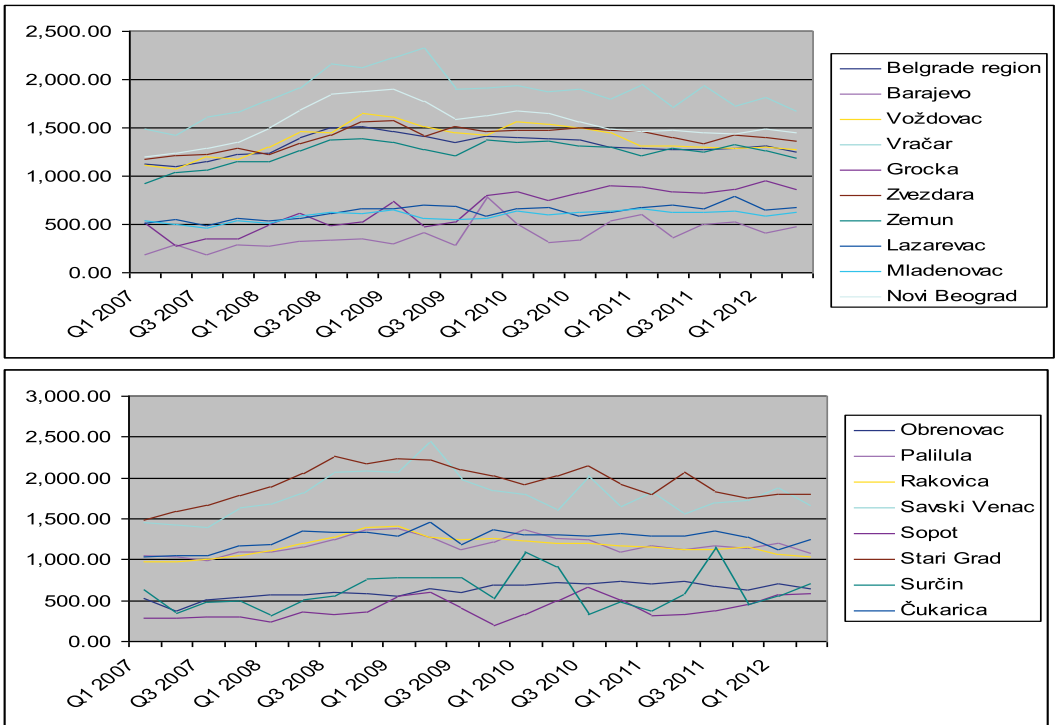
	2007				2008				2009				2010				2011				2012	
	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2	Q 3	Q 4	Q 1	Q 2
Serbia	719	668	704	744	772	811	862	873	845	802	814	933	989	961	934	917	939	915	949	982	969	956
City of Belgrade	1,120	1,101	1,152	1,229	1,236	1,395	1,500	1,508	1,467	1,412	1,351	1,414	1,402	1,392	1,377	1,300	1,289	1,279	1,277	1,291	1,316	1,253
Barajevo	188	283	189	285	280	331	335	346	295	410	291	786		311	341	535	600	364	502	531	418	470
Vozdovac	1,110	1,075	1,198	1,180	1,299	1,461	1,444	1,653	1,616	1,519	1,449	1,420	1,562	1,537	1,500	1,444	1,315	1,307	1,302	1,290	1,303	1,276
Vračar	1,486	1,424	1,610	1,666	1,788	1,915	2,167	2,129	2,227	2,327	1,896	1,910	1,941	1,873	1,899	1,802	1,946	1,718	1,942	1,723	1,807	1,663
Grocka	507	278	345	344	503	612	483	529	737	469	520	802	840	747	825	900	883	841	822	859	947	867
Zvezdara	1,179	1,207	1,221	1,285	1,225	1,339	1,429	1,563	1,570	1,419	1,512	1,459	1,471	1,477	1,504	1,472	1,457	1,401	1,343	1,423	1,402	1,366
Zemun	929	1,039	1,059	1,154	1,152	1,266	1,375	1,392	1,349	1,274	1,215	1,370	1,349	1,368	1,316	1,304	1,210	1,284	1,253	1,325	1,268	1,185
Lazarevac	508	547	491	564	538	564	608	661	661	696	682	592	661	675	585	629	678	696	664	787	656	669
Mladenovac	534	501	457	534	511	591	628	615	644	558	547	559	640	605	621	637	660	619	625	632	584	623
Novi Beograd	1,198	1,235	1,288	1,352	1,499	1,693	1,856	1,873	1,906	1,771	1,591	1,622	1,679	1,645	1,562	1,491	1,464	1,471	1,452	1,432	1,488	1,448
Obrenovac	531	376	511	545	563	568	598	584	553	640	601	689	693	715	705	734	698	732	681	633	699	652
Palilula	1,045	1,038	991	1,101	1,102	1,160	1,240	1,363	1,384	1,278	1,121	1,222	1,362	1,258	1,242	1,097	1,164	1,128	1,166	1,143	1,202	1,081
Rakovica	976	981	1,009	1,049	1,114	1,202	1,278	1,391	1,415	1,279	1,246	1,253	1,234	1,206	1,197	1,163	1,160	1,129	1,118	1,160	1,064	1,028
Savski Venac	1,457	1,428	1,391	1,630	1,676	1,812	2,064	2,090	2,063	2,449	1,980	1,839	1,793	1,606	2,029	1,657	1,832	1,562	1,693	1,722	1,879	1,652
Sopot	287	285	300	300	235	360	335	360	548	595	410	197	329	491	661	517	308	329		445	576	588
Stari Grad	1,482	1,591	1,666	1,780	1,897	2,056	2,261	2,182	2,235	2,219	2,102	2,028	1,915	2,026	2,145	1,913	1,804	2,065	1,823	1,756	1,797	1,802
Surčin	633	343	480		321	507	557	767	778		776	531	1,095	920	337	476	375		1,148	443		703
Čukarica	1,034	1,044	1,057	1,177	1,182	1,348	1,333	1,338	1,288	1,450	1,187	1,360	1,309	1,301	1,294	1,322	1,292	1,286	1,356	1,275	1,122	1,250

Source: Nacionalna korporacija za osiguranje stambenih kredita (NKOSK), <http://www.nkosk.rs/sr/stat/content/indeksi-cena-nepokretnosti-nacionalne-korporacije-za-osiguranje-stambenih-kredita> (10/08/2012)

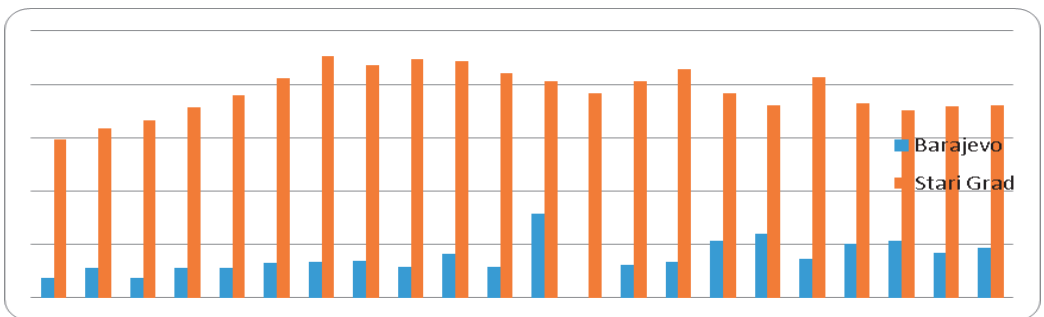


Map 1 – Territorial distribution of housing prices in Belgrade (up to zones, Q3 2007 – Q3 2008 – Q3 2012)

Source: <http://imovina.net/statistics/>



Graph 2. Housing price in City of Belgrade municipalities (Q1 2007-Q2 2012, source: NKOSK), in EUR/ m²

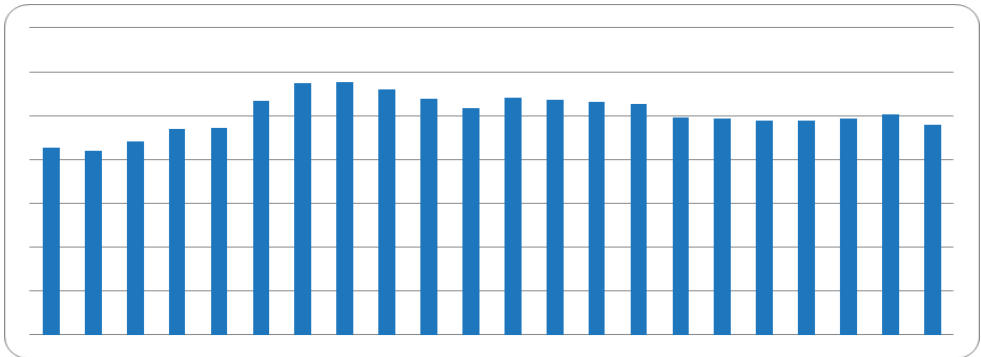


Graph 3. Housing units price flow in the most expensive (Stari Grad) and cheapest (Barajevo) municipality, in EUR/ m²

The minimum price of housing units was recorded in peripheral municipalities, ca. 600 €/m² and the maximum price in the central City municipalities, ranging from 1,500 to 1,700 €/m² (see: Graph 2 and Graph 3, Map 1). As for the level of competitiveness of an otherwise segmented housing market, some parts of the older housing stock (of moderate age) may well compete with the newly-built housing units in value (for lower prices and an exemption from the VAT) and often in

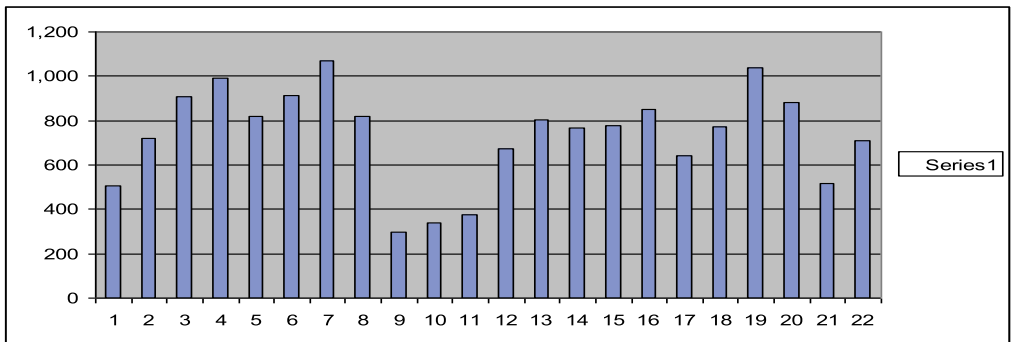
quality. For that reason, the major part of the current housing supply originates from the former construction, and the lesser from the newly-constructed stock.

As for the spatial distribution (by municipalities), an upward trend of housing prices was recorded in the peripheral communes in the period 2007-2012, paralleled by a downward trend in the central municipalities of the City of Belgrade, particularly after 2008, the year of the outburst of the global and national economic and financial crisis. This is illustrated by the values of the national asset index (DOMex), as it has been shown in the Graph 4.²⁰



Graph 4. Index DOMex for Belgrade Q1 2007-Q2 2012

According to some sources (fiscal authorities), in the period 2007-2012 there were some 800 market transactions/ quarterly with housing units, provided by market agencies. Most probably, there should be a larger number of market transactions on housing units, which is not covered by this evidence.



Graph 5. Housing units purchase flow in Belgrade (2007-2012)

Source: <http://imovina.net/statistics/>

²⁰ This index is collected and presented for the municipalities, districts and few macro regions of Serbia. It does not cover assets financed by cash payments and/or non-secured loans. DOMex is calculated, for a given period and given territory/area, by comparing the average value of market transactions on housing assets (per m²) with the average value of all market transactions (per m²) in the base period.

There has been a sharp decline of market transactions in the categories Q1 and Q2 in the recent period, perhaps 40% as compared with the year 2008. Especially, the selling of houses, business space and construction sites dropped considerably. As this statement is based on partial evidence only, the effective decrease must have been even larger. However, due to the low elasticity of demand (and supply), the prices fell below the market turnout in the same period. According to one estimate, there have been three times more business premises and housing units offered than really needed (in terms of effective demand) in the City of Belgrade area.

Estimates on expected demand for housing units

In the foreseeable future, the impact of prolonged crisis will predictably distort a number of rules established by the “regular” functioning of the housing market, viz.: the impact of economic recession; unfavourable housing credit and loan instruments (e.g., steady increase of interest rates, etc.); an ever-increasing number of households unable to service the mortgage loans; stagnating (or even decreasing) purchasing power of a large majority of households, both for buying and maintaining housing units;²¹ a steady gap (deficit) in the housing stock; steady migration to the Belgrade-Novı Sad metropolitan region of people from other parts of Serbia, thereby putting an additional burden on the already existing deficit of housing stock;²² ever-larger part of dilapidated housing stock, whose replacement is made complicated by a lack of appropriate policy instruments and financial sources; problems in the market mechanisms to serve the evermore specified, differentiated and segmented demand for various housing units (in terms of their location, quality, energy efficiency, etc.), and the poor predictive power of the responsible authorities in the sphere of urban development, affordable housing, sustainable spatial development, etc.

For the above-listed reasons, only a rough (preliminary) estimate of the future demand for housing units is presented here, indicating that not more than 20,000

²¹ For example, according to data published by the Republic Statistical Bureau of Serbia (Расположива средства и лична потрошња домаћинства у Републици Србији, 2011, Коначни резултати 2011, ЛП11; Расположива средства и лична потрошња домаћинства у Републици Србији, I квартал 2012., ЛП12), in the year 2012, in the category Q1, the average share of housing costs of a household in Serbia reached 17.7% of the total household expenditures, and 4.6% for current maintenance (the latter mark was 5% in 2005).

²² It is of some interest to note here that in the MUP of 2003 the total population and employed persons number in the area covered by the MUP was predicted at 1,371,000 and 491,000 in 2010, and at 1,400,000 and 545,000 in 2021, respectively, which considerably differ from the estimates by both the Spatial Plan of the Republic of Serbia (2010) and the Population Census of Serbia in 2011. This forecast also contradicted with the strategic aim of the so-called ‘de-metropolitization’, since this implied that the share of the Belgrade population in the total population of Central Serbia would increase from 22.6% in 2001 to more than 24% in 2021. The MUP also predicted the following shares of sectors in 2021: total employment, 545,000 (of which 418,000 in the real economy and 127,000 in other activities); 2,200 in the primary sector, 142,000 in the secondary sector and 401,000 in the tertiary sector.

housing units would be demanded effectively by 2020, i.e., on average 2,500 annually, which is half of the predicted construction of new housing units (see Table 5). To note, this forecast is not completed and fully reliable, as it would necessitate an additional check, in the first place, one which would be based on a concrete analysis of market demand.

Table 5. Expected demand for housing units in the City of Belgrade area till 2020.

	Base for (general) assessment	Preliminary estimate of demand (housing units)
1	Current housing deficit (as ratio of no. of housing units to no. of households)	8,000
2	Demand generated by the increase of population (annual average of 1,000 new inhabitants, paralleled by 9,000 new marriages per year)	8,000
3	Demand generated by an increase of purchasing power and an increase of household size)	2,000
4	Replacement of old housing stock	2,000
	TOTAL	20,000

Construction permits issued in the City of Belgrade Area

From September 2009 (when the new *Planning and Construction Act* was promulgated) to September 2011, more than 600 construction permits were issued in the City of Belgrade area, of which 96 permits for buildings of a floor space more than 800 m². This is considerably less than in the earlier period for many reasons. Apart from the current crisis,²³ unresolved property issues have been the key reason for the prolonging of the important procedures, and especially those which have to do with the – otherwise legally provided – opportunity to convert the right of leasehold on urban land into property right. (A number of cases of the kind were completed in accordance with the *Act*, in total 1,905.) The total floor space of housing and business buildings that are currently in the procedure of getting permits (upon both the former *Act* and the existing *Act*) surpasses 1 million m², which is equivalent to a three-year construction volume in the City of Belgrade area (for newly-erected buildings). On average, the time needed for issuing a permit has been around 130 days. In the period from September 2009 to March 2012, 3,728 requests for a location permit were submitted, of which the responsible authority (the Secretariat of Urbanism of the City of Belgrade) issued 1,353 permits. In the period from September 2009 to February 2011, 1,218 construction requests were approved;

²³ A similar pattern has been recorded in Serbia at large. According to the data from the Republic Statistical Bureau of Serbia, in the first five months of 2012 (I-V), the total of 2,016 construction permits were issued in Serbia, of which 814 for new houses and 420 for non-housing purposes, by structure as follows: business premises (75); commercial premises (44); garages (50); warehouses (37); industrial buildings (35); hotels (12); kindergartens (9); schools (5) etc.

855 requests accepted (registered); 796 approvals for building use issued; 1,353 location permits and 148 construction permits were issued (out of 305 requests).

Market prices of urban land in the City of Belgrade Area

Approximated on the basis of statistical sources and pertinent experiential values, it could be stated that in the share of a property the acquiring and related costs of the urban (construction) lot fluctuates between 25-35% of the market value of the constructed building. In 2011, the highest prices in Serbia were recorded in the Belgrade Area, i.e., 540 €/m², and ca. 900 €/m² in 2012 (source: www.djinas.com), considerably varying within the Area. An estimate by the responsible agency, based on the sample of 2,273 market transactions of assets, pitched the average price of urban construction land at 148 €/m² in 2012 (source: www.gohome.com). The market prices of urban land for business and commercial purposes also varied, and they may reach even 1,200 to 2,240 €/m² in some more prestigious parts of the City (for example Marina Dorćol near the Port of Belgrade), while the average market prices for economic (industrial sites, warehouses, and similar) varied between 50-120 €/m² of construction land. In recent years there has been a significant decrease of market prices, following an overall downfall of purchasing power on the one hand, and over-supply of available business space on the other.

As is the case in other parts of Serbia, Belgrade's land policy has not been substantially transformed in the transition period. It is managed via zoning of the construction land and determining the initial amounts for compensation and lease by employing certain criteria and standards. These are established in an inconsistent way and do not correspond with the actual real estate value in the Belgrade market. Similarly to other places in Serbia, the zoning systems and differentiation for certain purposes are not based on relevant market factors, monitoring of transactions and land and real estate prices, planned solutions, standards, information systems and relevant modern fiscal, economic and market instruments and institutional arrangements. The construction land policy in Belgrade practically does not exist and the partial changes in the institutional framework that regulates this area, as well as in the organizational adjustments, have not introduced the necessary reforms to this policy that would be crucial for the further development of the city.

Undeveloped state-owned construction land is subject to lease for a fixed time period up to 99 years, which is estimated based on the purpose, area and the amortization period of the structure. The leasing procedure is conducted at a public auction for facilities up to 10,000m² of gross construction area, where the minimal amount of lease and the lessee's obligations are determined in the announcement for an open tender. The initial value of the lease is determined by zone (5 zones and an extra zone) and purpose of the object (objects of public services, housing-individual, buildings, commercial-manufacturing, business-service and business-commercial). In 2001, the size of total urban construction land was 45,692 ha (or 63.005 ha, according to the Republic Bureau of Geodesy). In total, 57 urban compact zones have been defined, 22 in I and II zone, 15 in III and 20 in IV zone. The boundaries of zones coincide with statistical territorial units. The largest initial lease amount is paid by business-commercial objects, if located in the so-called extra-zone (20.48

RSD or 20 euro cents/m² of useful area). Lease prices range from 1:3.3 for structures for public services to 1:6.31 for individual housing structures. For business-service facilities, the range is 1:4.29, and for business-commercial facilities it is 1:5.33. The widest range is in Zone I, i.e., 1:7.26. Zone boundaries, which are also used for the purposes of determining the initial rental fee, are established (by municipal ordinance) based on the market value of the location, defined by "attractiveness and business, traffic coverage and accessibility, scope and diversity of supply within the zone, the number of users visiting the zone, special benefits for certain purposes..."(Figures 1-3). This reflects a general intention to harness the land development policy for more strategic purposes, viz., to improve the position of the Belgrade metropolitan area in a broader geographical context based firstly, on its geostrategic position being at the crossroads of the European Corridors VII and X, and secondly, on the attractiveness of this area and its commercial zones.

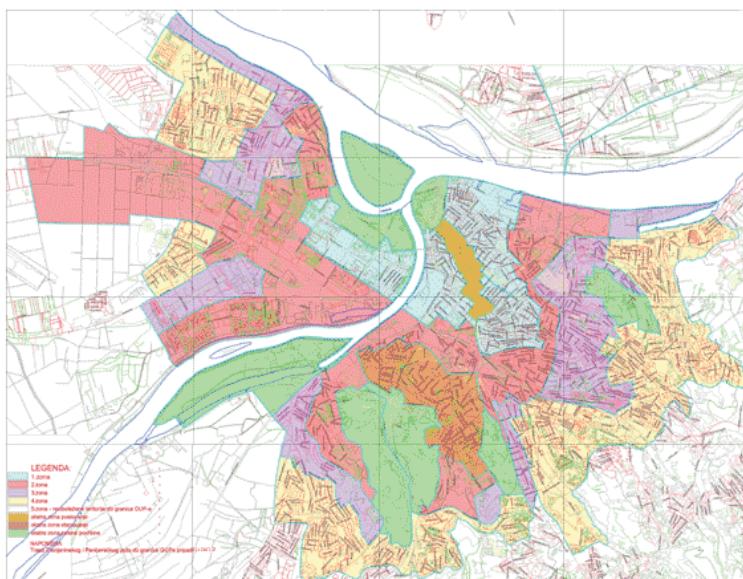


Figure 1. Urban Land in Belgrade – Zones (Extra, Zones I-V)

Source: <http://www.beoland.com/zemljiste/gup2021.asp>

Compared to the market value of the site/location, one can cast doubt on the mechanisms of their determination by local and republic administrative methods derived from regulations. For example, locations within the urban construction land of Belgrade will not depend on turnover, i.e., they are driven by market mechanisms of supply and demand. Currently, along highways and other development corridors of Belgrade there is no a single square meter of land open for construction. Construction land is being sold at prices ranging from 50-1500 EUR/m². This situation could have a discouraging effect on potential investors.

More detailed and/or more operational research for the T 5.5 should be undertaken, provided the necessary indicators are made available. Hereinafter, two groups of indicators are proposed. The first includes the basic indicators regarding some key market categories, and the second, a group of indicators by means of

which a multifunctional land use is estimated, evaluated and compared with a reference to three metropolitan areas, i.e., Belgrade, Rome and Sofia.

4.2.6. Basic market indicators for urban land and real estate

Annual volume of demand for land (for industrial, commercial and residential uses, in ha per year).

Transaction volume, which expresses an annual number of plot transactions for commercial and/or residential purposes. It could also be expressed as the ratio of the number of sales and purchase agreements to total housing stock, i.e., as the turnover rate.

Annual number of dwelling transactions (sales and purchases).

Average annual volume of supply of urban (construction) land (for industrial, commercial, residential, public and other purposes, in ha per year).

Median and extreme prices of urban (construction) land (€/m²).

Prices of various types of dwellings (flats, housing units, etc.) in €/m².

Number of housing starts (per year).

Number of permits issued (per year).

Change in urban area vis-à-vis change in population (as %, or as index).

Annual gross rental yield per housing unit (annual rent/house price x 100%).

Annual gross rental yield for commercial properties (AGRYCP=Annual rent per m² of floor space x m² of built space/Value of built space, expressed in %).

Gross rent multiplier (GRM=Market value/Annual gross income-rent). This indicator is suitable as a rough (“quick and dirty”) assessment tool for the general assessment of over-pricing – or under-pricing – properties (assets) to serve as a measure of *resilience* of investment property policies over time, both for the existing and newly-constructed units.

Buy-rent gap like the ratio of the costs of purchasing a flat to the rental costs, which compares the costs of owning a flat in relation to its renting.

Vacancy rent of built floor space or unit (Effective number of occupied units, in m²/Total number of units, in m² in a certain zone and/or building category).

Indicators of multifunctional land use

Land development multiplier, which expresses the relationship between the average price of a spatially arranged and organized plot (lot, site, parcel, and so forth) in a developed (or built-up) area and the average price of undeveloped land in a non-built (non-developed) area.

Diversity index, as a quantitative measure, expresses the different land use functions (or “planned destinations”) that could simultaneously exist in the project area. Apart from its general form (Diversity = Actual number of functions/Maximum number of feasible functions), there is also a number of its variants (True diversity index, Shannon entropy index, etc.).

Dispersion index (deriving from the HHI, Herfindahl-Hirschman Index, measuring the size of firms in relation to the industry, as an indicator of the amount of competition among them), in the urban land management it expresses the variability of functions in a given area, as in the formula:

$$D = \frac{1}{l \cdot \sum_{i=1}^l \left(\frac{M_i}{S}\right)^2},$$

where $i=1$, M_i - the amount of m^2 land used by a single function i (input), S - the total amount of m^2 land use of the project area, l - the actual number of functions (l has the maximum according to the number of land use functions of planning or other documents).²⁴

Index of efficiency and intensity of land use (FSI, etc.), as a standard measure of the utilization of some area (space).

Also, a number of other indices may be developed to express: urban expansion patterns; the degree of compactness of urban land (compendious development, linear/corridor development, “leapfrog” development, cluster space development, etc.); the degree of urban sprawl; etc. They would, individually or simultaneously, measure certain multi-dimensional concepts applied to a certain area, e.g. the level of competitiveness, environmental quality, territorial/spatial cohesion, as these concepts cannot be captured and expressed by a single indicator. Along this approach, and based on the appropriate theoretical framework and methodological approach, composite indices would be selected and combined in a way which is most suitable to express the concept in question (i.e., compactness, urban sprawl, resilience in the use of urban land, cohesion, etc.).

Acknowledgements:

This chapter is the result of the project “Transitioning towards Urban Resilience and Sustainability (TURaS)”, Contract No. 282834, which is financed within FP7 of the EC on topic ENV.2011.2.1.5-1; and project “The Role and Implementation of the National Spatial Plan and Regional Development Documents in Renewal of Strategic Research, Thinking and Governance in Serbia”, No. III 47014, financed by the Serbian Ministry of Education, Science and Technological Development in the period 2011-2016.

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²⁴ See Rodenburg C., Nijkamp P., Design and application of policy criteria, Research Memorandum 2002-28, Free University Amsterdam, Department of Spatial Economics, Amsterdam, 2001.

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Zeković, S., Vujošević, M., Bolay, J.C., Cvetinović, M., Zivanović Miljković, J., and Maričić, T. (2015a) Planning and land policy tools for limiting urban sprawl: The example of Belgrade. *Spatium* 33: 69-75.

Zeković, S., Vujošević, M., Maričić, T. (2015b) Spatial regularization, planning instruments and urban land market in a post-socialist society: The case of Belgrade. *Habitat International*, 48, 65-78.

4.3. Transformation of housing policy in post-socialist city: the example of Belgrade

Slavka Zeković, Tamara Maričić and Marija Cvetinović, in: J. Sidoli, M. Vols, and M. Kiehl (eds.), *Regulating the City: Contemporary Urban Housing Law*, Eleven publishing, Eleven-Boom Uitgevers Den Haag, The Netherlands, 2016, pp. 47-74.

This contribution is only a minor part of a research that was originally published in the first volume of a series that seeks to examine the many faces of housing law from a variety of academic and professional perspectives. Here we enclose abstract and rephrased conclusions and recommendations.

Abstract

The paper explores the transformation of housing regulations and policies related to the changes in Serbia's historical and post-socialist context and its effects on the urban development of the Belgrade Metropolitan Area (BMA). The socialist concept of the welfare state was transformed in a very short time into a neoliberal economic concept, with deregulation of the housing legislation, especially by mass privatization of social (public) housing stocks. In the post-socialist era, four main types of housing policies have been identified: 1) fast and total privatisation of state-owned dwellings; 2) vast illegal housing construction; 3) dynamic growth of commercial housing, and 4) slow and limited growth of a new social housing policy. The changes to the housing laws during the transitional period include major negative implications of housing policies on the urban development policy of the BMA, and are as follows: 1) the privatisation of 266,500 state-owned dwellings for a pittance, resulting in only 1.5% of public-owned dwellings in Serbia (2.18% in the BMA); 2) vast illegal housing (1.4 million of totally 4.6 million buildings in Serbia; 0.2 million only in the BMA); 3) inefficient new social housing policy with a symbolic number of new residential units, and 4) extremely inefficient urban land use as a consequence of ineffective residential, urban and other policies (in the BMA, urban land consumption increased to 670 m²/p.c. in 2012, showing extremely inefficient urban land-use compared to the European level). These findings demonstrate a highly unsuitable post-socialist mode of housing policy transformation (by changing the previous laws according to a strong neoliberal course) and also show the patterns of short-term policies (i.e. privatisation) with marginal financial effects, very limited success of new social housing, and socially unsustainable illegal housing and urban policies.

Conclusions and Recommendations

The example of Serbian post-socialist transition shows how the socialist concept of welfare state has been rapidly transformed into a neoliberal economic one. That had direct impact on deregulation of the housing legislation, and resulted in mass privatization of social (public) housing stock. A deeper analysis of the

transformation of housing regulations and policies in different historical, political and socio-economic contexts in Serbia, shed light on the lack of housing policy reform in the recent decades. There have been significant consequences of transformation of the housing regulation under neoliberal auspices, especially regarding the privatization of state and socially-owned housing stock and urban building land, liberalization of housing rent, (in)formal housing market, conversion of agricultural to construction land, a lack of state regulation and control, etc. This kind of transformation had specific impact on land use and overall development of the BMA.

During the post-socialist period in Serbia, four main types of housing policies could be distinguished, that is: 1) fast and total privatisation of state-owned dwellings, which was introduced in 1990, without restitution; 2) massive illegal housing construction, intensified in the 1990s; 3) dynamic growth of commercial housing, and 4) a slow and limited growth of a new social housing policy.

Some of the most important findings of our research include the following: a) though 266,500 state-owned dwellings have been privatised, that had only marginal financial effects, but also resulted with only 1.5% of public owned dwellings in Serbia (or 2.18% in the BMA); b) from a total of 4.6 million buildings in Serbia, around 1.4 million are illegal (in the BMA there are 0.2 million illegal buildings); c) the legalisation of majority of illegal, irregular and informal buildings has been ineffective; d) a small number of new residential units constructed in the last decade shows the inefficiency of new social housing policy; e) the lack of efficient and effective residential, urban and other related policies resulted in extremely inefficient urban land use (from 1991-2011 the urban area in the BMA increased three times, but urban land consumption increased from 233 to 670 m²/p.c. – more than in all other European metropolitan areas); and f) while the number of dwellings and average residential floor space p.c. have shown remarkable growth, at the same time population growth in the BMA has been very low and economic growth has been low or negative.

One of the key findings points to fact that during the post-socialist transition the reform of the part of Serbian housing legislation was missing, especially concerning the development of housing tenancies (this refers especially to: creation of the public owned housing stock, regulation of housing market, level of rents, rent subsidies, implementation of rent taxation, protection of the rights of the lessee and the lessor, lease register, rent-control, incentives, sanctions, and measures), institutional capacity building in the public and private sector, statistics, the legalization of illegal buildings, housing assessment value, and other. The adoption of specific regulations and their inclusion in the Serbian housing policy will further support harmonisation with the *Acquis communautaire*.



T U R A S

TRANSITIONING TOWARDS URBAN
RESILIENCE AND SUSTAINABILITY



5.

RESEARCH OF THE URBAN LAND POLICY AND URBAN PLANNING AND GOVERNANCE

5.1. Evaluation of urban construction land: recommendations for
local development

Slavka Zeković

5.2. Spatial regularization, planning instruments and urban land
market in a post-socialist society: the case of Belgrade

Slavka Zeković, Miodrag Vujošević and Tamara Maričić

5.3. Planning and land policy tools for limiting urban sprawl under
the economic uncertainty: example of Belgrade

Slavka Zeković, Miodrag Vujošević and Tamara Maričić



T U R A S

TRANSITIONING TOWARDS URBAN
RESILIENCE AND SUSTAINABILITY

5.1. Evaluation of urban construction land: recommendations for local development

Slavka Zeković, *Evaluacija građevinskog zemljišta: preporuke za lokalni razvoj*, Conference „Strukturni i delatni potencijal lokalnog razvoja“, M. Petrović (ed.), Sociološko udruženje Srbije i Crne Gore, Institut za sociologiju, Filozofski fakultet Univerziteta u Beogradu, 2014, pp. 83-105.

This contribution presents a minor part of the paper that was originally presented at the national conference „Structural and activity potential of local development“, and published in the proceedings. Here we enclose its abstract and rephrased conclusions from the paper.

Abstract

The paper discusses the regulatory framework, new approaches and methods of evaluation of building land as part of the physical territorial capital of cities, the instruments of capture its added value, as well as the empirical experience in Serbia Privatization of the most valuable territorial and economic capital of Serbia. This field is regulated by the Law on Planning and Construction (art.99-103) that is *sui generis*, without restitution, as well as the by-laws. Privatization of urban construction land „on back door“ is carried out by introducing the conversion of land-use rights into property rights (with or without compensation) for different categories of stakeholders (including the previously privatized social enterprises which are obtained a building plot in the privatization process). By-laws and other regulations are not made productive effects in assessment or appraisal the market value of buildable land, which is opened a number of property-legal, socio-political, economic, developmental, institutional, organizational, issues of restitution and other issues in the fields of “strategic urban planning, management and land-use control in cities. The article offers recommendations for improving the methodology of assessment& appraisal the real estate: principles, factors, new market-economic approaches, and methods of assessment and evaluation of building land in Serbian cities.

Final conclusions

It is concluded that the lack of social, political and professional dialogue regarding the construction land system and policy has resulted in the Law on Planning and Building prescribing the regulatory framework for this field, even though this law is not *sui generis* for regulating property issues, nor is it a legal basis

for ownership transformation (the so-called right of use conversion into the right of ownership).

The system of construction land, the policy, instruments, planning, management, measures, mechanisms, standards, evaluation, monitoring and control are not in compliance with the transition reforms.

It is evident that the state is heavily involved in determining the fee for converting the right of land use into the right of land ownership. From 2009 to May 2013, the Government through the Ministry of Finance and the Tax Bureau, i.e. experts, determined the "market value of land" and price reduction, while not distinguishing between land value and the market price of land, i.e. "quasi-market". The absence of transparent and effective approaches and methods of construction land and real estate evaluation must be noted. We emphasize here one of the regulatory innovations regarding the evaluation of real estate market value, which seems to be unacceptable from the point of evaluation theory and real market mechanisms and financial transactions in practice. Namely, according to law, the director of the Republic Geodetic Authority (RGA) is authorized to pass by-laws that prescribe the criteria, procedure, manner and methodology of evaluating real estate, while the RGA is authorized to perform evaluation and manage real estate value.

In the field of construction land value evaluation, the following problems are present, such as: a) lack of skilled personnel and institutions dealing with construction land - planning, estimation, evaluation, monitoring, administration, management, control, as well as a lack of coordination in institutional collaboration (urban planning office, fiscal office, cadastre, property legal office, statistics office, etc); b) poor availability of system data regarding public ownership, value evaluation of real estate in public ownership; c) the absence of publicly available general data on the total, public and private construction land, built and non-built at municipal and town level; d) the absence of transparent indicators regarding construction land; e) the absence of volume estimation and stratified demand for land and objects for various purposes (inter/national, regional, local, sectoral), time and territorial distribution of demand, user/investor's buying power, as well as the absence of supply elasticity of construction land.

In Serbia, relevant regulatory rules for evaluating real estate have not been determined; therefore it is recommended that the following be introduced: legal principles; economic principles (substitution, demand and supply, expectations or projections, compliances etc.); factors important for real estate value (physical, market-economic, legal, social, political, spatial/urban planning); evaluation approaches (cost, comparative/market, return/capitalization, etc.); evaluation methods (a multitude of methods, particularly, the application of the method for massive value evaluation); market mechanisms, institutions and instruments for evaluating real estate value (construction land). The amendments to the Law on Planning and Building (2013) foresee that the municipal committees should determine the approximate values of real estate (based on the data from the records of prices in the buying and selling contracts, taken from courts), while not offering even one of the recommended elements for real estate evaluation. The current

regulatory framework of real estate value evaluation does not take into account the mentioned facts, which are in Serbia's general interest; so it can be assumed that there is incomprehension and an unsustainable relation towards a very complex field of estimating real estate market value, particularly construction land.

To conclude, it is necessary to introduce new principles, approaches and methods of evaluation into the field of construction land value evaluation (according to the following criteria: physically possible, legally permissible, financially feasible, socio-economically and ecologically justifiable and spatially maximally productive), as well as to introduce exemption instruments for increased value of construction land.

5.2. Spatial regularization, planning instruments and urban land market in a post-socialist society: the case of Belgrade

Slavka Zeković, Miodrag Vujošević and Tamara Maričić, *Habitat International*, No. 48, 2015, pp. 65-78.

This contribution presents a minor part of the paper that was originally published in the international journal *Habitat International*. Here we enclose its abstract and rephrased conclusions from the paper.

Abstract

Over the last three decades, Serbia has moved from a mixed centrally planned – deliberative – self-governing economy to a market-based economy, but key institutional reforms are still not complete. Based on the contextual framework of post-socialist countries and theoretical background, this research focuses on the interaction between spatial regularization and existing planning instruments *versus* urban land market and land-use policy, and their impact on urban expansion in the Belgrade metropolitan area (BMA). The intention is to clarify the implications of urban land use policies and their (im)balance with planning instruments and the land market. The contextual framework of post-socialist Serbia, the transformation of its urban land policy as well as the land development management in the BMA illustrate complexities of spatial regularization, further emphasized by the delay in introducing and adopting new urban land policy. Key findings include: extremely inefficient urban land use and excessive urban sprawl (in the last two decades the urban area has tripled; with high urban land consumption of 670m² p.c. compared to other metropolitan cities); and important role of urban land policy (existing, still untransformed instruments contribute to urban sprawl).

Conclusions and Recommendations

Following the period of development stagnation in the 1980s, international sanctions and isolation of Serbia in the 1990s, the NATO bombardment in 1999, and selective and insufficient growth and development after 2000, Belgrade has still been searching for its adequate rank in the European and regional networks of post-socialist urban centers, for example, to assume the role of a Gateway City of the South-Eastern Europe (or within the scheme MEGA, Metropolitan European Growth Area), and/or to become one of the leading city-regions in the future schemes of economic and other integration of Balkan countries. In this respect, its future positioning ranks differently in various regional and urban schemes, paralleled by pertinent academic discussion on this theme, as well as by concomitant political dynamics (e.g., in the Project ESTIA-SPOSE, 2005, ESPON, PlaNet CenSE, 2006, UN Habitat, 2012, etc.). Following the Danube Space Study (2000), Belgrade Metropolitan Area may be assuming the status similar to those, respectively, of Bucharest and Sofia, in parallel to playing an appropriate role on the main axis of transnational cooperation in the Danube cooperation belt, alongside with Munich, Prague, Vienna, Bratislava and Budapest (apart from the abovementioned Bucharest and Sofia). In this respect, Belgrade may assume a prominent role in the system of key ports of the Donau Hansa (commercial centres, development centres, specific development zones/free ports, etc.), also pointed to in the in the ARGE Donau Project. However, Belgrade has been facing a number of hindrances and challenges with regard to improving its position in the new geopolitical space of Europe. For example, a finding from the most recent research (TURaS, 2014) has shown that mainly market forces generate the current process of suburbanization in Belgrade, while suburbanization and sprawl have not yet been identified as distinct urban processes that require a specific urban policy/approach. This paralleled a diminishing role of planning cluster, which has failed in assuming the key role in regulating and mitigating the market forces and steering suburban development. Especially standard planning policy tools and instruments, viz., zoning regulations, taxes and fees, and the development of primary suburban infrastructure, failed to assume more prominent role in directing urban development. On the other hand, and similarly to a number of urban centers in this part of Europe, during the period of post-socialist transformation and transition, Belgrade has been trying to modify its traditional urban identity and to create a new urban identity, which have all pointed to the significance of a number of contemporary processes, e.g., development of commercial services, deindustrialization, reindustrialization and industrialization of rural and peripheral areas, conversion of agricultural land to construction land, privatization of housing and urban construction, and so on. Here of particular importance is to emphasize a specific character of urban growth and development of the Belgrade Metropolitan Area. Namely, unlike the “western (USA and West Europe) experience”, where urban spatial expansion represents a result of a growing population, raised income and lower commuting costs, the main direction of development of this city has been influenced by legislative specificities and the urban policies of Serbia. The paper indicates that, in addition to existing planning instruments and urban land use tools, another set of mechanisms is needed to bridge

the gaps related to the urban land market or to guiding and controlling urban sprawl. These mechanisms should address the resolution of key problems, recognized by key findings in the contribution, viz.: 1) Inefficient urban land-use, paralleling excessively intensive urban sprawl, low population density, etc.; 2) Concomitant overconsumption of agricultural land, paralleling the roots of urban expansion in the BMA; 3) Still unresolved issue of conversion of urban land leasehold rights into urban land property rights; and 4) An enormous increase of illegal and/or informal construction in the BMA, manifesting itself via a number of types of urban sprawl. All the above-mentioned insufficiencies largely stem from the failure of urban development planning-policy and land use management policy, for which a strong departure from the existing policies is needed. Another imperative for radical change comes from the necessity to reform the system in accord with *acquis communautaire*, as a precondition for subsequent inclusion of the country into the EU. Specific issues and problems, which should be addressed by applying new approaches, methods, instruments/tools and institutional and organizational arrangements, comprise the following: 1) Regulation of grossly inefficient urban land consumption; 2) Regulation of the elasticity of land supply and land demand, within the synergic functions of urban land market and urban development planning and governance; 3) Reshaping the administrative arrangements for land use management; 4) Improving the transparency of the entire system, in accord with the suggestions and recommendations of relevant international institutions and organizations; and 5) Streamlining urban land management system, on the one hand, and the tax system, on the other.

5.3. Planning and land policy tools for limiting urban sprawl under the economic uncertainty: example of Belgrade

Slavka Zeković, Miodrag Vujošević and Tamara Maričić, in: *Book of abstracts of the 2nd international conference on 'Changing cities II' Spatial, Design, Landscape and Socio-economic dimensions*, 22-26 June 2015, University of Thessaly, Porto Heli, Greece, p. 157.

This contribution presents an abstract of the paper that was originally presented at the international conference on 'Changing cities II', and published in the Book of abstracts.

Abstract

World economic and financial crisis, growing economic uncertainties and risks, spread of “the real-estate bubble” (conversion of development boom to development doom), conversion of housing boom, real-estate boom and urban land bubble to urban doom (urban sprawl), all contributed to a drastic decline in the real-estate

value, followed by subsequent erratic, weak and slow recovery. The causes of “real-estate bubble” and “land bubble” growth in cities are numerous, and they induced several consequences in global crisis. A lack of equipped urban construction land for green-field investments and housing, business and industry, along with neglecting brown-field locations, also contributed to the crisis. In Serbia, this process of “real estate bubble growth” manifested itself via additional increase of illegal construction, now totaling to some 1.4 million illegal buildings, which is ca. 30% of total number of buildings.

In the Belgrade Metropolitan Area (BMA), some 0.2 million of illegal buildings were recorded, causing additional pressure on the urban uncontrolled urban sprawl. Urban sprawl/suburbanization is one of the most dominant processes of land use changes in the BMA, with strong spatial and environmental impacts. The paper starts from a brief review of the Master plan of Belgrade and the Regional plan of BMA (for the level NUTS 2), primarily vis-à-vis their respective roles with regard to the efficiency of urban land policy. Traditional planning tools in the BMA (zoning regulations/land regulations, urban growth boundaries, infrastructure investments, green belts, urban land policy with price mechanism - development fees, property taxes, land acquisition and deposits) have been shortly described, followed by some recommendations for limiting intensive process of suburbanization (or the so-called “peri-urbanization”) in the BMA. Besides the traditional planning tools, we suggest the introduction of more innovative and flexible urban land policy tools, aiming at the new role of planning in creating a more resilient city, viz.: urban rezoning, tradable development rights, trading density for benefits (density bonus policy), implosive and inclusive zoning, infrastructure finance, public-private-partnerships, introduction of development land in the periphery, annexation, and some others. In that respect, there has been a need for major readjustments of current planning policy regarding the control of urban sprawl, in general, from the urban “command-and-control” approach to the “learn-and-adapt” approach, including pertinent institutional, procedural and substantive aspects. The paper opens the question “How to prepare planning and development regulations for limiting urban sprawl when there is a lack of guidance for dealing with uncertainties, disturbances and thresholds in the complex post-socialist context?”



6.

ROLE AND EFFICIENCY OF NODES IN A POLYCENTRIC URBAN SYSTEM

6.1. Urban society and resilience of Belgrade and Novi Sad in the network of settlements in Serbia – recent changes and perspectives
Jasna Petrić, Jelena Basarić and Tanja Bajić



T U R A S

TRANSITIONING TOWARDS URBAN
RESILIENCE AND SUSTAINABILITY

6.1. Urban society and resilience of Belgrade and Novi Sad in the network of settlements in Serbia – recent changes and perspectives

Jasna Petrić, Jelena Basarić and Tanja Bajić, in Gospodini, A. (Ed.) *Proceedings/ International Conference on "Changing Cities": Spatial, morphological, formal and socio-economic dimensions*, Skiathos, June 18-21, 2013., Department of Planning and Regional Development, University of Thessaly, Greece, pp. 1720-1729.

This contribution is only a minor part of a paper originally presented at international conference on “Changing cities” and published in proceedings. Here we enclose abstract and rephrased conclusions.

Abstract

As one of the modern substitutes for ‘sustainable development’, ‘resilience’ marks a relatively recent and overarching concept which relates to research of urban areas and urban society. In this paper, the resilience challenges are reflected on the urban context in Serbia, with special reference to two of its biggest cities - Belgrade and Novi Sad as the key pointers in growing imbalances in the settlement network of the country. Although this is not a particularity of Serbia, other urban settlements, especially small and medium-sized towns, have not been empowered enough to substantiate better links with smaller and larger settlements within urban-rural interface, and their role has been challenged from the aspect of ‘resilience *of* cities’. This paper also addresses the recent changes and perspectives for ‘resilience *in* cities’ with examples of Belgrade and Novi Sad. Finally, some implications are drawn towards potential adaptability within urban settings of Serbia.

Concluding remarks

In contrast to sustainability, resilience is not systematically integrated into strategic planning of cities and network of settlements. A specific challenge is raised with resilience being applied to big cities, both at the scale of “network of settlements” or in terms of their urban form and land-use pattern. The analyses in this paper evolved around the following intertwined themes of urban resilience, as applied to the Serbian urban context: metabolic flows; governance networks; social dynamics; and built environment. There is a disproportionately large development of

the Belgrade- Novi Sad metropolitan area in comparison to the rest of the country, especially with the network of small and medium-sized towns (with respective population under 100000 inhabitants) that should have played a significant role in rural-urban interactions.

Even though Belgrade and Novi Sad naturally demonstrate stronger position in terms of competitiveness and agglomeration advantages, moreover because they are physically close one to another, the future prospects of balancing the development of network of settlements in Serbia is in redistribution of functions towards macro-regional and regional urban centres. This would imply targeted, i.e. concentrated decentralisation, based on selection of priority projects (including much needed reindustrialisation). Consequently, such scenario would bring to enhancement of the quality of living not only for the parts of the country that are now lagging back, but also it would improve the quality of living within Belgrade- Novi Sad urban agglomeration.

The case studies of Belgrade and Novi Sad demonstrate that resilience in cities have to do with strategies for limiting urban sprawl. First issue is to safeguard valuable agricultural land and natural areas, to reduce energy spending, and to limit to the largest extent the negative effects of densification ('implosive sprawl').



7.

RESEARCH OF URBAN GROWTH / SPRAWL – ANALYSIS OF BELGRADE

Belgrade metropolitan area development

- 7.1. Local economic development and transformation of urban structures in municipality Stari Grad in Belgrade

Slavka Zeković

- 7.2. Development of Belgrade's urban form: compactness, urban sprawl and urban "resilience"

Jasna Petrić and Teodora Nikolić

- 7.3. A Preliminary Analysis of Sustainable Development in the BMA

Slavka Zeković, Miodrag Vujošević and Tamara Maričić

Development of a system of tools for monitoring and assessment of urban sprawl

- 7.4. Planning and land policy tools for limiting urban sprawl: example of Belgrade

Slavka Zeković, Miodrag Vujošević, Marija Cvetinović, Jean Claude Bolay, Jelena Živanović Miljković and Tamara Maričić



T U R A S

TRANSITIONING TOWARDS URBAN
RESILIENCE AND SUSTAINABILITY

Belgrade metropolitan area development

7.1. Local economic development and transformation of urban structures in municipality Stari Grad in Belgrade

Slavka Zeković, Lokalni ekonomski razvoj i transformacija urbanih struktura u gradskoj opštini Stari Grad, in: Zbornik radova IV konferencije *Stara gradska jezgra i istorijske urbane celine – problemi i mogućnosti očuvanja i upravljanja*, Zavod za zaštitu spomenika kulture grada Beograda, 2013, pp. 206-217.

This contribution is only a minor part of a paper that was originally presented at a national conference “Old urban cores and historical urban areas”. Here we enclose abstract and rephrased conclusions.

Abstract

Paper presents the research results of most important problems of local economic growth, opportunities and priorities of the strategic sustainable development of Stari Grad municipality in Belgrade, as identified in *the Strategy of Local Sustainable Development of Stari Grad* which was adopted in 2012. Existing territorial capital of the Stari Grad (which, among other things, includes cultural heritage, historic urban ambient and palimpsests, cultural identity, and a variety of urban and creative development resources) represents a basis for the process of post-transition economic restructuring and transformation of urban structures in the historic Belgrade core, as well as for strengthening its metropolitan and regional role in South East Europe. It has been pointed out that the economic development of Stari Grad could encourage the function of "financial city", "business and shopping center" and "commercial and logistics center", relying on the development of service sector, scientific research and innovation activities, and activities of the so-called "creative economy". It is estimated that the neo-liberal development policies and urban planning (relied on development of services and an excessive growth of business space) caused conversion of so-called boom scenarios of urban development into the so-called doom scenario which is reflected in the uncontrolled (and illegal) urban sprawl and poor urban renewal of the old town. It is concluded that this happened due to "success" and "competitiveness" of urban development which enables "transformation of attractive territorial potentials/

resources into non/liquid assets" by instruments of urban policy. The paper gives a brief critical review on some of the planned projects of urban reconstruction of the city core and coastal Danube and Sava river area in the Stari Grad.

Conclusions

The paper presents the strategic priorities in economic development and their link to the urban transformation of Stari Grad. It also points to the significance and potential risks of planned strategic projects in the original town core: 1) the construction and development of economic infrastructure and content; 2) the urban reconstruction of the central zone and Danube coastal area - Belgrade Port; 3) "City on Water"; 4) infrastructure; 5) potential study on the construction of the Sava amphitheater; 6) the development of the Sava pier, Beton Hall, banks of the Sava River and the neighborhood of Kosančicev Venac; 7) the development of the coastal area; 8) making documents and studies for the revitalization of the Belgrade Fortress zone and Kosančičev Venac; 9) policy for managing the office space that is under municipal authority; 10) «recycling» the neglected and devastated brownfield locations within the urban core (the so-called recessive/stagnant economic poles in the urban structure); 12) establishment of an efficient system for socio-economic, market-financial evaluation, implementation and monitoring of economic and strategic urban projects in the central urban core of Belgrade. The realization of complex economic projects in attractive locations and zones in the old town relies on a very limited budget, as well as on the participation of non-traditional investment castes - government institutional funds, investment funds, real estate companies, etc. When Serbia becomes an EU member-state, it will be possible to have access to the instruments for co-financing integral projects for sustainable urban development (JESSICA) and financing SMEs (JEREMIE).

7.2. Development of Belgrade's urban form: compactness, urban sprawl and urban "resilience"

Jasna Petrić and Teodora Nikolić, Razvoj urbane matrice Beograda: kompaktnost, nekontrolisano širenje i „fleksibilnost“, in Petrić, J., Vujošević, M., Hadžić, M., Bajat, B. (Eds.) *Obnova strateškog prostornog mišljenja, istraživanja i upravljanja u Srbiji – knjiga 2*, IAUS: Belgrade, 2014, pp. 171-194.

This contribution is only a minor part of a paper that was originally published in an edited book "Renewal of strategic spatial thinking, research and governance in Serbia – book 2". Here we enclose abstract and conclusions.

Abstract

Within the Serbian urban system, Belgrade, i.e. Belgrade Metropolitan Area holds a special position. A recent research of the urban form as well as of the urban development of the city metropolitan area is shifting a focus from previously dominant concept of a sustainable urban development towards urban resilience. By emphasising the city urban form and spatial patterns of development within the broader territory of the City of Belgrade, this paper challenges the theories of compact city development, urban sprawl and urban ‘resilience’. Alongside the analysis of transformation of urban form, there has been analysed social dynamics (demographic change, centre-periphery disproportions, etc.) in the period of post-socialist transition. The key findings justify the concept of decentralised concentration of a city in order to safeguard valuable agricultural land, natural areas, as well as to simultaneously protect from potential negative impacts of inner city densification.

Conclusion

In the period after the 1990s, Belgrade Metropolitan Area (BMA) has been characterised by certain development pattern of its urban form (the type of change of its urban matrix) which witnesses the compacting process, especially regarding its UMZ, i.e. its continual urban area. From the aspect of sustainability of the urban form, this pattern is desirable, having in view the “centrists” standpoint that land-use intensification in a city and population density would attract people to live and work in such environments. More recent demographic changes confirm the population revitalisation of continual and inner urban territory of Belgrade, and they correlate with the exhibited spatial development of the urban matrix.

On the other hand, BMA clearly demonstrates sprawl of a condensed UMZ. The analyses showed that in the period 2000–2006 only, UMZ enhanced its territory for almost 33% and in such a way it encompassed some existing settlements and fragments of the artificial areas, mostly along the roads towards Novi Sad, Zrenjanin, and Smederevo. With such consolidation, there has been reduced “fragmentation” of the developed areas within BMA, yet it is questionable whether this has happened according to sustainable development principles. The compact urban form as a manifestation of the urban development process can be sustainable, while the urban development itself could have negative characteristics, primarily because alleged decrease of policentricity in the network of settlements. The existing settlements, likewise the fragments of artificial areas, are merged to UMZ, therefore a balanced relationship between the city and its hinterland is disturbed. Enhanced centralisation imposes reduction of BMA “resilience”, i.e. weakening of possibilities of its “self-build” when it is exposed to various pressures.

From the aspect of “resilience” of urban form of Belgrade, future research should be dedicated to the inner development of UMZ, especially to its “implosive sprawl” in reference to transformation of large public spaces of the city into built area, especially for the purpose of new residential areas that are in higher demand in the inner urban areas.

7.3. A Preliminary Analysis of Sustainable Development in the BMA

Slavka Zeković, Miodrag Vujošević and Tamara Maričić, *International Journal of Social, Behavioral, Educational, Economic and Management Engineering*, Vol. 9, No. 7, 2015, pp. 3314-3221.

This contribution is only a minor part of a paper that was originally presented at international conference and published in international journal. Here we enclose abstract and rephrased conclusions.

Abstract

The paper provides a comprehensive analysis of the sustainable development in the Belgrade Metropolitan Region - BMA (level NUTS 2) preliminary evaluating the three chosen components: 1) economic growth and developmental changes; 2) competitiveness; and 3) territorial concentration and industrial specialization. First, we identified the main results of development changes and economic growth by applying Shift-share analysis on the metropolitan level. Second, the empirical evaluation of competitiveness in the BMA is based on the analysis of absolute and relative values of eight indicators by Spider method. Paper shows that the consideration of the national share, industrial mix and metropolitan/regional share in total Shift share of the BMA, as well as economic/functional specialization of the BMA indicate very strong process of deindustrialization. Allocative component of the BMA economic growth has positive value, reflecting the above-average sector productivity compared to the national average. Third, the important positive role of metropolitan/regional component in decomposition of the BMA economic growth is highlighted as one of the key results. Finally, comparative analysis of the industrial territorial concentration in the BMA in relation to Serbia is based on location quotient (LQ) or Balassa index as a valid measure. The results indicate absolute and relative differences in decrease of industry territorial concentration as well as inefficiency of utilizing territorial capital in the BMA. Results are important for the increase of regional competitiveness and territorial distribution in this area as well as for improvement of sustainable metropolitan and sector policies, planning and governance on this level.

Conclusions

The empirical results of the comprehensive analysis and preliminary evaluation of the three components of sustainable development (that is, economic growth and developmental changes, competitiveness, and territorial concentration and industrial specialization) in the Belgrade Metropolitan Region (BMA) have shown that metropolitan economic growth and competitiveness are almost entirely explained by differences in regional specificities in terms of employment. The results show that although having negative values, structural component of the Shift-share analysis of the BMA have a slightly better effect of regional economic decline than the national average. The allocative component of decomposed economic growth of the BMA has a positive value as a reflection of specialization in the sectors of region, whose

productivity is above the national average. Both analyses (Shift-share and Spider method) indicate that the process of metropolitan/regional de-industrialization, measured by a drastic drop in employment, was very intensive in the BMA. Favorable allocative factors such as regional conditions and territorial capital of the BMA have contributed to alleviation of the overall decline of industrial employment in this area, as compared to the Serbian average. Although carrying negative values, structural component of the Shift-share analysis of the BMA shows a slightly better effect of regional economic decline than the national average. The analysis showed substantive development changes, in the first place, a decreased competitiveness, strong process of deindustrialization, and certain higher level of labor productivity. The application of Balassa index indicated that BMA belongs to poorly specialized industrial regions (with $LQ < 0.75$). Consequently, should it happen that appropriate measures and activities are not undertaken, further spatial concentration and specialization of economic and industrial structures in the BMA, paralleling expected growing regional disparities in Serbia. Being a part of the European Danube corridor VII zone and the TENs (Corridor X), BMA provides attractive and competitive conditions for economic development. Serbian regional development policy as well as sustainable development policy of the BMA should be based on the combined market factors, the economic competitiveness, spatial competition, territorial capital and territorial cohesion and convergence. The empirical results of the comprehensive analysis of the three components in the BMA should be used in decision-making about territorial allocation of the economic/industrial activities on this area with the aim to achieving sustainable using of territorial capital and sustainable development. Our results indicate that Serbian regional development policy, especially horizontal industrial policy (i.e., industrial zones, eco-industrial parks, etc.), should be based on a combination of market-led factors, territorial competition, territorial capital, and principles of territorial cohesion. In addition to this, there is a need to introduce some policies for improving competition and territorial cohesion of industry, in accord with the EU policies, as well as in accord with the provisions of the *Spatial Plan of the Republic of Serbia* (2010). This in first place applies to sustainable development and territorial convergence of development.



T U R A S

TRANSITIONING TOWARDS URBAN
RESILIENCE AND SUSTAINABILITY

Development of a system of tools for monitoring and assessment of urban sprawl

7.4. Planning and land policy tools for limiting urban sprawl: example of Belgrade

Slavka Zeković, Miodrag Vujošević, Marija Cvetinović, Jean Claude Bolay, Jelena Živanović Miljković and Tamara Maričić, *Spatium*, No. 33, June 2015, pp. 69-75.

This contribution is only a minor part of a paper that was originally published in international journal *Spatium*. Here we enclose abstract and conclusions.

Abstract

Both the characteristics of Serbia's urban land policy, the delay in reforms and land development management of the Belgrade Metropolitan Area (BMA) illustrate the complexities following the reshaping of institutional framework under the conditions of economic and other uncertainties of societal transition. The negative implications of the prolonged crisis on the new urban development policy and urban land tools can postpone the establishment and application of guidelines for limiting the urban sprawl. This paper presents a brief literature review, as well as the current urban land policy and land-use efficiency in the BMA. Traditional urban land tools will be shortly described, followed by recommendations for limiting sprawl. There is a need for readjusting the current planning and urban policy regarding the urban sprawl, from an urban "command-and-control" approach to a "learn-and-adapt" approach. We suggest the introduction of more innovative and flexible urban land policy tools.

Conclusions

Urban land policy still does not represent a part of the complex post-socialist mosaic of transition reforms. In Serbia, there has been a prolonged delay in the adoption of effective reforms in land management, which has not radically changed over the post-socialist period (Nedovic-Budic *et al.*, 2012). The current Serbian land management framework does not reflect the requisite political changes, the need for market regulation, and the enormous increase in urban land prices. According to the UN-Habitat, good land management is vital for improving urban planning. In cities where urban sprawl is becoming difficult, local authorities should reconsider building regulations and zoning laws and promote more compact cities. Urban

authorities should be empowered to adopt and implement better laws and regulation, as well as more innovative and more flexible planning and urban land tools. According to UN-Habitat (2013) Belgrade is “able to fully integration into the European economies (as MEGA-4) and has good future prospects...and have to modernize governance, openness and transparency in decision-making and improved participation.” Multi-level participation and coordination of institutional governance should include the effective implementation of urban policies and tools. Based on the results of a contextually appropriate approach, a comprehensive and comparative analysis of the urban land policy and tools for limiting urban sprawl in Serbian cities, we suggest application of the following guidelines: 1) *Guidelines on UTP* by the UN-Habitat; 2) *Guide for the participation in urban development planning* in Serbia; 3) *Guidelines on access to basic services for all*; and 4) planned guidelines for urban governance in Serbia (UN-Habitat), as well as creation of guidelines for urban land tools in accordance with GLTN. We emphasize that some factors have a decisive role in establishing policies and tools for the containment of urban sprawl, mainly: the ‘power-game-andbalance’ among the key stakeholders, as well as the political will of the responsible national authorities in formulating urban policies and tools in the specific constellation of power.



8.

SUSTAINABLE SOCIO-ECONOMIC DEVELOPMENT OF THE SEE REGION

8.1. Development of South-Eastern Europe: The Role of Industrial
Policy

Slavka Zeković and Miodrag Vujošević



T U R A S

TRANSITIONING TOWARDS URBAN
RESILIENCE AND SUSTAINABILITY

8.1. Development of South-Eastern Europe: The Role of Industrial Policy

Slavka Zeković and Miodrag Vujošević, *American Journal of Economics, Finance and Management*, Vol. 1, No. 5, October 2015, pp. 445-459.

This contribution is only a minor part of a paper originally published in international journal *American Journal of Economics, Finance and Management*. Here we enclose abstract and rephrased conclusions.

Abstract

In the paper are analysed post-socialist development in South-East Europe (SEE) and the role of industrial policy. Countries of the SEE introduced market and other post-socialist transition reforms applying the so-called ‘shock therapy’, with subsequent transitory drop in GDP, standard of living and industrial production. Particularly industrial collapse happened to appear as the ‘Achilles heel’ of the SEE economy. The *SEE 2020 Strategy* tends to reverse current trends from the consumption-led model of growth to export-led and foreign direct investment (FDI) driven type of growth, based on accelerated technological development, growth of competitiveness and completion of socioeconomic reform. However, there has been no evidence that is the FDI type of growth would be more efficient for regional development than that based on regional savings, remittances and resources of domestic investors. We have shown that the FDI in the SEE are three times lower than the amount of regional savings and remittances. In recent years domestic sources tremendously exceeded the total sum of FDI. The current situation and future prospects call for developing a common approach in this region, and concomitant supra-national regulations and institutional arrangements.

Conclusion

With the exception of Croatia, the other six SEE countries that have been addressed in this contribution are facing ‘Europeanization outside the EU, with its limited assistance and support, under the conditions of a prolonged crisis’. Their economies and public finances are on the verge of collapse, which has been narrowing the manoeuvring space for public authorities to intervene in developmental and related matters. This, especially, refers to redistribution and innovation industrial policies and a general shortage of financial, human, institutional, organizational and other resources. The completion of post-socialist transition reforms, more or less in accord with the EU Community *acquis*, has occasionally been rendering the overall development situation even worse, especially with respect to improving the positioning and competitiveness of this region in the international political, economic, cultural and other competition and power game. What is particularly unfavourable for the entire region is high rate of

deindustrialization and high unemployment rate. These two factors will predictably exert the strongest impact for defining a new generation of development concepts, focused on generating new employment and new models of (re)industrialisation. In this respect, the *EU Strategy 2020* may serve only as a starting-point, which will have to be emulated via an appropriate regional (Balkan) strategy of the kind. A reindustrialization should assume the role of the building block in the new strategy, and it will have to be developed urgently. This will of necessity put forth the issue of changing the current model of planning culture, which is substandard and inferior from the standpoint of future development prospects. New concepts will urge for a more strategic thinking, research and governance. More elaborate development policies are needed based on analytic concepts of general categories comprising the *SEE 2020 Strategy*. For example, a number of concrete arrangements are needed to better utilize remittances and domestic savings as the sources of future investment, with a view to grossly replacing the dependence on the FDI and international loans. Apart from this, a set of priority issues will comprise the following: better university education in the SEE region, with a view to both serving a new development and preventing brain drain; more SEE region-centred thinking, with a view to first establish a common strategic framework for the subsequent national industrial policies; introducing new development policies for diminishing both internal regional development disparities and its lacking behind the EU averages; elaboration of an appropriate strategic framework for the Balkans, or even for the entire ‘European South’, to some part also following the pertinent concepts of the kind that have already been rudimentarily been developed; overcoming current ‘developmental schizophrenia’ the majority of the SEE countries have been experiencing in the recent decade; looking for new concepts in the ‘post-neoliberal’ era, with the view to overcome its prevalent anti-planning and anti-development stance, especially among the elites and in the legislative and economic practice; looking for new approaches to developing effective and applicable ‘exit strategies’ to cope with the predictably prolonged crisis and bleak development prospects in the future; defining new approaches for overcoming the most burning and pressing problems regarding the public finances, in parallel with coupling this with broadening the manoeuvring space for public authorities to intervene in developmental and related matters, especially regarding redistribution and innovation policies due to a general shortage of financial, human, institutional, organizational and other resources; striking for a balance between the imperative to renew the strategic thinking, research and governance, and the urge to resolve the burning key development problems, on the other; working out new concepts of improving the most important element, that is, ‘soft territorial capital’, being the key problem on the horizon for the future elites; working on the most urgent issue of overcoming the current status of the SEE countries being economic, financial, social, ecological, and almost every other sense of colonies (‘inner peripheries of Europe’, ‘third Europe’, ‘fourth Europe’, and similar); developing common approach by means of which the SEE countries could fight another unfavourable factor, namely, that of a further fragmentation of political space in the Western Balkans, for which a common regional approach should be defined for improving overall development prospects, based on the initiatives of veritably sovereign national participants; etc.



PART II

GUIDELINES AND INDICATORS FOR LIMITING URBAN SPRAWL



T U R A S

TRANSITIONING TOWARDS URBAN
RESILIENCE AND SUSTAINABILITY



1.

SOME GUIDELINES ON LIMITING URBAN SPRAWL

Slavka Zeković and Miodrag Vujošević



T U R A S

TRANSITIONING TOWARDS URBAN
RESILIENCE AND SUSTAINABILITY

1.1. Introductory remarks

Not including the reference section, this contribution consists of two parts. In the first part, some comments are extended on the respective roles and contents of two key international documents in this area, viz., *International Guidelines on Urban and Territorial Planning* (Draft, UN Habitat, 2015), and the *Leipzig Charter on Sustainable European Cities* (2007). In the second part, some guidelines for the transformation of urban land policy and tools for limiting urban sprawl are presented and briefly interpreted, both traditional instruments and tools, and some which are more innovative and flexible. At the end of the paper we suggest that all of the documents mentioned (guidelines, charters, strategies, etc.) may fairly easily be implemented in the areas which are our main interest.

1.2. Two international documents

The document *International Guidelines on Urban and Territorial Planning* (UN Habitat, 2015, from now on: *IGUTP*) belongs to a larger group of international documents that should serve as the general directions for guiding urban and territorial planning, along with parallel documents from national governments, local authorities, development partners (e.g., World Bank, OECD), research institutions, academia, civil society organizations, etc. The *IGUTP* complements two other sets of UN Habitat guidelines, that is, the *Guidelines on Decentralization* (2007), and the *Guidelines on Access to Basic Services for All* (2009), which have been used in many countries to catalyze policy and institutional reforms (see Zeković et al, 2015a).

Twelve (12) key principles of the *IGUTP* are categorized into four groups, which are:

- Urban policy and governance;
- Urban and territorial planning for sustainable development;
- Urban and territorial components; and
- Implementation of urban and territorial planning.

The *IGUTP* intends to constitute a global framework for improving policies, plans and designs for more compact, socially inclusive, better integrated and connected cities and territories that support sustainable urban development and urban resilience under the impacts of climate change. Also, the *IGUTP* supports complementary activities and their national adaptation, the adjustment of legal and regulatory frameworks, and the application of the adapted guidelines to a particular city. To that end, national governments should, inter alia: first, promote urban and

territorial planning and synergies, and link urban planning to regional development to ensure territorial cohesion at the city/regional level; and second, promote compact cities, regulate and control urban sprawl, develop progressive densification strategies combined with land market regulations, optimize the use of urban space, reduce the cost of infrastructure and the demand for transport, and limit the footprint of urban areas, in order to effectively address the challenges of climate change. The *IGUTP* also has another set of goals comprising the following: first, the development of a universally applicable reference framework to guide urban policy reforms; second, to capture universal principles from national and local experience that could support the development of diverse planning approaches adapted to different contexts; third, to complement other international guidelines aimed at fostering sustainable urban development; and fourth, to raise the urban and territorial dimensions of the development agendas of national, regional and local governments.

So far there have been a number of evaluation papers concerning the implementation of some UN Habitat and related documents. For example, Sietchiping (2014) analyzed the *IGUTP* vis-à-vis the *UN Habitat Urban Planning and Design Strategy 2014-2019* (which discussed urban sprawl vs. compactness), and some national urban policies. When applied to Kosovo and Serbia, the document *Guidelines on Access to Basic Services for All* (2009) shows that these areas have the lowest access to basic services in isolated rural areas, peri-urban areas and slums. Consequently, a number of specific policy instruments are needed, specifically for complex and under-serviced territories (viz., rural areas, fast-growing cities/urban areas, slums, urbanized areas at risk, and so on), in order to cope with the lack of basic services and territorial planning gaps.



Figure 1. Countries with comprehensive national programs of integrated planning of urban development (for parts of urban areas or deprived zones)

Source: Beckmann D., The European Perspective – Integrated Urban Development as a new planning approach in the European Union – an overview, BBSR-Bundesinstitut für Bau-, Stadt- und Raumforschung, Studie “5 Jahre Leipzig Charta – Integrierte Stadtentwicklung als Erfolgsbeinung einer nachhaltigen Stadt”, presented at the Urban Energies congress in Berlin, 2012.

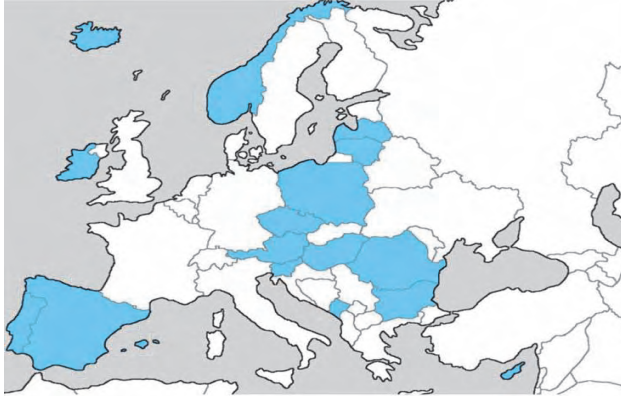


Figure 2. Countries with national or regional programs or national guidelines for integrated urban development (for parts of urban areas or deprived zones)

Source: ibid.



Figure 3. Countries implementing integrated urban development (for parts of urban areas or deprived zones) at the local level

Source: ibid.

Another document, the *Leipzig Charter on Sustainable European Cities* (2007) shows that the European plan to strengthen citizen participation in urban design should support the integrated urban development strategy as a tool for improved city management, based on the principles of competitiveness, and social and territorial cohesion. The Strategy for the development of European cities should be based on strengthening the policy of integrated urban development in line with the *Lisbon Strategy (Europe 2020)*, the *EU Sustainable Development Strategy* and the *European Employment Strategy*, altogether putting stronger focus on deprived city areas and making better use of the integrated urban development approach. In this respect, there are considerable differences among European countries in relation to the approach used in integrated urban strategies, as depicted in the following three figures.

1.3. Guidelines for the transformation of urban land policy and tools for limiting urban sprawl (traditional and more flexible)

According to UN Habitat (2013), large urban or metropolitan areas have now been emerging in Europe's transitional countries. Their typical feature is uncontrolled urban sprawl. The outbreak of world economic and financial crisis, growing economic uncertainties and risks, the spread of "the real-estate bubble", housing boom and the switch from the urban land bubble to urban doom (urban sprawl) have all contributed to a drastic decline in the real-estate value in cities and expansion of urban sprawl. Limiting urban sprawl (or the "urban growth machine") is not merely a part of integrative planning practices, instead it should be part of a realistic approach based on national/strategic policies, market trends and governance, and it depends on policy tools (Zeković at al. 2015c). In this respect, perhaps, new theoretical approaches would be needed with regard to development planning and market policy. For example, Davy (2014) defined a multi-rational theoretical concept (poly-rational theory), based on a more ramified understanding of dominant types of land use, each type needing its own kind of property rules. The eight types of land use are: insular; opportunistic; kinship; collaborative; corporate; structural; container; and environmental. This approach marks a departure from standard planning versus market dichotomies.

Some traditional planning tools

Here, some traditional planning tools and tools of urban land control will be briefly described, viz.:

- **Zoning regulations** (also comprising regulation of the maximum construction index and occupancy rate for eight predominant types of land-use) will be kept for their essential role in the urban (city) planning. They help to determine the function of properties in specific locations in order to ensure the city is well-planned. A property may be zoned for commercial or industrial use, or for residential use. Sometimes properties like "live/work" spaces contain multiple zones, some for residential and some for commercial use. When a city government or a property owner wishes to change the terms of property use, they may need to go through the process of rezoning physical property, which may be simple or complex depending upon the city's demands and requirements. Zoning and other land-use regulations, especially when adopted at the local level, tend to result in lower overall urban densities and encourage urban sprawl. Pogodzinski and Sass (1991) indicate that the effects of zoning depend on several factors, including: a) *what* local governments control through zoning; b) *how* strictly zoning regulations are enforced; c) *who* controls the zoning process, and d) the metropolitan context in which the zoning takes place. The elements of zoning ordinances and the subdivision of regulations can be classified into three types: a) regulations that are regional or spatial in orientation; b) regulations that are process-oriented or transportation-oriented and c) regulations that shape the individual development sites. The regulations strongly prescribe what is permitted and what is forbidden,

and their rationale is the so-called ‘command-and-control’ approach. Many countries have different regulations on land-use, and usually the public sector intervenes more in the construction of urban areas than elsewhere. In some countries, the government retains a discretionary power, e.g. in Serbia, the recently adopted *lex specialis* for the project ‘Belgrade Waterfront’, see Zeković et al. (2016), while in the overwhelming majority of European countries government power is limited by the constitution and laws.

- Analogously, mechanisms for **controlling urban growth boundaries** will keep their prominent role.
- As for **infrastructure investments**, they are not expected to lose relevance during urban (city) growth, for the simple reason that the pressure to improve services and provide essential infrastructure can be enormous. Because land cannot be moved, it can be a unique opportunity and basic resource for generating local revenues. Land-based financing should cover land valuation, land and property taxation and other means of creating revenue through land and over land. Here, of the utmost importance is the redistribution of the costs of public infrastructure among all stakeholders (within various approaches of planning-cum-market/market-cum-planning, predominantly non/administrative, etc.).
- Controlling **green belts** will similarly be kept as a fundamental tool of the anti-sprawl growth policy (Pond, 2009). This also applies to another phenomenon, i.e., the leapfrogging phenomenon, which can emerge as development jumps in the green belt boundaries in the search for cheap land available for rezoning (Bimbaum, 2004).

Urban land policy with price mechanisms, including, inter alia, development fees, property taxes, etc., will keep their relevance as well. For example, the land development fee will be kept as a local public revenue instrument which is of crucial importance for financing infrastructure development in the BMA, according to the *Building land development program*.²⁵

Here, one should observe some important conclusions of the UN Habitat²⁶, based on vast empirical experience, e.g.: urban development should be financed through capturing increases in land value resulting from public investment or broad urban trends, tools and policies which should be implemented under local conditions; land valuation methods

²⁵ The level of the land development fee in the BMA is: for housing from 8.6 EUR/m² (VIII zone) to 358.48 EUR/m² of floor space (in I extra zone); for commercial assignment: from 13.37 EUR/m² (in VIII zone) to 576.65 EUR/m² of floor space (in I extra zone); for industry: from 11.04 EUR/m² (in VIII zone) to 411.89 EUR/m² of floor space (in I zone). All prices are calculated in accordance with data from 2014. The fee levels are regulated by ordinance (I-VIII zones) in Belgrade City. The fee is determined in accord with the following criteria – the degree of infrastructural equipment, the program of construction land, urban zones (there are eight zones in BMA), and the type of land-use and building surface.

²⁶ Research for the Reduction of Land Consumption and for Sustainable Land Management, cf. <http://www.refina-info.de/termine/termin.php?id=2239>, accessed 10th March, 2015.

should also be implemented within the local administrative capacities; and so on. In addition to property tax, which may include the market price of building land, the most important fiscal tool is **land value tax** on the increased value of building land/property as an *ad valorem* tax. Taxes/fees on the increased value of urban land should capture its extra value resulting from public sector investments. (To note, here land rent corresponds to an annual discount rate.)

Some more innovative and flexible urban land policy tools

Besides the traditional planning tools, there is a need for alternative, adaptive or complementary approaches to the current “command-and control” regulation. Common law, public and private agreements, and market-based tools, as contemporary regulations, enable the development of the hybrid “smart regulation” approach. Such regulations may predictably exert a positive impact on the changing urban sprawl and planning. The introduction of more innovative and flexible urban land policy tools would support the new role of planning in creating a more resilient city, viz.:

- **Urban rezoning**, as adaptation, adjustment or deconstruction of densities and zone rules. Rezoning is the term used for any change in zoning by-laws and zoning urban plans. Since the beginning of the 21st century, the concept of mixed urban land-use has become quite popular. Many cities have embarked on rezoning campaigns, labeling the resulting areas as “mixed use”. Rezoning is the act of changing the terms of property use for an area of land. When a property owner wants to use *land* in a way that is not permitted by the zoning of his/her property, the owner must request to *rezone* the property to a classification which permits the desired use. *Rezoning* is a legislative action which is considered through a complex process. Rezoning may occur in either of the three following ways: a) To change the current zoning of a site or to accommodate other uses or forms of development; b) To change the current zoning of a site from one standard zoning area to another; and c) To change the text of the by-law on zoning and development.
- **Tradable development rights, trading density for benefits - density bonus policy**. Cities have used the density bonus as a policy when rezoning has been applied as a tool to capture the increased land value created by the rezoning (Moore, 2012; Baxamusa, 2008). The liberal policy instrument is the Purchase of Development Rights (PDR) or Transfer of Development Rights (TDR) programs. The former is similar to the conservation easements which are an established regulatory tool, while the latter bears some resemblance to the density bonuses provisions. The PDR and TDR tools are voluntary and require direct funding.
- **Infrastructure financing** (capital infrastructure, utilities) may have to be adapted to new needs relating to its influence on the urban form and vice versa.
- **Regulatory arrangements of the Public-Private-Partnerships (PPP) for the capture of the increased urban land values**. PPP includes different types of legal acts/tools, viz., community development agreements (e.g., the program of urban re/development), community benefits agreements, planning agreements, negotiation, covenants, and easements – as types of servitudes. Covenants are tools for the management of urban growth, as well as land-use changes which include environmental protection. An easement is a non-possessionary right to use the real

property of another for a specific purpose without possessing it. The use of covenants and transferable/tradable development rights is a part of land-use management. Regulatory mechanisms provide the indirect capture of increased urban land value, usually through the synergy of PPP, urban propositions and planning arrangements. In recent years, social impact bonds have often been applied, which means that an investor who builds on an exclusive location has to finance the construction of the social services and social housing at that location, without the financial participation of the local community. This instrument is different from the so-called “bonus” urban zoning, which implies that the investor may obtain a permit for a higher additional floor space index than allowed, parallel with the requirement to invest in the social services.

- **Implosive and inclusive zoning** is one of the complementary tools, especially in the revitalization of brown-fields. In some countries, the protection of human rights and social inclusion in urban renewal involves inclusive zoning, i.e. the rights of the “caught up” land owners/users. Those who invest in attractive locations have an obligation to build housing for the “domicile” citizens (e.g., the poor).
- **Land tenure** is a form of participation of the private land owner in strategic projects (e.g. infrastructure) that provide income to the owner (Mittal, 2014). The introduction of development land in the periphery is a tool for the conversion of agricultural land for urban uses. (Zeković et al, 2015b). A very important instrument is the introduction of so-called urban land management/readjustment. This urban land instrument was introduced in Serbia by PCL (Planning and Construction Law) in 2011 (see Müller et al., 2015).
- The introduction of **governmental or municipal bonds** for the purchase of land for public purposes and infrastructure construction, as well as the introduction of financial derivatives (CDS-Credit Default Swaps, and others), management models, and the improvement of public participation and decision-making in urban planning, the introduction of various PPP arrangements, etc.
- The introduction of transparent approaches, principles and methods of urban land evaluation (see Müller et al, 2015).

In accordance with the rule of law, how can new instruments contribute to more efficient planning? For example, the *Global Land Tools Network (GLTN) work programme* offers land tools as a practical way of solving problems in land administration and management for the next 10 years. Land tools are also a way of enforcing principles, policies and legislation for limiting urban sprawl. They include many approaches and methods: legal means, a set of software, the accompanying protocols, guidelines, etc. Land tools may be complementary or may offer alternative ways of working. According to GLTN (UN-Habitat, 2013), land tools should be affordable, equitable, prone to subsidiarity, sustainable, systematic and large scale. Governance as a process of tool development should provide access to land and the use of land, the implementation of decisions, and reconciliation of conflicting interests in urban land affairs. According to UN-Habitat, urban governance provides a lot of ways in which institutions can organize the daily management of a city, by realizing the short-term and strategic decisions of urban development. According to GLTN the development of 18 land tools is divided into five themes, and cross cutting issues: 1) Access to land and tenure security (i.e. tenure security, land rights, contracts; socially

appropriate legal adjudication, statutory and customary methods, the land management approach); 2) Land administration and information (spatial units, the land agencies budget approach); 3) Land-based financing (land tax for financial and land management); 4) Land management and planning (urban and spatial planning, regional land-use planning, land readjustment); and 5) Land policy and legislation (regulatory framework, legal allocation of assets; expropriation, eviction and compensation); and cross cutting (capacity development, conflict/ disaster, the environment, land governance). Urban land governance requires clear legal frameworks, and efficient political, managerial and administrative processes, as well as guidelines and tools for limiting urban sprawl (Zeković et al., 2015b). This is a process of decision-making which includes a lot of stakeholders who have different priorities for land-use or development. Hartmann and Needham (2012) find that planning approaches are rooted in the activities of making, implementing and enforcing property rights over land and buildings, i.e., “planning by law and property rights” and they are unavoidable in a society with the rule of law.

We conclude this contribution by putting forth two issues still open for further discussion, viz.:

- How to prepare the planning and development regulations of urban sprawl in a situation which lacks some guidance for uncertainties, disturbances, and limitations in complexity contexts; and
- How can the more traditional tools be adapted to improve their compatibility with the current trends of urban sprawl and global challenges – under economic and financial uncertainties?

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T U R A S

TRANSITIONING TOWARDS URBAN
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2.

GUIDELINES AND RECOMMENDATIONS FOR THE HARMONIZATION OF REGULATIONS FOR FUNDING URBAN LAND EQUIPMENT, LOCAL ECONOMIES AND LOCAL PUBLIC FINANCES IN SERBIA

Slavka Zeković



T U R A S

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Guidelines and recommendations for the harmonization of regulations for funding urban land equipment, local economies and local public finances in Serbia

Slavka Zeković, Smernice i preporuke za usaglašavanje finansiranja komunalnog opremanja građevinskog zemljišta, komunalne privrede i lokalnih javnih finansija u Srbiji

In April 2013 the Standing Conference of Cities and Municipalities of Serbia issued a publication *Financing of Urban Land and Utilities Investment in Local Self-governments in Croatia, Slovenia, Montenegro and Germany: Experiences and Recommendations for Serbia (Finansiranje komunalnog opremanja građevinskog zemljišta u lokalnim samoupravama Hrvatske, Slovenije, Crne Gore i Nemačke: iskustva i preporuke za Srbiju)*, with a view to present in a comparative perspective recent practices in this field. Also, a number of related aspects have been comprised, viz.: national and local fiscal policy; urban land policy; urban growth/sprawl management; and so forth. Apart from *Introduction*, written by Slavka Zeković (a participant in the project TURaS), the content of the publication covered another six contributions, written by the participants from a number of countries (Slovenia, Croatia, Montenegro, Serbia). The concluding part of the book contains guidelines and recommendations for the harmonization of regulations, tools and practices in the respective fields of urban land equipment, local economies and local public finances in Serbia, all focused on the aspect of strategic urban development, market and planning, and similar (author Slavka Zeković). **This contribution has also been listed within the Project TURaS (WP5), as an example of the empirical dissemination of the Project's results in 2013.**

The growing problems of financing public utility infrastructure in local self-governments/ urban settlements demand efficient and synchronized solutions, mainly by initiating a parallel process of reforming the methods and instruments for financing construction land development and reforming public utilities, along with establishing economic regulations and redefining fiscal and other instruments. The good practices of certain countries (e.g. Germany, Slovenia etc.), despite various contextual environments, demonstrate positive examples of initiating changes even in domestic regulation. Due to an unsustainable system of managing construction land, an increased degree of private ownership of construction land, as well as the paradox of having the development rate as the only, insufficient and unreliable instrument of financing public utility infrastructure (despite a nominal multitude of sources), it is necessary to create a new way of sector financing. There are three basic (alternative) approaches:

1. Innovating tax instruments (introducing tax for the increased value of construction land/real estate; changing the tax rate on property, tax for (non) built construction land, capital gains tax (on land), land/real estate transactions tax...) by which financing is primarily transferred onto tax-payers, state and local budgets, i.e., the current owners and users of land/real estate;

2. Innovating and transforming the fee system (transforming the development fee into the public utility fee/infrastructural fee/impact fee; transformation of construction land use fee into property tax; innovating leases according to market economy principles; implementing the existing regulations on franchises, leasing communal goods; making changes in setting concessional fees, fees on use of public goods, etc.) by predominantly burdening the investors - new builders;

3. Hybrid approach, as a combination of fiscal and parafiscal sources (fees, contributions, taxes, public utility rates) structured according to type of infrastructure, type of intervention (maintenance or construction), communal programs, type of real estate, along with combined distribution of burdening tax-payers/investors in financing public utility equipment.

Choosing approaches and instruments depends on political decisions, on the relations in the hierarchy of power and the relations between the existing owners/users of land and real estate and future builders/investors, as well as on the policies of integral local and urban development, attracting FDI and other investments.

In addition, it is necessary **to introduce new economic and financial instruments**-arrangements JPP (BOT, BFOT, BOO, DBFO, DBO, ROT) with the implementation of urban design and planning agreements (among investors, local self-governments and other stakeholders) and strict control over burdening the local public finances. Local self-governments may participate in the financing of infrastructural equipment: 1) by introducing securities - local self-government and/or government bonds (when purchasing land for public purposes, infrastructure construction), 2) by regulating leases based on market principles, 3) by supporting the development of new market institutions and mechanisms (regulatory, financial, urban planning, etc.), 4) by introducing social impact bonds for attractive locations, 5) by purchasing and forming banks of non-built public land (by dividing up, selling or leasing land the local authorities provide finances for infrastructure), thereby providing more elasticity of location supply without creating a monopoly (the experiences of Scandinavian countries, China, etc.), 6) by limiting the crediting of construction land development and building (through controlled direct borrowing of the local self-government from financial institutions - development, mortgage, investment and commercial banks, savings banks, investment funds, institutional investors), 7) by other financial instruments (refinancing, shareholding, financial derivatives, etc.), 8) by introducing, in the future, the support of European funds (IPA instruments, government aid), instruments that support sustainable development of towns and urban reconstruction projects (JESSICA) and financing transportation and electric power infrastructure and environmental protection projects (JASPERS), etc. The introduction of transparent approaches and methods of evaluating construction land and real estate plays a special role.

From the point of financing the equipping of land with public utility infrastructure in local self-governments/municipalities, the main reforms are:

- *introducing efficient property-organizational solutions* (introducing competition, privatization of (a part) of the public utilities by involving private capital and private operators); *efficient management policy of public utility rates* (rate increase, principles of forming rates and tariff policy - flat-rate, block, proportional, protective and combined tariffs);

- *introducing an efficient way of financing public utilities* (performing and developing public utilities along with the significant participation of private capital and private operators);

- *introducing transitional solutions for economic regulation, privatization of (a part) of these services, market approach and instruments for financing public utilities in synergy with the reform of the sources and instruments for financing construction land.*

In the policy of financing public utilities, it is necessary to finance separately the performance of utility services and the maintenance of the existing infrastructure from the construction and development of new public utility infrastructure. Performing utility services and maintaining infrastructure is financed out of the utility service rates and public income of the local self-government, with the recommendation that in the future this ratio be as much as possible in favor of the utility service rate. Coordinated action of the local bodies and institutions, urban planning offices and PUCs (public utility companies) is of the utmost importance in managing and financing the equipping of land for sustainable urban and social development. In financing the development of capital public utility objects, several sources may coexist, along with a growth of private capital participation in different arrangements of public-private partnership.

Given the significant credit debt of a part of the municipality, the implementation of instruments for refinancing should be considered in the future in order to achieve better conditions of pay off, lower interest rates, and better state control of borrowing by the local self-governments, based on the experiences of the local governments of more developed countries (e.g. Germany).

Partial privatization of the public utilities means providing fresh capital inflow, as well as including foreign capital for financing investments, along with developed economic regulation at state and local level. Economic regulation involves decisions about the mass and rate of profit in this field, the tariff system, price ceiling and price control, quality and standard of service, with the implementation of transparent instruments and mechanisms. Economic regulation is founded on the following principles: (1) separating the operative from the regulatory role; (2) regulation stability; (3) transparent decision-making mechanisms for better stakeholder collaboration. In our practice, it is customary to apply the combined and non-market model of budget closing in municipal economy. The participation of private investors in the financing of the public utility infrastructure implies the introduction of market principles of budget closing, i.e. the municipality and the operator make a profit.



T U R A S

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3.

SOME INDICATORS FOR LIMITING URBAN SPRAWL

3.1 Indicators of sprawl in relation to residential preferences

Jasna Petrić, Tanja Bajić and Nikola Krunić

3.2. Indicators of urban sprawl and urban land policy

Slavka Zeković, Tamara Maričić and Miodrag Vujošević



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3.1. Indicators of sprawl in relation to residential preferences

Jasna Petrić, Tanja Bajić and Nikola Krunić

Urban sprawl can be measured in multiple ways. This is primarily a consequence of a number of different definitions (or the lack of cohesive definition) of urban sprawl (Petrić et al., 2012). Here we adopt a definition of urban sprawl by Bourne (2001:26), as the type of development which is “haphazard, disorganized, poorly serviced, and largely unplanned.” Additional elaboration may derive from the definition of urban sprawl by Galster et al. (2001:685) as “low levels of some combination” of “density, continuity, clustering, centrality, nuclearity, mixed uses, and proximity” in the urban area and at the commuting distance from the urban area.

In the literature, among the simple measures of urban sprawl, there can be identified: population density, density of dwelling units, and decentralization of jobs. With focus on residential preferences towards (sub)urban areas, simple measure of urban sprawl also includes cohorts of population in these areas.

For the purpose of monitoring spatial development patterns, the determination of urban sprawl indicators which are influenced by residential preferences presumes a pragmatic control system with a limited number of key indicators. The use of appropriate indicators allows identification of the main issues as well as of the comparative advantages within a sprawling urban area (Petrić, 2004). In this way, it is possible to detect in which spheres there have been improvements and which have been lagging behind. Also, it is possible to make comparison between different urban areas (horizontal comparison), and likewise in relation to adopted standards and norms.

The organizational scheme of indicators of urban sprawl follows the thematic areas which were identified from the literature sources. For the indicators to be appropriate for measuring the urban sprawl, the following conditions need to be addressed: (1) indicators should allow objective, clear and reliable measuring; (2) they should be comparable with other indicators with least possible overlaps; and (3) they need to be in accord with international (European) system to monitor the social, economic, environmental and territorial impacts and perspectives of urban development.

With that in view, a list of 27 selected indicators of urban sprawl has been made in relation to residential preferences, and these indicators are grouped according to 10 issues.

Thematic field	Issue	Number of indicator
Density	Population dynamics	1
	Higher residential densities	2, 3, 4
	Higher intensity of land-use	5
Land-use mix	Mixed-use pattern of public/core/housing uses	6, 7, 8
	Proximity of jobs	9
Degree of centering	Decline in density from city centre (density gradient)	10, 11
	Ownership of home and its size and quality	12, 13
	Convenience of location	14, 15
Accessibility	Spatial proximity of facilities and amenities	16, 17, 18, 19, 20, 21
	Time proximity of facilities and amenities	22, 23, 24, 25, 26, 27

The list of indicators:

- 1) Population profiles in urban and suburban areas (age structure; household structure; education and professional structures)
- 2) Gross residential density
- 3) % of population living in low density areas
- 4) % of population living in high density areas
- 5) Ratio between the population growth and the area of new lands consumed for urban uses
- 6) % of public uses
- 7) % of core/ employment uses
- 8) % of housing use
- 9) % of employees with jobs at walking, public transport and car travel distances from home
- 10) % of population living within 5km from the CBD
- 11) % of population living more than 15km from the CBD
- 12) % of home owners in urban and suburban areas
- 13) Average size of home in urban and suburban areas
- 14) Variety of choice for public transportation and reduced car dependency

- 15) Presence of required facilities
- 16) Average distance to the nearest commercial premises
- 17) Average distance to nurseries and schools
- 18) Average distance to health facilities and daily care centres
- 19) Average distance to sports and recreation facilities and green/open spaces
- 20) Average distance to administration services (post office, bank, etc.)
- 21) Average distance to cultural and leisure facilities (theatres, museums, restaurants, pubs, bars and cafes)
- 22) Average time needed to reach commercial premises
- 23) Average time needed to reach nurseries and schools
- 24) Average time needed to reach health facilities and daily care centres
- 25) Average time needed to reach sports and recreation facilities and green/open spaces
- 26) Average time needed to reach administration services (post office, bank, etc.)
- 27) Average time needed to reach cultural and leisure facilities (theatres, museums, restaurants, pubs, bars and cafes)

Description of indicators

1) Population profiles in urban and suburban areas (age structure; household structure; education and professional structures)

This indicator is important for monitoring the change in the main age cohorts of population, and implications of the process of ageing on the household structure, which is also related to the typical life-cycle of a family, accompanied by education and professional attributes of the adult representatives of the household.

Multi-family households (with two or more generations living in the same house) are likely to settle in the areas with less density due to the type of housing they are looking for. Inner urban living with higher densities generally attracts younger population as well as people with higher education.

2) Gross residential density

Gross residential density is one of the basic indicators on any list of measurements of urban sprawl. This indicator is calculated in persons per square kilometre. Census is the main source of population data for different administrative areas, with records once in every 10 years. Gross residential density offers a relatively simple measure for instant comparison between different territories as well as for density change of a single territory over the analysed period of time (Bajat et al., 2013).

3) % of population living in low-density areas

This indicator refers to percentage of population living in low-density areas, which include residential densities of less and equal to 3,000 residents/ square kilometre.²⁷

4) % of population living in high density areas

Accompanying the previous indicator, the % of population living in high density areas has a threshold of residential densities that are more than or equal to 8,000 residents/ square kilometre.²⁸

5) Ratio between the population growth and the area of new lands consumed for urban uses

One of the key indicators of sprawl takes into account the ratio between the population growth in suburban areas and new lands which are consumed for built-up areas, i.e. Corine Land Cover (CLC) urban area (Krunić et al., 2014). Since the CLC data are available for the years 1990, 2000, 2006, and 2012, the change of built-up area can be measured in these time intervals, related to the corresponding population data change.

6) % of public uses

The share of public uses (e.g. parks, plazas, greens, public buildings and public services) in the total land-use of an area relates to one of the measurements of land-use mix. This indicator should be observed at the neighbourhood level, i.e. the area which covers approximately 600m radius (or the “comfortable walking distance” of 10 minutes). For the optimum land-use mix, the values of this indicator should be between 5 and 15%.²⁹

7) % of core/ employment uses

This indicator refers to the percentage of core/ employment uses (major supermarkets, restaurants, commercial services, entertainment uses, employment-intensive office and light industrial uses) in the total land-use of an area. This indicator should be observed at the neighbourhood level, i.e. the area which covers approximately 600m radius (or the “comfortable walking distance” of 10 minutes). For the optimum land-use mix, the values of this indicator should range between 10 and 40%.³⁰

²⁷ This value is derived from the empirical study in the City of Belgrade. However, in some other studies pertinent to the US (Hamidi et al., 2015), this figure is 5 times smaller, i.e. it equals 1500 residents/square mile, or 6 residents/hectare.

²⁸ This is derived from the empirical study in the City of Belgrade. However, in some other studies pertinent to the US (Hamidi et al., 2015), this figure is 1.5 times smaller, i.e. it equals 12500 residents/square mile, or 48 residents/hectare.

²⁹ see: Calthorpe, P. (2003).

³⁰ see: Calthorpe, P. (2003).

8) % of housing use

At the neighbourhood level, housing should be within a convenient walking distance from public and core/employment areas. For the optimum land-use mix, this indicator should take values between 50 and 80%.³¹

9) % of employees with jobs at walking, public transport and car travel distances from home

This indicator serves to measure the share of local residents – employees who work in the same area where they reside and of those who have to commute for this purpose either by the means of public or private transport. The indicator calculates the share of employees who commute one way to their jobs at distances of: 1) up to 1km; 2) 1-5km; 3) 5-10km; 4) 10-20km; and 5) more than 20km.

10) % of population living within 5km from the CBD

When rating a decline in density from city centre to periphery (density gradient), the indicator of the % of population living within 5km from the CBD shows the degree of centring.

11) % of population living more than 15km from the CBD

Accompanying the previous indicator, the % of population living at more than 15km from the CBD depicts a level of urban decentralisation.

12) % of home owners in urban and suburban areas

Ownership of a house or a flat may influence the actual decision of residents to move to one location or another. Therefore, suburban preferences may be stimulated by home ownership, and the indicator on the % of home owners in urban and suburban areas of a city may serve to portray a degree of centring.

13) Average size of home in urban and suburban areas

In addition to ownership of a home, people tend to position the size and quality of the home among the key motives to settle in an urban or suburban area. The indicator on average size of home thus explains a degree of centring.

14) Variety of choice for public transportation and reduced car dependency

The convenience of residential location largely depends on the transportation options to the city centre. With better organisation of public transport system and possibility to manage without a car, suburban locations may also look favourable as places of residence. This indicator measures the share of population who primarily use the public transport (one type or multiple options) for daily commuting, as well as the share of households with private automobiles and their number.

15) Presence of required facilities

Residential choice and the degree of centring correlate with the provision of complete infrastructure and social facilities that people would require at the time. This indicator measures the presence of adequate roads, streets, organised water and energy supply systems, sewage, waste disposal, retail, child-care and education

³¹ see: Calthorpe, P. (2003).

facilities, health and daily care centres, sports and recreation facilities, administrative facilities, leisure and cultural facilities.

16) Average distance to the nearest commercial premises

This indicator measures the spatial proximity of commercial (retail) facilities as the component of accessibility. The average distance to the nearest commercial premises can be monitored according to the parameter of 1km radius from resident's home.

17) Average distance to nurseries and schools

The spatial proximity of nurseries and elementary schools also represents a basic component of accessibility to facilities. The average distance to the nearest nurseries and elementary schools can be monitored according to the parameter of 1km radius from resident's home.

18) Average distance to health facilities and daily care centres

The spatial proximity of health facilities and daily care centres is an important component of accessibility to facilities. The average distance to the nearest health facilities can be monitored according to the parameter of 1km radius from resident's home.

19) Average distance to sports and recreation facilities and green/open spaces

The spatial proximity to the nearest sports and recreation facilities (including green/open spaces) is an additional component of accessibility to facilities. The average distance to the nearest sports and recreation facilities and green/open spaces can be monitored according to the parameter of 1km radius from resident's home.

20) Average distance to administration services (post office, bank, etc.)

The spatial proximity to administration services is also regarded as a component of accessibility. The average distance to the nearest post office or bank can be monitored according to the parameter of 1km radius from resident's home.

21) Average distance to cultural and leisure facilities (theatres, museums, restaurants, pubs, bars and cafes)

The spatial proximity to the nearest cultural and leisure facilities (theatres, museums, restaurants, pubs, bars and cafes) is an additional component of accessibility to facilities. The average distance to the nearest cultural and leisure facilities can be monitored according to the parameter of 1km radius from resident's home.

22) Average time needed to reach commercial premises

This indicator measures the average time needed to reach commercial premises from resident's home when walking or public transport system are applied as the means of transportation. The optimum time for reaching commercial premises would be that of a comfortable walking or public transport use in duration of 10–20 minutes.

23) Average time needed to reach nurseries and schools

This indicator measures the average time needed to reach nurseries and elementary schools from resident's home when walking or public transport system

are applied as the means of transportation. The optimum time for reaching nurseries and elementary schools would be that of a comfortable walking or public transport use in duration of 10–20 minutes.

24) Average time needed to reach health facilities and daily care centres

This indicator measures the average time needed to reach health facilities and daily care centres from resident's home when walking or public transport system are applied as the means of transportation. The optimum time for reaching health facilities and daily care centres would be that of a comfortable walking or public transport use in duration of 10–20 minutes.

25) Average time needed to reach sports and recreation facilities and green/open spaces

This indicator measures the average time needed to reach recreation facilities and green/open spaces from resident's home when walking or public transport system are applied as the means of transportation. The optimum time for reaching recreation facilities and green/open spaces would be that of a comfortable walking or public transport use in duration of 10–20 minutes.

26) Average time needed to reach administration services (post office, bank, etc.)

This indicator measures the average time needed to reach administration services from resident's home when walking or public transport system are applied as the means of transportation. The optimum time for reaching administration services would be that of a comfortable walking or public transport use in duration of 10–20 minutes.

27) Average time needed to reach cultural and leisure facilities (theatres, museums, restaurants, pubs, bars and cafes)

This indicator measures the average time needed to reach cultural and leisure facilities (theatres, museums, restaurants, pubs, bars and cafes) from resident's home when walking or public transport system are applied as the means of transportation. The optimum time for reaching cultural and leisure facilities would be that of a comfortable walking or public transport use in duration of 10–20 minutes.

The use of indicators for examining residential preferences of people in Belgrade's suburban settlement Kaluđerica

The indicators of urban sprawl in relation to residential preferences have been applied accordingly via questionnaire survey that was conducted in Kaluđerica as a suburban settlement of Belgrade. According to the methodology of social science research, survey consists of asking a sufficiently large number of people some specific questions, or of collecting data about a large number of statistical units (Antonius, 2003). In the research on residential preferences in Kaluđerica, this method refers to gathering data or information from a sample via questionnaire, where the researchers do not manipulate independent variables or apply control conditions to the subjects under study.

The questionnaire survey on residential preferences of people in Kaluđerica was conducted in the February/March 2014 period from a representative sample of 90 households, which accounts for approximately 1% of the total number of registered 8,800 households in Kaluđerica, according to the latest Census (2011) (Bajić et al., 2016). This approach is based on taking a fixed proportion of households. As Gardner (1978:111) suggests, there is no universally given prescription of ideal size of a sample; however, one thing is accorded – a minimum sample size. Among different interested parties there is a consensus that there should not be less than 30–40 subjects in the sample if we want to use them for an adequate statistical analysis. For the survey which was performed in Kaluđerica, a random sample was used, and when choosing a household whose representative would respond to the questionnaire, the criterion was to apply a balanced distribution of households at the territory of the settlement, according to previously determined spatial zones. A respondent was always just one member of the household – its representative, whose anonymity was respected, and who would give some general household information alongside stating his or hers own opinion on neighbourhood attachment, socio-environmental context, physical planning issues, and residential mobility in relation to Kaluđerica as a residential neighbourhood, including the observation on various issues and lacks of this area.

The general goal of the conducted research in this distinctive, informally developed settlement was to analyse residential preferences as a factor of urban sprawl in post-socialist Belgrade. The specific goal was to substantiate motives and aspirations of people to live in this suburban neighbourhood, their satisfaction with their residential neighbourhood, as well as to identify potential compromises that choice required. Since the last systematic research of the motives, causes and actors of illegal construction in Kaluđerica was performed in the 1980s by Saveljić (1989), almost 3 decades after that it was important to conduct a new questionnaire survey, especially because the socio-economic conditions and housing needs have changed, characterised by post-socialist transition and mass immigration of refugees and population displaced from the parts of Yugoslavia affected by the civil wars during the 1990s (Bajić, Basarić, 2014; Bajić, Manić, 2013).

Both in the literature and in wider professional circles, Kaluđerica is often mentioned as the infamous example of illegal construction at the periphery of Belgrade, and it is considered the largest completely developed “wild settlement”, not only in Serbia, but in the Balkans and in Europe (Saveljić, 1989). The main reasons for the intensive physical and demographic growth of Kaluđerica after 1966 are identified as: 1 – shortage of available dwellings in the city due to the pressure of mechanical inflow of the population; 2 – proximity of Kaluđerica to the inner urban area of Belgrade (its location is approximately at 10km from the city centre); 3 – good traffic connections; and 4 – lack of adequate planning treatment (Bajić et al., 2016). Unofficially, it is estimated that the number of people in Kaluđerica exceeds 45,000, whereas the official Census from 2011 reports the figures of 26,904 people, 8,831 households, and 10,866 dwellings in Kaluđerica. The average dwelling size is 75m², which is 9m² more than the average dwelling size at the territory of the city, and 12m² more than the average dwelling size in the urban part of the city (SORS, 2013).

Design of the Questionnaire

The questionnaire on residential preferences was designed to guide the investigators in the process of collecting, analysing, and interpreting observations.

The questionnaire on residential preferences of people in Kaluderica was structured in 6 sections, which included the following main topics:

1– neighbourhood attachment (including community sentiment and community evaluation);

2 – elements of the Neighbourhood Satisfaction Scale;

3 – social and environmental context;

4 – physical planning issues; and

5 – residential mobility.

The first part of the questionnaire treated the profile of households through the categories of age and gender structure, whereas the respondents – household representatives, apart from the above mentioned information on the respective age and gender, also gave the information on their marital status, education level, and current occupation.

The second part of the questionnaire analysed the elements of the residential environment, satisfaction with residential facilities, and attachment to Kaluderica as a residential neighbourhood. The applied indicators of relevant physical characteristics of the analysed suburban living considered the type and number of floors of the residential dwelling under the proposed categories (detached house, semi-detached house and flat in a multi-family building) and the plot-size of the family dwelling. Here we took into account the ownership of the house or flat (relevant for the indicator 12), duration of living in the present dwelling, and the total duration of living in Kaluderica. As additional indicators of residential preferences of respondents towards their present type of housing and residential environment, we analysed the respondents' previous residential experience, i.e. the type of housing and the type of environment (urban, suburban, or rural) in which they spent the most part of their childhood. The level of residents' satisfaction with neighbourhood qualities was determined according to their choice of one of the levels of attachment to the residential neighbourhood and through a quantitative evaluation on the scale from 1 to 7 of the defined neighbourhood attractions ('likes'). The Neighbourhood Satisfaction Scale (NSS) for the measurement of residents' community evaluation consisted of 7 items – likes (LIK) of: 1) convenient location; 2) 'village feel'; 3) presence of facilities and amenities; 4) quietness and safety; 5) good neighbours; 6) transport system; and 7) environmental quality and cleanliness, each one ranked from: 1=strongly disagree to 7=strongly agree. The reliability of the NSS was checked by calculating *Cronbach's alpha coefficient*, which was above 0.7, therefore the NSS proved to be reliable for our sample. Total neighbourhood satisfaction in Kaluderica might take values from 7 (because this was the number of variables forming the NSS) to 49 (since each variable of the NSS could also range from 1 to 7, where 1 is "strongly disagree" and 7 is "strongly agree"). Following this,

we also analysed the perception on quality of social ties in the neighbourhood, issues of security and safety, and neighbourhood pollution.

The third part considered the aspect of transportation related to the conduction of everyday activities and use of facilities. The most frequently used modes of transportation were analysed, as well as the proximity (time and physical distance) to the place of work or to the place where people conduct their everyday activities (indicators 9 and 14); then the frequency of use of the public transport system and the frequency of private car use; ownership and number of private cars, and perception of the need to use a car with regard to their place of living. For households with children of pre-school or primary and secondary school age, we analysed the indicator of proximity of the nurseries or of the school attended by those children to home, both in terms of time and physical distance (indicators 17 and 23).

In the fourth part, we analysed the use of various facilities, either within the suburban neighbourhood or outside of it, as well as the total satisfaction with facilities provision in Kaluderica (relevant for the indicator 15). Among the analysed facilities we considered those of the city centre, retail facilities (for the provision of everyday or bigger/weekly supplies), health facilities and day care centres, sports and recreation facilities and green/open spaces, administrative services (post-offices, banks, etc.), cultural and leisure facilities (cinemas, theatres, museums, restaurants, pubs and cafes). Instead of measuring the distance (physical and temporal), the idea was to analyse the frequency of attending the aforementioned facilities and the way to access them (by private car, public transport, walk, etc.) in order to have the insight not only into their accessibility but also into the residents' requirements for their use regardless of their objective insufficiency.

In the fifth part, we analysed the aspect of attractiveness of Kaluderica as the residential neighbourhood. The focus was on examining the key motives that influenced the choice of Kaluderica for the residential neighbourhood (the size and quality of the house/flat; property values/ re-sale values and lower maintenance costs; property in ownership; lower living costs; etc.), as well as the variability of suburban residential preferences in terms of perceived potential advantages of living in some other parts of the urban area, and further explanation of the reasons for such choice (relevant for the indicator 15).

In the sixth part of the questionnaire, the respondents were left a possibility to make any additional comments regarding the covered themes.

The use of indicators for examining residential preferences of people in Belgrade's suburban settlement of Kaluderica, according to relevant issues, is structured as follows:

No.	Part of the questionnaire on residential preferences of people in Kaluderica	Relevant issue	Number of relevant indicator
1	General profile of respondents	Population dynamics	1
2	Housing environment, attachment and neighbourhood satisfaction	Ownership of home and its size and quality	12
3	Transport and amenities	Proximity of jobs	9
		Convenience of location	14
		Spatial proximity of facilities and amenities	17
		Time proximity of facilities and amenities	23
4	Perception on qualities (attractions) of the settlement	Convenience of location	15
5	Motives for settling in Kaluderica and variability of suburban residential preferences	Convenience of location	15

A brief overview of the main survey research findings

1) General profile of respondents

Of the total number of respondents, more than a half are aged 20–39, while the share of male and female respondents is almost equal. Concerning the dominant education level, most of respondents have completed high school as the highest level of achieved formal education. More than one half of the surveyed are employed. The average household size of respondents is 4 people per household which is above average compared to Serbia as a whole (2.9 people/hhld.) and Belgrade Metropolitan Area (BMA) (2.7 people/hhld.), and there are also cases of households with up to 9 members and three generations living “under one roof”. The dominant type of the observed households is one wherein parent(s) of one or more generation live with at least one child, 19 years old and under.

2) Housing environment, attachment and neighbourhood satisfaction

The majority of the surveyed households reside in detached family houses with two or three floors on average. Over 90% of the respondents are homeowners of the houses in which they live. About one half of the respondents have been residing in their present home for more than 20 years, and nearly 60% have been living in Kaluderica for as long, which indicates a significant share of the indigenous population. The majority of respondents resided in individual family house in suburban or rural environment in childhood, while less than 20% of them spent their childhood in an urban environment.

The survey results show that the attachment of the inhabitants to this area is divided. On the one hand, 47% of respondents intend to live in Kaluderica for many years or are unwilling to live anywhere else. On the other hand, 29% of respondents feel that they are presently attached to Kaluderica, while 24% of respondents would like to move to another location if they had financial resources.

The residents expressed most of positive attitudes (satisfaction) toward well-organized public transport system, good neighbours and the convenient location of the settlement. Negative attitudes (dissatisfaction) predominate regarding the environmental quality and the level of cleanliness. As the most common sources of pollution residents identified incomplete and inadequately developed draining and sewage networks in the settlement; Kaluderica stream flowing through the settlement, which represents a burning issue because it is contaminated by the inflow of faecal matter making it a source of disease spread; unsuitable waste disposal – irregular transport of waste, insufficient number of garbage bins and containers and their inadequate arrangement, burning of waste; air pollution, especially during the winter due to private boiler rooms; the vicinity of the landfill site at Vinča; and the like (Bajić et al., 2016: 7).

3) Transport and amenities

Even though Kaluderica is a suburban neighbourhood, the residents do not dominantly rely on private car transportation, but they substantially commute by public transportation. Yet, as much as one third of respondents feel that they could not manage without a car in Kaluderica.

As authors have previously shown (ibid.), the average distance one third of the respondents cover while performing their daily activities ranges from 6 to 10km, while 9% of the respondents cover the distance greater than 21km daily. Concerning the modes of transportation, public transport is primarily used for travelling to the city centre, visiting health facilities and other social and administrative facilities, while on the other hand, the usage of individual car transport is predominant in large scale weekly shopping for supplies, use of sports and recreational facilities, green areas and open spaces, and restaurants, pubs and cafes. Both means of transportation are used in equal share when visiting cultural facilities, while walking is predominant only for everyday shopping.

4) Perception on qualities (attractions) of the settlement

When analysing the perception of residents on the overall qualities (attractions) of the settlement of Kaluderica, most respondents expressed relative and absolute satisfaction (42%), mainly due to: convenient location of Kaluderica, which is close to the city, but still far away from the noise; well-organized public transport system; and having a plot and a garden in ownership. Neutral attitude / indifference in this regard was expressed by 30% of the respondents, with comments that in today's Kaluderica "it is, nevertheless, better than it was", while 28% of the respondents were not satisfied with the overall qualities of their area of residence. As the key reasons for dissatisfaction they stated narrow streets and other infrastructural deficiencies, lack of facilities for the youth, lack of sports and cultural facilities, etc. On the Neighbourhood Satisfaction Scale (NSS), the respondents expressed the highest level of satisfaction with public transport system organization (74%), good

neighbours (68%) and convenient location of Kaluđerica (60%), while the most pronounced dissatisfaction was expressed towards environmental quality and cleanliness (76%) (Petrić and Bajić, 2015).

5) Motives for settling in Kaluđerica and variability of suburban residential preferences

The key motive to settle in Kaluđerica for most of the surveyed residents was **property in ownership**, followed by **size and quality of the house and property values/ re-sale values** and **affordable maintenance costs** (Petrić and Bajić, 2015). Among other factors, **organized public transport system** has shown significant influence regarding their residential choice, as well as other factors: household size (new-born member or change of marital status), availability of certain services or facilities, change of job or retirement.

With the exception of about 37% of respondents who would not like to change Kaluđerica as a place of residence, those who are likely to move to another part of Belgrade prefer Zvezdara Municipality because of: previous living in that area; its proximity to the city centre; proximity of social facilities and good transport connections. Among the preferred destinations for relocation are Stari grad Municipality (Dorćol) and Vračar Municipality, which the respondents find attractive because of their proximity to all services and facilities; ability to walk or use multiple options for the public transport system instead of a private car; presence of cultural facilities; etc. Voždovac (Banjica), Košutnjak, and Beli potok are attractive because of the perceived quality of air, while Mirijevo and Konjarnik are attractive because of their proximity to Kaluđerica. Zemun is deemed attractive because of family ties and previous living in that area, whereas, on the other hand, Dedinje is attractive as a leafy neighbourhood of Belgrade.

Acknowledgements:

This chapter is the result of the projects: “Transitioning towards Urban Resilience and Sustainability (TURaS)”, Contract No. 282834, which is financed within FP7 of the EC on topic ENV.2011.2.1.5-1; “The Role and Implementation of the National Spatial Plan and Regional Development Documents in Renewal of Strategic Research, Thinking and Governance in Serbia”, No. III47014, and “Sustainable Spatial Development of Danube Region in Serbia”, No. TR 36036, latter two projects being financed by the Serbian Ministry of Education, Science and Technological Development in the period 2011–2016.

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3.2. Indicators of urban sprawl and urban land policy

Slavka Zeković, Tamara Maričić and Miodrag Vujošević

3.2.1. Introduction

The **key aim** of this contribution is to present the *indicandum* (the indicated issues, that is, urban sprawl and urban land) which are usually measured by a number of indicators, the criteria for selection variables, the identification and classification of the key indicators (quantitative) and their description. Also, a **concomitant aim** is to derive some quantitative indicators critical for urban sprawl and urban land policy.

As for the **methodology** used here for the preliminary identification of the indicators in question, the criteria are derived from standard evaluation of limit values and goals of, while the indicators are derived from measurements. Both concepts define the means or tools which have been used for the collection, analysis, evaluation and comparison of information about different issues, as well as tools for the integrated impact analysis of urban processes on urban land-use and policy.

We start here from the common finding that land-use indicators are important in the identification, better planning, governance and prevention/limitation of urban sprawl and urban land use. For example, Needham (2006) pointed to the significance of three criteria, viz., the effectiveness in realizing democratically chosen goals, economic efficiency and distributional effects. In addition to this, we will corroborate our arguments by including the majority of the criteria that have already been put forth by the TURaS partners (see Report by La Sapienza, 2012), supplemented by introducing a number of new criteria. In this respect, some of the general recommendations of the TURaS project have been used here, with the aim to develop a **syncretic approach** which includes the following five segments:

- A short analysis of the specific theoretical and global contextual framework for urban sprawl and urban land policy;
- Defining a perspective and the classification of groups of indicators;
- Deriving, describing and quantifying key quantitative indicators;
- Deriving preliminary criteria for the valuation of indicators; and

- Deriving a tentative matrix of indicators, paralleled by their “brief-and-rapid” valuation, based on a provisorial heuristic analysis of the above topic (no. 4).

As early as at this stage, it should be pointed out that suburbs are areas of changes, implying that some indicators can vary, even considerably, in accord with the changing dynamics and characteristics of various urban or rural territories. As for the application of the chosen indicators, they should be selected taking into account that their respective roles and usage may well differ between **sustainability indicators, indicators for potential scenarios** and different **spatial scales**.

As for the lessons from numerous international practices and experiences (i.e., from the global context), here we utilize some general findings that form a common ground in this field. For example, EEA (2006) defined urban sprawl as “... low-density expansion of large urban areas, under market conditions, mainly into the surrounding agricultural areas.” Urban sprawl includes various phenomena such as: strip development, scattered development, and leap-frog development. According to Bolund and Hunhammar (1999), urban sprawl can support the environmental quality in cities but with the consumption of more energy and occupation of a large amount of land. Analogously, the high demand for residential area per person and decreasing household size represent some of the key reasons (sources) for urban sprawl (Camagni et al., 2002). It was Ewing (1997) who argued that a better way to identify urban sprawl was to use indicators because this was a more flexible and less arbitrary method. We, also, have recently pointed out the importance of some sprawl indicators, like urban land consumption, consumption of agricultural land, etc. (Zeković, Vujošević, Maričić, 2015).

With the aim to implement the sustainable development goals of *UN Habitat* (2015) related to cities and human settlements as inclusive, safe, resilient and sustainable, here we suggest some pertinent recommendations, viz.: ensuring access to affordable housing and basic services, and upgrading life in the suburbs by expanding public transport to provide access to transport systems; reducing the adverse environmental impact of cities/suburbs per capita; providing access to public spaces; supporting the economic, social and environmental connections among sub/urban, peri/urban and rural areas by strengthening urban planning & governance and indicators; supporting sustainable and resilient buildings; and limiting urban sprawl in suburbs. This accords with the implementation of the *New Urban Agenda, Sustainable Development Goals and the Strategy for Sustainable Housing and Land Management in the ECE Region 2014-2020*, which suggest the prevention and limitation of urban sprawl because “ongoing urbanization has led to the continuing expansion of urban areas and urban sprawl, thus reducing the land available for other uses”, as well as the *Strategy for Sustainable Housing and Land Management in the ECE Region 2014-2020*, its key objectives comprising: balancing the increasing demand for urban land and the limited supply of available land; minimizing the loss of rural land; increasing the efficient use of urban land; and realizing compact, inclusive and green cities. Finally, according to the *Prague Declaration for the UN conference on Housing and Sustainable Urban Development* (Habitat III, March 2016), planned strategic urban development can promote economic, social and environmental sustainability and prevent urban sprawl, with

urban sprawl featuring as one of the key challenges of urban development. In this context, risk reduction and urban resilience may also play prominent roles.

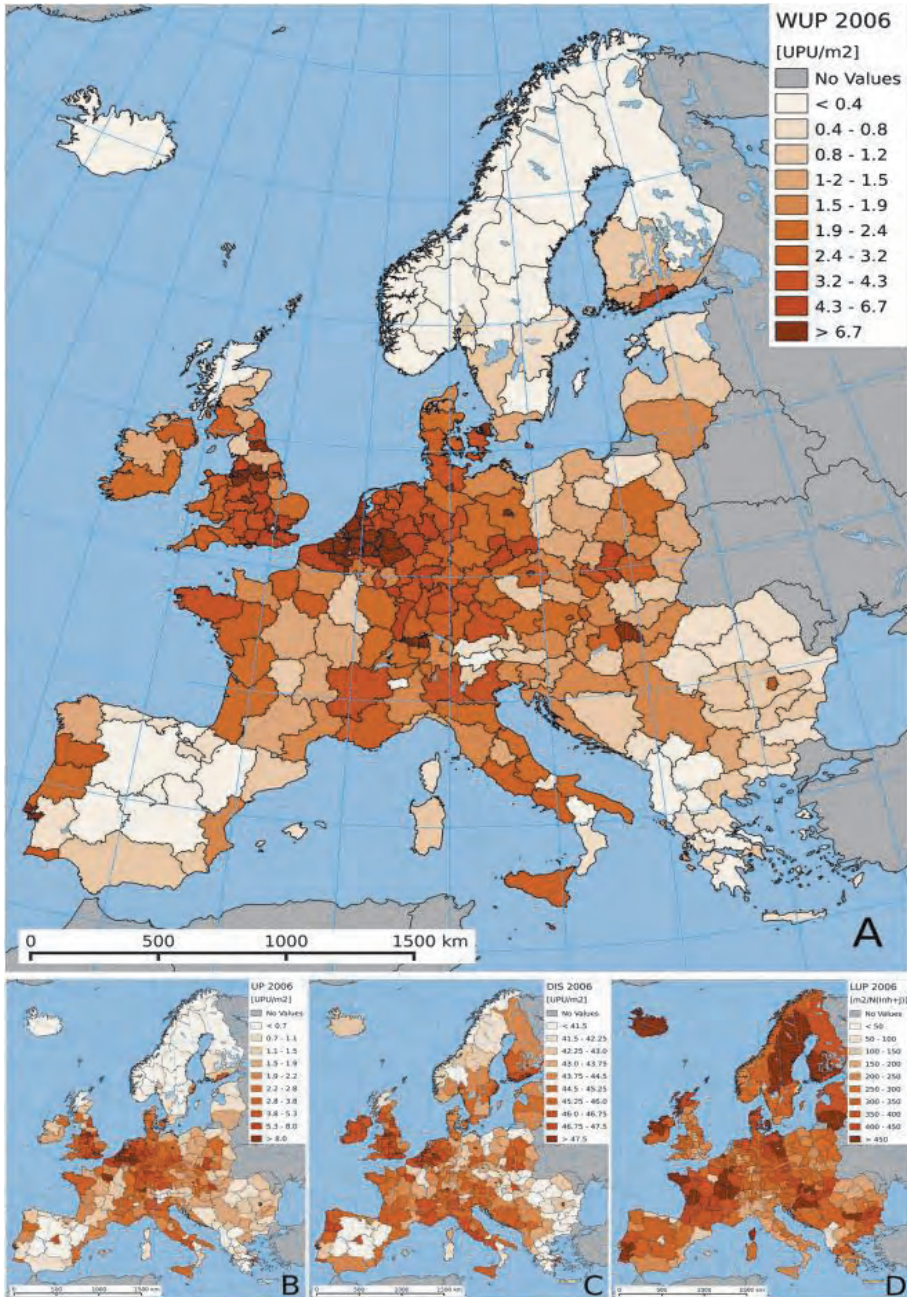
As for the **practical implementation of the general schemes and guidelines**, according to Normandin et al (2009), comparative analysis between the resilience indicators and the sustainable development indicators for cities (273 indicators) showed that only a small number of them were identical, which also contradicted a common belief that sustainable development equaled resilience. This phenomenon points to the fact that uncontrolled urban growth can lead to urban sprawl, thereby generating a number of negative impacts (e.g., lack of public spaces, transport, services, jobs, and so on). Also, the lack of affordability renders various impacts on urban sprawl, especially on low cost housing. In this respect, compact urban forms, supported by appropriate public transport infrastructure and access to public services, are better suited to sustainability. In limiting and preventing urban sprawl, different costs of urban land equipment/utility, associated costs and the costs of urban densification of the existing urban structure play the most important role.

In the same context, it should be pointed out that the **neoliberal urban policy** resulted in a switch from prosperous “boom scenarios” (in the era of financial “bubbles”) to subsequent “doom scenarios”, sprawling to an enormous number of cities and towns, both in some of the most developed countries, post-socialist countries and other places, thereby devaluing their respective urban assets and territorial capital. In sum, the so-called “New urbanism”, directed by the slogan “this time is different” (cf. Reinhart&Rogoff, 2009), resulted in disastrous losses of capital and asset value, but also introduced new arrangements of risk dissemination, transfer and redistribution. Namely, the real estate bubble/property bubble (housing bubble, urban-land bubble, and so on) is a form of economic bubble in local or global markets. These bubbles are characterized by the fast growth of property values (houses, flats and land) until they reach an unsustainable level – and then they rapidly decline. In the case when the bubble bursts, the property value decreases, which is, however, not paralleled by the equivalent debt of their “owners”.

In **macro-regional terms**, some European regions feature very prominently regarding the control and limitation of urban sprawl. Hennig et al. (2015) identified European regions with the highest and of the lowest levels of urban sprawl, respectively, and proposed a European de-sprawling strategy, including the implementation of targets and limits, and a set of concrete measures to control urban sprawl and to use land in an efficient way (Figure 1). They used the so-called method of Weighted Urban Proliferation (WUP) for measuring urban sprawl, which combined three components (after Jaeger et al, 2010) and determined urban sprawl at the country level, *NUTS* 2 level and Land and Ecosystem Accounting, with a grid/cell size of 1 km² (Fig.1). They ascertained that large parts of Europe are affected by urban sprawl, with an average WUP value of 1.56 UPU/m² (UPU/Urban Permeation Units). Jaeger et al. (2010) argued that for urban sprawl, the ideal case would be that one indicator quantifies the degree of urban sprawl, while an additional indicator measures the relevant causes, consequences, and attributes of urban sprawl. They suggest the use of three measures, viz., the size of urban area, proximity and contagion. Feng et al. (2015) demonstrated the use of

multidimensional indicators to effectively measure urban sprawl as well the use of integrated indicators.

Figure 1. WUP index in European urban sprawl in UPU/m² (Hennig et al., 2015)



Suggested categories and types of indicators

Starting from the above mentioned and some other cases and experiences, also in accord with the aim stated at the beginning of this report, we now define a **preliminary set of indicators for urban sprawl, urban land-use and concomitant policy**, grouped into five categories, viz.:

- Key indicators of urban sprawl and urban land;
- Anticipatory indicators of urban sprawl;
- Basic market indicators of urban land and real estate;
- Indicators of multi-functional urban land-use; and
- Composite indicators (indices).

The above listed categories are defined and described in more detail below.

3.2.2. The key indicators of (limiting) urban sprawl and urban land

Out of the large number of indicators that have been suggested for usage and/or have already been utilized, we focus here on some of the standard indicators of the kind that could also be applied to the three cities which are the main theme of the research within WP5 (following their general description in Table 1).

The urban sprawl index measures the growth in built-up areas over time, adjusted for population growth. In accord with *Cities and climate changes: key messages from the OECD* (OECD, 2013), when the population changes, the index measures the increase in the built-up area over time relative to a benchmark where the build-up area would have increased to in line with the population growth. The index is equal to zero when both population and the built-up area are stable over time. It is larger (smaller) than zero when the growth of the built-up area is greater (smaller) than the growth of the population, i.e., the density of the metropolitan area has decreased (increased). The suburbs have grown faster than the urban core in 66 of 78 metropolitan regions in the OECD countries.

The gross rent multiplier (GRM) is applicable for the market value analysis for any purchased property. Despite the fact that the GRM may not be precise enough for the assessment of value, it may well be useful as a “first and fast” value assessment tool. In this respect, it may be of importance for a general appraisal of the ratio between market movements, for example, regarding building new floor areas and the sale/purchase and rent of existing floor areas. The GRM indicator can probably indicate the over-pricing – or under-pricing – of properties, as well as a certain level of **resilience** of investment property policies (as they develop and accommodate over time).

According to the EU (2011), EU policies take into account the direct and indirect impact of land use in the EU and globally, and the rate of land take is on track with the aim of achieving no net land take by 2050.

Table 1: The key indicators of urban sprawl and urban land

Indicator	Description	Note
1. Urban sprawl index	Change in urban area vs. change in population (relation in % or index)	
2. Urban sprawl indicator	Total population/distance from the city centre (determination of a threshold value where the amount of artificial surface reaches the national mean value) $\times(1/\text{Distance from the city centre where the natural surfaces exceed the artificial surfaces})\times 100$	PLUREL project (2009) developed this indicator of urban sprawl using the land cover structure (gradients) and the population number-value decrease with increase of urban sprawl
3. Urban land consumption (urban land-take)	m ² /p.c.	
4. Land development multiplier	Relationship between the average price of adjusted p/lots/parcels in urban boundaries and the average price of unadjusted/undeveloped land in non-built/undeveloped areas	
5. Gross rent multiplier (GRM)	Market value/Annual gross Income – rent	This indicator is suitable as a rough general assessment tool of over-pricing – or under-pricing – properties, to serve as a measure of resilience of investment property policies over time, both for existing and newly constructed units.
6. Urban densities	Number of inhabitants/ha of urban land	
7. Relation of rates core urban/ peripheral growth of inhabitants	In %	
8. Index of demand for land and supply of urban/building land	The relation between the average annual volume of demand for land and supply of	

	urban/building land (ha/yr)	
9. U-Index/ Human use index or Corridor index	As % of human land use in an area (urban, suburban and agricultural land)	Larger values indicate the main disturbance of natural land area, while lower values show less deviation of natural land cover.
10. FSI (Floor Space Index/Floor area ratio or Floor space ratio)	The ratio of a building's total floor area (gross floor area) to the size of the piece of land upon which it is built	
11. Increment of built areas	In % or m2	As "cost"
12. Increment of green areas	In % or m2	As "benefit"
13. Agglomeration index as alternative measure of urban concentration	Based on three factors - population density, population of a 'large' city centre, and travel time to the large city centre	Source: Uchida and Nelson (2011)
14. Availability and access to public transport	Frequency of service/ number of departures per hour in an urban area: no access, low (4 departures/h), medium (4-10 departures/h), high (>10 departures/h), very high (>10 departures and metro with >10 departures/h)	Source: EC (2015)
15. Commuting distance	As % of inhabitants in the radius zone 5-10km, 15-20km, >20km or over time-trip	Commute is a journey from home to work and back
16. Land use intensity	Km2/GDP	EC (2011) suggested this indicator concerns "resource use intensity".
17. Rate of conversion of agricultural land into urban over a particular period	In %	

3.2.3. Anticipatory indicators of urban sprawl

The idea behind the urge to define appropriate anticipatory indicators is to be able to foresee, in a timely manner, the impact of some of the expected determinants (“signals”) which may influence the key course of future events (1), as well as to outline an appropriate policy framework in the urban land-use market, the real-estate market and housing market (2). In particular, they would indicate the predictable outburst of “rent bubbles” (or similar phenomena) in the markets in question. The indicators assume an especially important role under the circumstances of unstable financial flows in this sphere. They are summarized in Table 2. The indicators in question signify the importance of the impact of high-risk mortgage loans (that is, loans which are given to people without credit potential or without connection with their incomes, totaling about 10% of the value of outstanding mortgages, cf. Mayer and Hubbard, 2008). According to the mentioned authors, real house prices were 82% higher in 2007 than in 1999, rising 70% relative to household income. (In accord with data from Goldman Sachs, 2008, a 1% increase in mortgage lending rates would reduce the market price of houses by 8%.)

A simple theoretical framework between house prices and interest (mortgage) rates was considered as early as at the beginning of 1960s, within the so-called “Gordon growth model”. In this model, the asset price = dividend/interest rate – dividend growth rate (Gordon, 1962). The reinterpretation of Gordon’s growth model for housing (house price = rent/Interest rate – rental growth rate) implies a convex relationship between house prices and interest rates: the lower the level of the interest rate - the greater the elasticity of house prices (Mayer, Hubbard, 2008), especially in long-term series comparisons.

Table 2: Anticipatory indicators of urban sprawl and real estate market.

Indicators	Description	Notes
1. Price of urban development/ building land	Price in (€/ m ²)	
2. Urban sprawl index	Change in urban area vs. change in population, in % or index	
3. The annual gross rental yield for a housing unit	Annual rent/ house price x 100% or Gross Rental Yield = $\frac{\text{Monthly Rent} \times 12}{\text{House Price}} \times 100\%$	Used in the United Kingdom.
4. Price of dwellings/houses/ flats	House Price = Rent/(Interest Rate – Rental growth rate), in €/ m ² of houses/flats	In accordance with the Gordon growth model the Asset price = dividend /interest rate – dividend growth rate (Gordon, 1962).
5. Ratio of housing to family income	As %, or as annual income	

6. Affordability Index	Measures the ratio of the actual monthly cost of the mortgage to take-home income	
7. Median Multiple	Ratio of the median house price to the average annual household income	This measure pitches around a value of 3 or less, but rose dramatically, especially in markets with severe public policy constraints on land and development.
8. Number of buildings under mortgages	Number of buildings under mortgages (loans) or in % of total buildings	In Serbia there are 1.04 million buildings under mortgages, out of a total number of 4.69 million buildings.

3.2.4. Basic market indicators of urban land and real estate

- We conclude this presentation of various multi-purpose indicators by resuming standard indicators that are used in the sphere of urban land market and real estate analysis, viz.:
- Land development multiplier;
- Annual volume of demand for land (for industrial, commercial and residential uses, in ha per year);
- Elasticity of demand for urban land construction (correlating change in prices and change in demand);
- Number and volume of transactions, which expresses the annual number of plot transactions for commercial and/or residential purposes (it could be expressed as the ratio of the number of sales and purchase agreements to the total housing stock, i.e., as the turnover rate);
- Annual number of dwelling transactions (sales and purchases) and rented dwellings;
- Average annual volume of supply of urban (construction) land (for industrial, commercial, residential, public and other purposes, in ha per year);
- Median, and extreme, prices of urban (construction) land (€/m²);
- Level of informal land transactions;
- Availability of information on land prices;
- Lost agricultural land for conversion into other uses;
- Changes in the amount of inaccessible (impervious) areas;
- Prices of various types of dwellings (flats, housing units, houses, etc.), in €/m²;
- Number of housing starts (per year);

- Number of permits issued (per year);
- Change in urban land vis-à-vis change in population (as %, or as index);
- Annual gross rental yield per housing unit (annual rent/house price \times 100%);
- Annual gross rental yield for commercial properties (AGRYCP=Annual rent per m² of floor space \times m² of built space/Value of built space, expressed in %);
- Gross rent multiplier (GRM=Market value/Annual gross income-rent);
- Buy-rent gap as the ratio of the costs of purchasing a flat to the rental costs, which compares the costs of owning a flat in relation to renting it;
- Vacancy rent of built floor space or unit (Effective number of occupied units, in m²/Total number of units, in m² in a certain zone and/or building category);
- Quantitative indicators for the formal land administration system, which comprise: security, transferability, clarity, simplicity, timeliness, fairness, accessibility, costs and sustainability (after Burns, 2007); etc.

3.2.5. Indicators of multi-functional urban land-use

According to Bhatta et al (2010), the degree to which different land uses are mixed together is often indicative of concrete urban sprawl, which, however, may well differ among the key spatial patterns of land-use, that is, to be mono-functional on the one hand, and multi-functional on the other, and also in a different way impact **urban resilience**. In this respect, **Beinat** and Nijkamp (1998) emphasize that the multi-functional utilization of urban land is a preconditioned in the following way:

- An intensified utilization of urban land may drive its more effective usage;
- Mixed uses are typical within an area;
- This also introduces a third physical dimension (under-surface and above-surface) of its multi-functionality; and
- The fourth dimension reiterates the importance of multi-dimensionality over time.

These characteristics, in particular, point to the importance of introducing appropriate approaches to standard planning models, with a view to better accommodate both space and time dynamics. This is of particular relevance from the standpoint of keeping an urban system **resilient** to various changes, vis-à-vis the fact that the vulnerability of the system grows with the versatility of its uses. (Of course, this may well apply to other similar categories, that is, **urban adaptability**, **urban resistance**, and **urban stability**.) Namely, introducing new functions into an urban area, in parallel with diminishing the sizes of pertinent mono-functional sub-areas, will most predictably render an impact on the adaptability of the system in question, including its resilience, as well as on the **quality of its territorial capital**. Apart from the so-called “soft parts” of the territorial capital of an area (e.g., institutions, human resources, dominant models of communication and interaction, etc.), here its more conventional characteristics are of special relevance, that is, efficacy, effectiveness, sustainability, synergy (of functions and activities), and so on. This, of

course, drives us to the more politico-economic aspects of urban development. As for the narrower and specific aspects of the utilization of urban land, we will resort here to the key factors of effective land utilization (after Harvey, 2000), viz.: accessibility, agglomeration economies, development, physical characteristics, and technological growth and development. Following this line of thinking, below we define a framework for a better understanding of the factors that determine the selection of multi-dimensional utilization of urban land, viz.:

- The importance of an appropriate integrated planning-and-market/market-and-planning approach for controlling land use in terms of diversification, dispersion, concentration, multi-functional interweaving, territorial cohesion, etc.;
- Striking a balance between different approaches for defining the systems of indicators (e.g., complementarity between the sets of indicators that have been suggested in this contribution – vis-à-vis those that have been developed by other TURaS partners, for example, La Sapienza within T5.2);
- Defining a common set of criteria for specific multi-functional uses of urban space;
- Defining typologies of multi-functional use of urban land, harmonized with other approaches, methods and tools (e.g., those developed within TURaS, CORINE LAND USE, ESPON, new approaches in controlling urban sprawl in post-socialist countries, etc.);
- Undertaking research and evaluation of the impact of multi-functional land use on the selection, construction and usage of urban land-use indicators; etc.

Starting from the above listed assumptions, as well as from the research goals as defined for tasks T5.5&T5.10, we outline below a **set of indicators which seem to be of relevance for multi-functional urban land-use**.³²

- **The land development multiplier**, which expresses the relationship between the average price of a spatially arranged and organized plot (lot, site, parcel, and so forth) in a developed (or built up) area and the average price of undeveloped land in a non-built up (non-developed) area;
- **The diversity index**, as a quantitative measure, expresses the different land use functions (or “planned destinations”) that could simultaneously exist in the project area. Apart from its general form (Diversity=Actual number of functions/Maximum number of feasible functions), it also has a number of variants (True diversity index, Shannon entropy index, and so forth) - see Hannan (1997);
- **The dispersion index** (derived from the HHI, Herfindahl-Hirschman Index, measuring the size of firms in relation to an industry, as an indicator of the

³² To note, in the earlier phases of the TURaS research, we already mentioned this category of indicators.

amount of competition among them) expresses the variability of functions in a given area in urban land management, as in the formula:

$$D = \frac{1}{l \cdot \sum_{i=1}^l \left(\frac{M_i}{S} \right)^2},$$

where: $i=1$, M_i - the amount of m^2 land used by a single function i (input), S - the total amount of m^2 land use of the project area, l - the actual number of functions (l has a maximum value according to the number of land use functions in a plan or other documents). Also, the **index of dispersion, dispersion index/coefficient of dispersion or relative variance** are measures of the dispersion of a probable distribution (including a standard statistical model); and

- **Index of efficiency and intensity of land use** (FSI, etc.), as a standard measure of the utilization of an area (space).

Composite indicators (indices)

Composite indicators may be developed for various explorative and planning/policy purposes aimed at getting a better insight into a number of issues, viz.: urban expansion patterns; the degree of compactness of urban land (compendious development, linear/corridor development, “leapfrog” development, cluster space development, etc.); the degree of urban sprawl; the agglomeration index, etc. Of necessity, they would have to measure specific multi-dimensional concepts applied to a concrete situation, e.g., the level of competitiveness, resilience, environmental quality and territorial cohesion, as these concepts cannot be captured and expressed by a single indicator. Along this approach, and based on the appropriate theoretical framework and methodology, **composite indices** would be selected and combined in a way which is most suitable to express the concept in question (i.e., compactness, urban sprawl, urban resilience, cohesion, etc.), as well as to support research on the optimal degree of aggregation and measurement of the mentioned urban phenomena.

3.2.6. Ecological indicators for reducing urban sprawl

There has been a common stand among commentators that urban sprawl may induce a number of negative environmental and energy-related outcomes. For example, Oueslati et al. (2015) claim that the most compelling examples of the kind are air pollution and greenhouse gas emissions (indirectly contributing to urban heat island phenomena). According to a study in Norway (Sørli, 2008 in Christiansen and Loftsgarden, 2011), the environment is among the top five reasons for moving, after family causes, housing and location (while work was the most important reason for moving in 1972). As a motive for sprawl, a study from 2011 (Christiansen and Loftsgarden) also mentioned access to green space and having a good environment for children.

Referring to various ecological (environmental) consequences of urban sprawl in a number of European countries, the European Environment Agency (EEA, 2006) pointed to four broad main categories of environmental consequences of urban sprawl, viz.:

- **Natural resources and energy**, which includes: increased consumption of numerous natural resources (farmland, raw materials, etc.) and energy (household and transport, increased emission of CO₂ to the atmosphere, etc.), transformation of soil properties (soil sealing, etc.), and hydrological changes (impairment of small watersheds, reducing groundwater recharge);
- **Natural and protected areas**, which includes: stress on ecosystems and species through noise and air pollution, fragmentation of habitats (degradation of ecological networks), loss of agricultural and natural land, particular impacts on ecologically sensitive areas located in coastal zones and mountain areas;
- **Rural environments**, referring to urban growth on former agricultural land; and
- **Urban quality of life, hazards and health**, which include both the direct impacts, e.g., poor air quality (resulting in an increase in respiratory problems linked to air pollution) and high noise levels, and indirect impacts, e.g., greenhouse gas emissions that have major implications for global warming and climate change, causing severe weather events and increased incidences of river and coastal flooding, or soil erosion due to the reworking and removal of the soil surface by construction.

A large number of researchers (Burchfield et al., 2006; Deng et al., 2008; Laidley, 2016; Oueslati et al., 2015; Stone 2008; Wu, 2006; Hasse& Lathrop, 2003; etc.) highlight the importance of environmental factors for inducing and regulating urban sprawl. In the sequel the most significant factors are briefly pointed out, paralleled by the concomitant suggested indicators, all belonging to five large groups, as they have been put forth by some authors.

- **Ground water availability**. According to Burchfield et al. (2006), sprawl increases substantially with the presence of water-yielding aquifers in the urban fringe, as they allow people to dig a well far away from any other development without financing the extension of the municipal water infrastructure.

Suggested indicator: % of urban fringe overlying aquifers

- **The role of the temperate climate**. According to Burchfield et al. (2006) and Oueslati et al. (2015), the temperate climate represents one of the main factors that increase the value of open space and sprawl.

Suggested indicators:

Mean cooling degree days

Mean heating degree days (The idea behind this is to define whether a city has an extremely hot or cold climate. A standard measure of extreme heat is cooling degree days, a concept used by engineers to calculate the demand for air

conditioning. Extreme cold can be similarly measured through heating degree days, used to calculate fuel demand for heating, cf. Burchfield et al., 2006.)

The number of rainy days per year (cf. Oueslati et al., 2015)

Temperature (referring to the average temperature of the warmest months on the year, cf. Oueslati et al., 2015)

- **Rugged terrain.** According to Burchfield et al. (2006), while high mountains close to a development hinder urban expansion and tend to make development more compact due to higher costs, hills and small-scale terrain irregularities encourage scattered development. Analogously, Oueslati (2015) showed that the effect of altitude is positive, implying that cities located in urban areas at higher altitudes are likely to be more fragmented.

Suggested indicators:

Elevation range in the urban fringe (m)

Terrain ruggedness index in the urban fringe (m) (Burchfield et al. 2006)

Median city centre altitude above sea level (m) (as a partial indicator for the ruggedness)

- **Ambient air quality and local particulate pollution.** Stone (2008) showed that large metropolitan regions ranking highly on a quantitative index of sprawl experience a greater number of ozone exceedances than more spatially compact metropolitan regions.

Suggested indicators:

Particulate Pollution Emissions per Capita, lbs. (PW), measuring the total per capita emissions in pounds of hazardous pollutants, the sum of volatile organic compounds, NO_x, sulfur dioxide, carbon monoxide, ammonia, and small and large particulate matter, i.e., particles less than 2.5 and 10 µm in diameter, respectively (cf. Laidley, 2016)

Exceeding emissions of pollution particulates, measuring the number of days per year when concentrations/emissions of pollution particulates exceed the statutory level, namely: hazardous pollutants, the sum of volatile organic compounds, NO_x, sulfur dioxide, carbon monoxide, ammonia, and small and large particulate matter, that is, particles less than 2.5 and 10 µm in diameter, respectively

CO₂ Emissions per Capita from Onroad Sources, kg (CO₂), measuring the total per capita on-road carbon dioxide emissions in kilograms from highway sources (cf. Laidley, 2016)

- **Loss of natural habitat.** Forests and wetlands have been recognized as crucially important for the ecological health of a landscape and its biodiversity. The loss of wetlands has implications for the water quality/quantity and wildlife habitat. The loss of natural habitats and construction of roads also induces habitat fragmentation (according to Vos et al, 2001, this has two principal components: decrease in habitat area and increase in the isolation of the remaining habitat patches.)

Suggested indicators:

Percentage of forest habitat loss, normalizing the area of forest core loss by the area of previous forest core for each unit of analysis. (This can also be expressed as **Per capita forest loss**, generated by normalizing the area of forest core loss by the population increase for each unit of analysis, cf. Hasse& Lathrop, 2003.)

Percent of natural wetlands loss, generated by normalizing the area of wetlands that become urbanized by the original area of wetlands. (This can also be expressed as **Per capita natural wetlands loss**, generated by normalizing the area of wetlands lost to urbanization by the population growth within the unit area of analysis, cf. Hasse& Lathrop, 2003.)

3.2.7. Conclusions

Based on our preliminary analyses, suburban areas with more urgent social needs or structural economic difficulties should be recognized as immediate planning entities for further research, starting from the suggested types of quantitative indicators. We suggest the integration of several indicator groups into the TURaS tools, relating to completion of urban sprawl, urban land use and other parameters (social, economic, environmental, demographic, etc.) into a common framework of integrated urban strategy, as well as further research into the optimal degree of aggregation, and the measurement of different urban phenomenon by composite indicators (urban sprawl, urban competitiveness, urban compactness, urban resilience, etc.). Apart from this purpose, they should also serve another important purpose, namely, helping define a future research agenda in this field. Indeed, it is now very difficult to prepare planning and development regulations and indicators for urban sprawl because of a lack of guidance for their adaptation to the global challenges, uncertainties, disturbances and limitations in different and complex contextual conditions. Appropriate and suitable indicators may help to that end, that is, to get better insights into the key and related matters of controlling and directing urban development.

Acknowledgements:

This chapter is the result of the project “Transitioning towards Urban Resilience and Sustainability (TURaS)”, Contract No. 282834, financed within FP7 of the EC on topic ENV.2011.2.1.5-1; and project “Sustainable Spatial Development of Danube Region in Serbia”, No. TR 36036, financed by the Serbian Ministry of Education, Science and Technological Development in the period 2011-2016.

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3.2.8. Appendix

The ideas behind the proposals in this contribution are twofold: first, to preliminary identify those criteria and derive those quantitative indicators that critical for urban sprawl and urban land policy, to be rather developed for comparative analysis; and second, to help define a new research agenda, focused on the efficiency of the indicators in use.

Table 1. Preliminary criteria for the benchmarks of the urban sprawl and urban land

Transparency	Term should be clear and simple to understand to general public. It should also satisfy the condition of being transparent.
Accessibility	The quality of being available when needed. In conditions of uncertainties and challenges, indicator should be able to providing access to all users
Sustainability	The ability to continue a defined behavior indefinitely. Sustainability implies the organizational and institutional arrangements, governance procedures, educational and professional levels for the particular jurisdiction, understandable and affordable to the inhabitants and users.
Security	The state of being free from danger or threat. Land markets have to operate effectively and efficiently with protection of the property rights to all. Financial institutions should be informed to mortgage property/ land.
Efficiency	The state, action or quality of being efficient.

To note, a number of other indicators of some relevance have not been included in the above table, for example, the criteria of accuracy, simplicity, cost, utility, flexibility, validity (based on official statistics or data), etc.

Table 2. A Matrix of links between quantitative indicators of urban sprawl&urban land and criteria

Indicators	Transparency	Accessibility	Sustainability	Security	Efficiency
Urban sprawl					
1. Urban sprawl index		+		+	
2. Urban sprawl indicator		+	+		
3. Urban land consumption		+	+		+
4. Land development multiplier	+	+	+		+
5. Gross rent multiplier	+			+	+
6. Urban densities			+		
7. Relation of rates core urban/ peripheral growth of inhabitants			+		
8. Index of demand for land and supply of urban/building land		+	+		+
9. U-Index/ Human use index		+	+		
10. FSI- Floor space index	+		+	+	+
11. Increment of built areas			+		
12. Increment of green areas		+	+		
13. Agglomeration index		+	+		
14. Availability and access to public transport	+	+		+	
15. Commuting distance		+			
16. Land use intensity	+				+
17. Rate of conversion of agricultural land into urban		+	+		

Urban land use					
1. % of total parcels registered	+	+		+	
2. % of transfers of rights that are registered	+			+	+
3. Annual registered transactions as % of registered parcels	+	+		+	+
4. Annual registered transfers as % of registered parcels	+	+			+
5. Annual registered mortgages as % of registered parcels	+			+	+
6. Annual registry running costs/ registered parcels					+
7. Number of registered parcels/ 1 million residents		+			
8. Number of registered parcels/ km ²		+			
9. Public/budgete income/p.c.	+				+
10. Equitable taxation of property	+				+
11. Blighted or substandard flats	+			+	



GENERAL CONCLUSIONS



T U R A S

TRANSITIONING TOWARDS URBAN
RESILIENCE AND SUSTAINABILITY

Key findings by Slavka Zeković, Miodrag Vujošević and Tamara Maričić

Some guidelines on limiting urban sprawl, including guidelines for transformation of urban land policy and tools for limiting urban sprawl, recommendation for adoption of the *International Guidelines on Urban and Territorial Planning*, UN Habitat, 2015, the *Guidelines on Decentralization* (2007), and the *Guidelines on Access to Basic Services for All* (2009), which have been used in many countries to catalyze policy and institutional reforms, as well as GLTN (*Global Land Tool Network*) land tools.

Guidelines and recommendations for the harmonization of regulations for funding urban land equipment, local economies and local public finances in Serbia, based on three basic (alternative) approaches: 1. *Innovating tax instruments*; 2. *Innovating and transforming the fee system*; 3. *Hybrid approach*, as a combination of fiscal and parafiscal sources, and introduction of new economic and financial instruments - arrangements PPP with the implementation of urban design and planning agreements (among investors, local self-governments and stakeholders) and strict control over burdening the local public finances. From the point of financing the equipping of urban land with public utility infrastructure in local self-governments, the main reforms include: *introducing efficient property-organizational solutions*; *efficient management policy of public utility rates*; *introducing an efficient way of financing public utilities*; and *introducing transitional solutions for economic regulation, privatization* of (a part) of these services.

Indicators of urban sprawl and urban land policy, classified into five groups: key indicators of urban sprawl and urban land; anticipatory indicators of urban sprawl; basic market indicators of urban land and real estate; indicators of multi-functional urban land-use; and composite indicators, as well as environmental indicators.

Recommendations for the introduction of new and more flexible urban land policy tools, aiming at the new role of planning in creating a more resilient city, as a set of mechanisms needed to bridge the gaps related to the urban land market or to guiding and controlling urban sprawl, viz.: urban rezoning, tradable development rights, density bonus policy, implosive and inclusive zoning, infrastructure finance, public-private-partnerships, introduction of development land in the periphery, annexation, and some others. In that respect, there has been a need for major readjustments of current planning policy regarding the control of urban sprawl *from the urban “command-and-control” approach to the “learn-and-adapt” approach*, including pertinent institutional, procedural and substantive aspects. These urban land policy tools are especially important in limiting urban sprawl, urban development and urban governance.

Recommendation for a new institutional framework and instruments in innovating the existing planning system and urban land policy, especially related to managing urban sprawl (with example of Belgrade). These recommendations include the harmonization of the current system and practice of urban land policy in Serbia with the main courses of transitional reform and change in planning system. The neo-liberal development policies and urban planning (relying on development of services and an excessive growth of business space) caused conversion of so-called boom scenarios of urban development into the so-called doom scenario which is reflected in the uncontrolled (and illegal) urban sprawl and poor urban renewal. These processes are parallel to "success" and "competitiveness" of urban development which enables "transformation of attractive territorial resources into non-liquid assets" by instruments of urban policy. Contextual framework of post-socialist Serbia, transformation of its urban land policy as well as the land development management in Belgrade illustrate complexities of spatial regularization, which is emphasized by the delay of adopting new urban land policy. **Findings** are related to a number of issues: contextual framework of post-socialist Serbia; spatial regularization, planning instruments and urban land market; conversion of agricultural and forest land to urban land; the conversion of land use rights or access rights into property rights; urban land regulations and planning instruments in Belgrade; urban land market/policy; urban land development in Belgrade; and urban land policy as a factor of urban expansion/sprawl of the Belgrade. **Key recommendations** relate to: 1) Regulation of inefficient urban land consumption; 2) Regulation of the elasticity of land supply and land demand, within the synergic functions of urban land market and urban development planning and governance; 3) Reshaping the administrative arrangements and procedures for land use management; 4) Improving the transparency of the entire system, in accord with the suggestions and recommendations of relevant international institutions and organizations; and 5) Streamlining urban land management system, and the tax system.

Findings that legal framework stimulates the in-efficient and in-effective use of land resources in Belgrade area, as well as irregular and informal status of many settlements (in suburbs and in urban tissue). The legal framework and current metropolitan/urban planning and governance are keystones of urban (as well as national/regional) policies and their own sprawl-inducing results, as well as own-values. Also, the legal regulations and urban land policy are main ways to influence the land market or to decrease/increase market demand by locking or limiting the urban sprawl on the account of acceleration of urban growth or urban redevelopment as more acceptable processes.

Measuring the sustainability of urban land-use and urban sprawl in the Belgrade metropolitan area, based on six indicators: Urban density, Urban land consumption p.c. (m^2), U-Index (Human Use Index) as % of human land use, Residential floor space $m^2/p.c.$, Agriculture land p.c. (m^2), and Urban sprawl (change in urban area vs. change in population; index). **Key findings** include: extremely inefficient urban land use and excessive urban sprawl (in two decades urban area has increased 298%; urban land consumption has increased from $233m^2$ p.c. to $670m^2$ p.c.); important role of urban land policy (untransformed instruments

support urban sprawl), as well as massive illegal housing in BMA (0.4 million buildings) and Serbia (1.6 million). Urban land consumption (or land-take) in Belgrade (NUTS2) compared to other cities indicates extremely high value as the indication of excessively intensive urban sprawl – more than in all other European cities. The indicators of sustainability of urban land use and urban sprawl in the Belgrade metropolitan area (NUTS2) indicated an excessive urban sprawl which makes Belgrade the “leader” in inefficient land-use and urban sprawl in Europe. Also, uncontrolled urban expansion with massive illegal construction is an indicator of “unhealthy” housing policy, urban governance, land policy and planning instruments in the post-socialist era. U-Index indicates some disturbance of natural land area in BMA. The greatest areas of urbanization in the Belgrade region occur in the central urban area. The urban sprawl index in BMA is $0.378 > 0$ when the growth of the build-up area is greater than the growth of population, i.e. the density of the metropolitan area has decreased. Also, we found the imbalance between strategic goals (i.e. the controversial nature of the strategic goals of urban renewal and a significant expansion of the construction area and new construction), spatial solutions and urban and land-use instruments in the Belgrade (NUTS2) as consequences of uncoordinated urban planning instruments and measures, and the weaknesses of the management of spatial development, particularly in suburbs.

Recommendations about evaluation of the urban construction land for local development: for improving the methodology of assessment & appraisal of the real estate - principles, factors, new market-economic approaches, and methods of assessment and evaluation of building land in Serbian cities. In the field of construction land value evaluation, the following problems are present, such as: a) lack of skilled personnel and institutions dealing with construction land - planning, estimation, evaluation, monitoring, administration, management, control, as well as a lack of coordination in institutional collaboration (urban planning office, fiscal office, cadastre, property legal office, statistics office, etc); b) poor availability of system data regarding public ownership, value evaluation of real estate in public ownership; c) the absence of publicly available general data on the total, public and private construction land, built and non-built at municipal and town level; d) the absence of transparent indicators regarding construction land; e) the absence of volume estimation and stratified demand for land and objects for various purposes, time and territorial distribution of demand, user/investor's buying power, as well as the absence of supply elasticity of construction land. Also, in Serbia, relevant regulatory rules for evaluating real estate have not been determined; therefore it is recommended that the following should be introduced: legal principles; economic principles (substitution, demand and supply, expectations or projections, compliances etc.); factors important for real estate value (physical, market-economic, legal, social, political, spatial/urban planning); evaluation approaches (cost, comparative/market, return/capitalization, etc.); evaluation methods (a multitude of methods, particularly, the application of the method for massive value evaluation); market mechanisms, institutions and instruments for evaluating real estate value (construction land).

The original identification of three historical contexts (in which different political and socio-economic systems dominated), from the standpoint of

construction land development and its relation to urban development in Serbia.

The first context was from the mid-19th century to the World War II, and included the economic order based on capitalism and the development of civil society, in an undeveloped agricultural country. The second context includes the period after the World War II up to 2000, which is characterized by an *authentic development of a socialist system*, in three phases: a) *Phase of the administrative-centralist system and post-war restoration (1946-1950)*, b) *Phase of the authentic socialist system of self-management (1950-1990)*, with a stage of associated labor and consensus economics (1974 -1990), c) *Phase of the breakup of Yugoslavia and the collapse of the socialist system (1990-2000)*. The third context (after the democratic changes in 2000) includes *the post-socialist transition of the society and economy within the capitalist system of neoliberal discourse*.

The identification of four main types of housing policies in the post-socialist period, 1) fast and total privatisation of state-owned dwellings - 266,500 units for a pittance, resulting in 1.5% of public-owned dwellings in Serbia; 2) vast illegal housing construction - 1.6 million of totally 4.7 million buildings in Serbia; 0.4 million in the Belgrade (NUTS2); 3) dynamic growth of commercial housing, and 4) slow and limited growth of a new social housing policy - with a symbolic number of new residential units, **and related recommendations**. The socialist concept of the welfare state was transformed in a very short time into a neoliberal economic concept, with deregulation of the housing legislation and mass privatization of social (public) housing stocks. These findings demonstrate a highly unsuitable post-socialist mode of housing policy transformation (by changing the previous laws according to a strong neoliberal course) and also show the patterns of short-term policies (i.e. privatisation) with marginal financial effects, very limited success of new social housing, and socially unsustainable illegal housing and urban policies. **The recommendations** relate to the improvement of legal regulations of the housing policy, particularly the development of housing tenancies (the formation of the housing stock in public ownership, regulation of housing market, level of rents, rent subsidies, implementation of rent taxation, protection of the rights of the lessee and the lessor, register of lease, rent-control, incentives, sanctions, and measures), institutional capacity building in the public and private sectors, statistics, the legalization of illegal buildings, housing assessment value, etc., because harmonisation of the regulation of residential renting as a fundamental value of the EU (e.g. national tenancy policies and regime, tenancy laws, etc.).

The findings of the sustainable development in the Belgrade Metropolitan Region (NUTS 2) relate to evaluation of the three components: 1) economic growth and developmental changes; 2) competitiveness; and 3) territorial concentration and industrial specialization. The results show that although having negative values, structural component of the Shift-share analysis of the BMA has a slightly better effect of regional economic decline than the national average. The allocative component of decomposed economic growth of the BMA has a positive value as a reflection of specialization in the sectors of region, whose productivity is above the national average. Shift-share and Spider method indicate that the process of metropolitan/regional de-industrialization, measured by a drastic drop in employment, was very intensive in the BMA. Favorable allocative factors such as

regional conditions and territorial capital of the BMA have contributed to alleviation of the overall decline of industrial employment in this area, as compared to the Serbian average. The important positive role of metropolitan/regional component in decomposition of the BMA economic growth is highlighted as one of the key results. The results of comparative analysis indicate absolute and relative differences in decrease of industry territorial concentration as well as inefficiency of utilizing territorial capital in the BMA. Also, the results indicate that Serbian regional development policy, especially horizontal industrial policy, should be based on a combination of market-led factors, territorial competition, territorial capital, and territorial cohesion.

Key findings by Nikola Krunić, Jasna Petrić and Tanja Bajić

The analyses of the relationship between the dynamics of the total population change, and the correspondence of the land cover change, were performed at the level of administrative units at local level (“municipalities”) within the metropolitan areas, i.e. cities of Belgrade, Sofia and Rome. The following indicators have been utilized: absolute (total) population; population size dynamics; population density (measured via the number of inhabitants per unit of artificial land area, that is, “land surface”); structure of land cover by category (Corine Land Cover); changes within the above land cover categories, respectively; and ratio between total and artificial surface of the administrative units. Also, changes within the structure of migrants and commuters has been also analysed, but only for the City of Belgrade.

Selected case study cities are considerably different in terms of their geographical position and surroundings, historical and social conditions, and established political system. Beside the observed land cover changes which were intensified in the mid-20th century an important common feature of the three cities is the fact they have been developing in the conditions of formally organised legal, spatial and urban planning systems, though with very different experiences regarding the implementation of planned urban development at the local administrative level.

Occupation and sealing of productive soil in peri-urban zones was not proportional to the population dynamics of the cities. Regarding the changes in population density, it can be concluded that central/inner-city municipalities became less populated, with sometimes very significant decrease in population density, but without any land cover change, which indicates “depopulation”. At the same time outer-city and peripheral municipalities also suffered a decline in population density, while their urban zones extended (in cases where high “antropogenisation” was detected). Kaluderica is the “infamous” illegally constructed suburban settlement, developed at the rural land at the city outskirts since the second half of the 20th century. Its attraction for in-migrants was caused by its proximity (12 km) to the city centre of Belgrade, favourable position – good road connections, and most of all, because of the lack of available flats in the urban

parts of Belgrade, which was a problem even during the socialist era and particularly since the 1990s when refugees and internally displaced people from the former Yugoslav republics needed a new place of residence. According to the official statistics, the present population of Kaluđerica is approximately 27,000 living at the territory of 932 ha.

The main research findings of residential preferences in Kaluđerica regarded: 1) The key motives for people to settle in Kaluđerica; 2) The level of satisfaction of residents with facilities and amenities provided by this neighbourhood; and 3) Variability of suburban residential preference in Kaluđerica.

The survey was conducted by the means of questionnaire which consisted of 30 questions, divided into 6 sections: introduction; respondent's environment; transportation; facilities; amenities; and additional general or specific comments on the questionnaire. The sample included 90 household representatives (approximately 1% of the total number of households in Kaluđerica).

The results of the survey showed that the top three motives for people to settle in Kaluđerica were: property in ownership; size and the quality of a house; and property values and re-sale values and maintenance costs. Regarding the level of satisfaction with facilities and amenities in Kaluđerica, the best pointer were the results of Pearson Correlation between neighbourhood attributes and total neighbourhood satisfaction measured by the Neighbourhood Satisfaction Scale. The results of the analyses showed the largest positive correlation between satisfaction with public transport system and total neighbourhood satisfaction, followed by large positive correlation between the overall facilities provision and total neighbourhood satisfaction. The third important factor which correlated in a positive way with total neighbourhood satisfaction was happiness with contacts with neighbours. Notwithstanding almost 40% of respondents from Kaluđerica who do not want to move away from this neighbourhood at all, 1/3rd of those who consider leaving it mainly think of the closest urban area to Kaluđerica (i.e. Zvezdara/Lion) as the preferable place of residence. Other two most preferred locations from moving away from Kaluđerica were the central urban municipalities of Stari grad (Dorćol area) and Vračar, latter two because of their proximity to all services and facilities, as well as because their support to use walking and various options of public transport system instead of a car.



T U R A S

TRANSITIONING TOWARDS URBAN
RESILIENCE AND SUSTAINABILITY

ANNEX

Miodrag Vujošević

**Key findings of the IAUS TURaS team
on the role of national legislation,
development document and market on
the urban sprawl in the Belgrade
metropolitan area**

**Based on the individual contributions of the IAUS team
members**

**Meeting in the IAUS, Belgrade,
27th June 2016**

Content

- **Broader development picture:
Determinants from the context**
- **Key national legislative and
development documents**
- **Key development goals vis-à-vis
characteristics of the current condition**
- **Land-use policy for the Broader
Belgrade Area**

A broader development picture: Determinants from the context

A constant multi-decennial polarisation of development and its concentration in the metropolitan area of Belgrade and Novi Sad (“Serbian spatial banana”, SSB) –

- 1. In the 1980s, ca. 1/3 of the BDP of Serbia was produced in the SPB, some 10% of total territory**
- 2. In the 1990s, this percentage rose to some 50%**
- 3. Now (2016), around 2/3 of the BDP of Serbia has been produced in the SSB**

A broader development picture: Determinants from the context (cont'd)

Among all former socialist/communist countries, Serbia face the highest rate of deindustrialisation, of some 45%, SSB somewhat less (ca. 40%) –

- 1. As a result of dissolution of the former Yugoslavia, international sanctions and isolation of the country, current GDP of Serbia is still smaller than that at the end of 1980s (now, ca. 30 billion €);**
- 2. Especially, during the bombardment in the Spring of 1999, at least 300 key industrial compounds were destroyed (mostly those in the public sector), by means of which almost all former regional development poles of Serbia, ca. 30, were swept out;**
- 3. Total direct damage has been estimated at more than 100 billion \$; and**
- 4. The country survived the sanctions and international isolation in the first place due to its fairly diversified and ramified economic structure (both in terms of its structure and territorial distribution) – till the Spring of 1999.**

Key national legislative documents and development documents (Survey of planning documents - standards and regulations, spatial and master plans, plans for regional development, Belgrade, Serbia)

Substantive and procedural aspects of the utilization of agricultural and forest lands, respective conversion into urban (construction) lands and zoning have been defined by a number of national and local legal acts (laws, legal decisions, ordinances, regulations, etc.), which have been passed and subsequently renewed/modified in more recent period, viz.:

- ***The Planning and Construction Act* (2009; 2009; 2010; and 2011; in the sequel: PCA);**
- ***The Act on Agricultural Lands* (2006; and 2009; in the sequel: AAL);**
- ***The Forestry Act* (2010; in the sequel: FA);**
- ***The Act on National Land Cadastre* (2009; and 2010; in the sequel: ANLD);**
- ***General Regulation on the Parceling-out and Construction of Land Lots* (2011);**
- ***Ordinance on the Conversion of Land-lease to Land-property* (2010, passed twice; and 2011); and**
- ***Legal Decision on the Land Zoning in the Belgrade City Area* (2009; 2010; and 2011).**

**Key national legislative documents and development documents
(cont'd)**

- **A number of national, regional and urban strategic documents (plans, programs, master plans, development policies, strategic projects, etc.), accepted over the recent decade or so, dealing directly or indirectly with the issue of controlling urban sprawl.**
- **Generally, poor provisions on the implementation policies, and links with implementation instruments from other fields (e.g., regional development, market regulations, etc.).**
- **The non-existence of specific policies for the SPB.**
- **Very poor implementation of strategic aims and goals.**

The issue of denationalisation of publicly owned agricultural lands

There has been a specific problem stemming from the legal opportunity to convert publicly-owned agricultural land to other property statuses and regimes, which was introduced in 1992 and subsequently (1996 and 2006) modified. This particularly applies to the most attractive sites in the peri-urban areas of the broader Belgrade area. Although the law stipulated for a conversion at market values (prices), in practice it directed the main course of changes, at first to a very cheap sale of former agricultural land in public (state) property to private actors, and, secondly, to its subsequent and almost immediate conversion to non-agricultural purposes, mostly to expensive housing and business zones/complexes, and to some other economic purposes as well, within the overall process of "tycoonisation" of Serbian economy and society at large. Only in 2009 (Article 11 of the AAL) the law introduced some provisions intending to prevent the selling out of publicly-owned agricultural land.

In the meantime, on at least 27 such areas, out of total of some 50 peri-urban areas, the former agricultural lands deteriorated, often paralleled by illegal construction on the newly converted sites. The scope of this negative trend is tremendous, indicated by the fact that some 20,000 hectares of former agricultural land have been converted to non-agricultural purposes. While the estimated total number of illegal "objects" in Serbia centers around the mark of 1.5 million, some 400,000 of them have been evidenced in the broader Belgrade area. (To note, the Urban Master Plan of Belgrade covers the area of 77,600 hectares.)

The legally improper way of regulation the issue of conversion of agricultural lands

For some time, at least two possible modes of urban/construction land privatization had been discussed, viz., the so-called "privatisation after restitution", and the "privatisation now and denacionalization in the course of the process". However, in 2009 PCA was adopted, also regulating the issue of privatisation. That is to say, a legal act, which is not *sui generis* for regulating property matters, defines the legal basis for ownership transformation, also regarding urban/construction land, which is the most valuable territorial and economic asset of Serbia (Articles 99-103). Article 101 of the PCA enables the conversion of the right to use state-owned urban construction land into the right of private property to private persons, without compensation, via submission of a request within one year of the Acts enactment. Legal entities established by the state, provinces and municipalities, are allowed to convert the right to use of urban construction land into right of public property, without compensation, within the same period. Individuals with the lease right on other state-owned construction land are enabled to remain liable to pay the lease.

By using a non *sui generis* legal act for controlling property issues, Serbia represents the only European country which acts in this way.

The issues of legalizing illegal construction

The *PCA of 2009* established the legal basis for a "back door", i.e., non-formalized privatization of construction land. The land is subjected to blatant "profitization", which brings the greatest benefits to the most privileged "users" of plots who acquired the right of use either by buying them at bargain prices from the former owners or in the process of privatization of state-owned enterprises. Not only do the new legislations fail to calculate the restitution of construction land (and other real estate), but this also still brings potential investors on shaky legal grounds when buying construction/urban land.

Many authoritative commentators have already been pointing to a number of flaws in new legal formulas, and especially to the lack of a more substantive professional knowledge to corroborate the new approach, which has basically been sort of "quasi-market" solution. Apart from that, there have been comments from many sides that the role of state institutions and organisations has been over-emphasized for that matter.

Land-use policy for the Broader Belgrade Area – a number of specific documents of the kind produced over the recent decade

- The issue of controlling urban sprawl has not been properly addressed, as a consequence of its poor status on the political agenda.
- Generally, poor implementation of aims and goals.

Key provisions on 'demetropolisation', i.e., putting into effect more dynamic development of other parts of Serbia than the Belgrade metropolitan area, and thereby lessening its population and economic burden, viz., the pressure on its physical stock

- To denationalize both the ownership and management of urban (construction) land, as a key step The overall marketization should be corrected, in social respect, by specific protection of actors who would not sustain the volatilities of a more oriented market system.
- Urban rent should play its genuine role in effecting the functioning of urban land market, providing relevant information and thereby taking into account the interests of all market actors ("players"), in term of ownership, property, leasehold, and so forth. In parallel, this would also have to protect the respective interests of all investors and financials, being them either in public, private or other property sectors, directing the system and practice to rational behaviour, management and husbandry of urban land.
- These would altogether introduce real market parameters, thereby providing predictable and veritable market signals to all involved and potential parts.

Key provisions on 'demetropolisation', i.e., putting into effect more dynamic development of other parts of Serbia than the Belgrade metropolitan area, and thereby lessening its population and economic burden, viz., the pressure on its physical stock

- Consequently, new market principles would place ground for introducing a number of proper market policies and instruments, to serve a number of specific goals and targets, viz.: faster activation of the already disposed urban lots (now under a prolonged construction), both for the reconstruction and new construction; delimitation of public and other urban lands, supported by appropriate cadastre and related services (electronic bases, systems of indicators, etc.); introduction of a rounded-off property evidence, fully coordinated with the cadastre; defining a long term urban land policy, to integrate various sector policies of all public actors in the City of Belgrade constitutive municipal communes (e.g., tax policy, ownership management, physical land management, sustainable spatial and urban development policy, etc.); systematic preparation of detailed land arrangement (e.g., parceling out of urban lots) and development schemes, and their consecutive efficient and effective implementation; etc.

Implementation of provisions on 'demetropolisation'

Now, more than a decade after the adoption of the *MUP of Belgrade (2003)* almost none of the strategic goals have been achieved. Most ominously, the stipulation of the *Planning and Construction Act of 2009* may have even made the things worse, with the stipulations providing for conversion of leasehold on urban (construction) land into property right – without applying actual market prices to the urban land kept by the privatized companies. Nominally, the market prices of urban land are determined on the bases on a number of ordinances, and not on the basis of the functioning of 'veritable' urban land market.

Controlling urban sprawl (cont'd)

A general finding: As is the case in other parts of Serbia, Belgrade land policy has not been substantially transformed in the transition period. It is managed via zoning of construction land and determining initial amounts for compensation and lease by employing criteria and standards. These criteria and standards are established in an inconsistent way and do not correspond with actual real estate value at the Belgrade's market. Similarly to other places in Serbia, zoning systems and differentiation for certain purposes are not based on relevant market factors, monitoring of transactions and prices of land and real estate, planned solutions, standards, information systems, and relevant modern fiscal, economic and market instruments and institutional arrangements. Construction land policy in Belgrade practically does not exist in effective terms and the partial changes in the institutional framework that regulates this area, as well as in organizational adjustments, have not introduced the necessary reforms to this policy that would be crucial for further development of the city.

**Concluding remarks on urban land policies and the role of market
(general)**

First, urban and construction land policy in all parts of Serbia suffers from number of insufficiencies, legal, procedural and substantive. System and practices are inferior to better standards, albeit in recent years there a strong effort has been demonstrated to introduce better practices, in accord with EU norms and standards.

Second, the current situation has resulted more from the general development direction, than from the functioning of otherwise multi-imperfect "post-socialist" market, as it has been stated at the beginning of this presentation.

**Concluding remarks on urban land policies and the role of market (cont'd): Key characteristics
of the current situation**

A number of ownership and management problems have still been stemming from the legal (formal) status of urban land ownership, generated by the nationalization, confiscation and other forms of de-privatization of construction land, which was undertaken after the Second World War, and is still prevented from de-nationalization (by the Constitution of the Republic of Serbia), viz.:

- **There has been a general lack of urban land leasehold, in large part as a result from low housing rents and fees for communal services in the public sector (amenities and utilities);**
- **For a lack of proper legal and spatial and urban regulation, rules of „black market“ often prevail over those of officially promulgated rules and procedures;**
- **For a lack of proper market and other rent regulation, a large part of rent is appropriated without being properly tax, and is thus kept by various kinds of „rent-seekers“;**

Concluding remarks on urban land policies and the role of market (cont'd): Key characteristics of the current situation

A number of ownership and management problems have still been stemming from the legal (formal) status of urban land ownership, generated by the nationalization, confiscation and other forms of de-privatization of construction land, which was undertaken after the Second World War, and is still prevented from denationalization (by the Constitution of the Republic of Serbia), viz.:

- **For a lack of proper rent mechanism, a large number of most attractive lots (sites) in the very central parts of the City of Belgrade have been occupied by actors generating relatively low profits, thereby the problems of technical and social infrastructure in these parts became ever more complex and not easily resolvable;**
- **For lack of proper urban planning and regulation, especially regarding the proper „timing” of pertinent activities, there has been broadly practiced non-authorized parcelling out of urban land lots in the peripheral parts of the area covered by the MUP, followed by its illegal selling out and thereby allowing for massive illegal construction in these areas; system and practice of mortgage loans and credits is still insufficiently developed; etc.**

Urban/construction land policy in all parts of Serbia suffers from number of insufficiencies, legal, procedural and substantive. System and practices are inferior to better standards, albeit in recent years there a strong effort has been demonstrated to introduce better practices, in accord with EU norms and standards. Zeković and Vujošević (2009) indicated the following characteristics of the current situation:

- **Weaknesses of the current information syste:** lack of adequate statistic data, indicators, especially on town level; incomplete cadastral registry of property and underground installations; existence of several parallel and uncoordinated systems of real estate data inside the government tax authorities (e.g., cadastre, local offices for urban land and development, municipal agencies for planning, and statsistics), etc;
- **Inefficient use of urban land, under the absence of a realty market, for which supply and demand have no influence on price formation, but other criteria do;**
- **The invested financial means into urban land are highly inefficient** since they are not returned into the reproduction of new locations, due to the absence of a land market and adequate urban land management mechanisms;

Current situation (cont'd)

- The negative effect is also the **administrative way of determining the user** of land by decision of a competent agency of the local authorities. In land distribution investors/users do not pay the economic value of land in relation to the advantages of location, but they pay only the costs of equipping land i.e, rent determined in an administrative way;
- **Intransferability of land use rights** onto a third person is conditioned by the immobility of use i.e, inefficient use of space;
- Predominance of **political dimension** and criteria in land management system;
- **Limited construction and investment, especially after the outburst of the crisis 2007/2008;**
- **Decrease in local land revenues, deficiency of locations' utilisation and related;**

Current situation (cont'd)

- In Serbian cities and towns the locations with regulated and furnished infrastructure that are suitable, i.e, properly arranged and pre-developed for commercial and industrial purposes are scarce; and
- The enacted legislation itself presents problems as well. The *Planning and Construction Act (2009)* and the *Ordinance on conversion of right of use into right of ownership (2010)* enable the holders of privatized land to convert their rights of use into the right of ownership. This legislative solution would be economically acceptable if the Government had not adopted the aforementioned decree which includes the overall cost of capital and property under expenses of acquiring the rights of use. This practically implies that the buyer of former social and/or state enterprise whose land was cheaper during the privatization process than the price of the company itself will be given that land as a gift. **This legislation made it possible to donate land to privatized companies, thus closing the circle of corruption and malpractices that accompanied the privatization process.**

Current situation (cont'd)

In sum, the politics play the main role in the land policy situation. There seems to exist a **lack of political will, as the main reason for the delay in the privatization of urban land.** The system "defect" in the rules and regulations regarding construction land management has in fact "caught on" very well on the fertile ground of privatization of locationally attractive enterprises, complexes, and zones. Typically, applied profit evaluations of privatised entities, according to provisions of the corresponding law and regulations on evaluation, did not incorporate the value expression for construction land (since the subjects of sale usually were the beneficiaries of public land with the "right of use"). The main motive for privatization were the convenient locations of businesses that were to be privatized, with the open intention to subsequently change the basic purpose of the land and use it in commercial and residential purposes. In the process of privatization of enterprises and rights over the developed state-owned construction land, which are acquired by purchasing buildings, there is a number of uncertainties and contradictions. In the process of auctioning (or tender), potential buyers can make a bargain to inexpensively obtain attractive and good locations by purchasing for example unsuccessful companies or companies with derelict facilities, which – through subsequent investment programs – they can rebuild, modernize, and eventually sell or change their purpose after the expiration of the sales contract.

Current situation (cont'd)

Consequently, there is an apparent need to introduce a new evaluation approach, i.e., a systematic estimating of the effects of urban land policy in the cities and the impact of laws which regulate these fields. This can be measured and/or controlled by introducing more complex and/or sophisticated approaches, for example, RIA/Regulatory Impact Assessment, TIA/Territorial Impact Assessment, etc. This would predictably influence the political elites of Serbia, in the sphere of urban/construction land management, with a view to stop, or even to redirect, now mostly uncontrolled process of urban sprawl, non-rational use of land, and so forth.

Residential preference survey of people in Kaluđerica

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Case study: settlement of Kaluđerica

- Informal, “wild settlement” on the outskirts of Belgrade which is considered the largest completely built illegal settlement in the Balkans, and most probably in Europe
- After 1967 - Intensive spatial and demographic development, key drivers: 1) population inflow and lack of housing in the city, 2) proximity to the city, 3) absence of the urban planning treatment
- Population - 26904 inhabitants, 8831 households, 10866 apartments with an average size of 75m² (Census 2011)
- The end of the 1980s - the latest research - survey of the population (B. Saveljić, *Beogradska favela*, 1989)



Questionnaire Survey on Residential Preferences in Kaluđerica

(period: February/March 2014, sample: 90 households – appx. 1%)

The questionnaire consisted of 30 questions, divided into 6 sections: introduction; respondent's environment; transportation; facilities; amenities; and additional general or specific comments on the questionnaire.

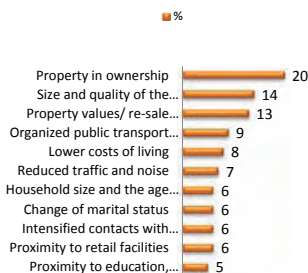
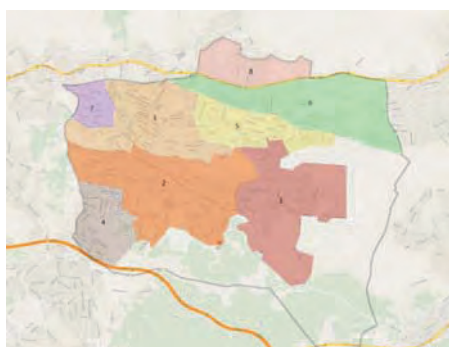
Key findings:

- motives for settling in Kaluđerica;
- satisfaction with different neighbourhood's amenities;
- variability of suburban residential preferences.

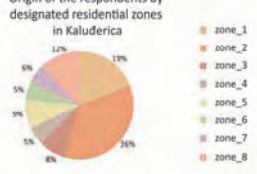
Underlying components of residential preferences:

- Attachment (community sentiment and community evaluation);
Development of the Neighbourhood satisfaction scale;
- Social and environmental context;
- Physical planning issues;
- Residential mobility.

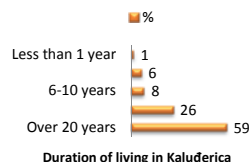
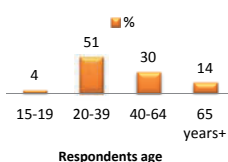
Study on residential preferences / Motives to settle in Kaluđerica



Origin of the respondents by designated residential zones in Kaluđerica

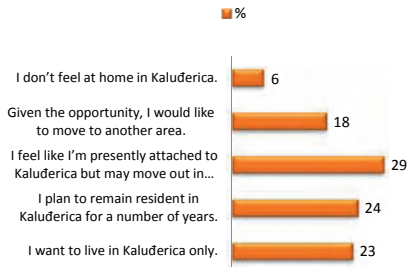


General Profile of Respondents

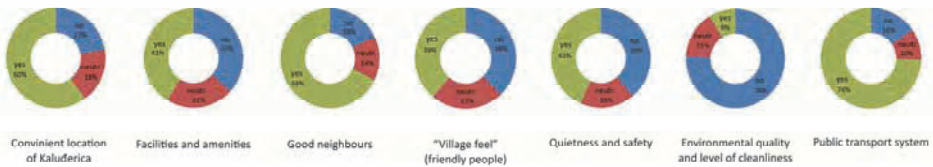


Attachment to Kaluđerica / Perception on housing and environmental quality

Attachment to Kaluđerica



Perceived qualities (attractions) of Kaluđerica



Community evaluation in Kaluđerica – Development of the Neighbourhood Satisfaction Scale (NSS)

- Neighbourhood Satisfaction Scale (NSS) for measurement of residents' community evaluation
- NSS consists of 7 items – likes (LIK) of: 1) convenient location; 2) 'village feel'; 3) presence of facilities & amenities; 4) quietness and safety; 5) good neighbours; 6) transport system; and 7) environmental quality & cleanliness, each one ranked from: 1=strongly disagree to 7=strongly agree

Reliability Statistics				
Neighbourhood	Cronbach's Alpha	N of Items		
Kaluđerica	.708	7		
Item Statistics				
Item	Mean	Std. Deviation	N	
LIK1	4.64	1.609	91	
LIK2	3.99	1.623	91	
LIK3	3.92	1.662	91	
LIK4	4.00	1.832	91	
LIK5	4.92	1.607	91	
LIK6	5.32	1.652	91	
LIK7	2.40	1.381	91	
Item-Total Statistics				
Item	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
LIK1	24.55	38.628	.298	.704
LIK2	25.20	34.694	.515	.649
LIK3	25.26	32.974	.600	.625
LIK4	25.19	35.865	.363	.691
LIK5	24.26	34.574	.530	.645
LIK6	23.87	39.382	.244	.718
LIK7	26.79	38.323	.406	.679

Cronbach's alpha coefficient is above 0.7, therefore the NSS is reliable with our sample

Pearson Correlation between neighbourhood attributes and Total Neighbourhood Satisfaction measured by NSS

Correlations

		Total neighbourhood satisfaction	Happiness with neighbourhood contacts	Feeling of safety	Satisfaction with public transport system	Satisfaction with the overall facilities provided by the neighbourhood	Perception on lack of facilities
Total neighbourhood satisfaction	Pearson Correlation	1	.429**	.296*	.464**	.467**	-.258*
	Sig. (2-tailed)		.000	.004	.000	.000	.013
	N	91	91	91	91	91	91
Happiness with neighbourhood contacts	Pearson Correlation	.429**	1	.161	.466**	.339**	-.134
	Sig. (2-tailed)	.000		.127	.000	.001	.205
	N	91	91	91	91	91	91
Feeling of safety	Pearson Correlation	.296*	.161	1	-.015	.251*	-.243*
	Sig. (2-tailed)	.004	.127		.889	.016	.020
	N	91	91	91	91	91	91
Public transport system	Pearson Correlation	.464**	.466**	-.015	1	.390**	-.084
	Sig. (2-tailed)	.000	.000	.889		.000	.430
	N	91	91	91	91	91	91
I am very happy with the overall facilities provided by my neighbourhood	Pearson Correlation	.467**	.339**	.251*	.390**	1	-.453**
	Sig. (2-tailed)	.000	.001	.016	.000		.000
	N	91	91	91	91	91	91
Perception on lack of facilities	Pearson Correlation	-.258*	-.134	-.243*	-.084	-.453**	1
	Sig. (2-tailed)	.013	.205	.020	.430	.000	
	N	91	91	91	91	91	91

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

Environmental problems

- ❑ Negative perception on environmental qualities and the level of cleanliness
- ❑ Key pollution issues, according to the respondents are: incomplete and insufficiently developed sewage network in the settlement; the creek of Kaluđerica; inadequate waste disposal (unregulated waste disposal, insufficient containers, burning of waste); polluted air (solid fuel burning in winter); proximity of the landfill in Vinča, etc.



Residential mobility

- ❑ When taking away **37%** of Kaluđerica residents who **do not want to move away from this neighbourhood** at all, those who are likely to go prefer **Zvezdara (Lion)** because of previous living in that area; its proximity to the city centre; proximity of social facilities and good transport connections.
- ❑ Stari grad/Dorćol and Municipality Vračar are attractive for relocation because of their **proximity to all services and facilities**; for ability to use **walking or multiple options for the public transport system** instead of a private car; presence of **cultural facilities**;
- ❑ Voždovac/Banjica, Košutnjak, and Beli potok are attractive because of **perceived quality of air**, and the former because of the public transport system organisation;
- ❑ Mirijevo is attractive because it is close to Kaluđerica, as well as Konjarnik;
- ❑ Zemun shows attractiveness because of family ties and previous living in that area;
- ❑ Dedinje is attractive as a leafy neighbourhood of Belgrade



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**The role of the Belgrade Metropolitan Area
in improving territorial capital of Serbia:
Great hopes, false promises, and bleak futures?
*The case of the
Spatial Plan of the Republic of Serbia (2010)***

**Presentation at the TURAS/METREX Conference, Sofia,
September 12-14th 2016**

Contents

- Always standing motif
- The prime theatre of post-socialist (post-communist) reforms in the SEE countries
- Planning system and practice and collapse of strategic thinking, research and governance (STRG)
- "Developmental schizophrenia"
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- Serbian economy, "failed Balkan tiger" : *dead cat bounce effect*
- Serbian spatial banana
- Two attempts to resolve the problem of regional-territorial disparities in Serbia (Plan of 1996 and Plan of 2010)
- Key characteristics of the SPRS (2010), otherwise promulgated by a special law/act
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- SPRS (2010): the key vision
- SPRS (2010): key insufficiencies regarding the TK of Serbia
- Belgrade Metropolitan Area: some facts and map presentations
- A map presentation of territorial capital of Serbia in the Balkan pentagon
- Future development prospects for Serbia
- Destructive role of the concept of WB
- Concluding remarks: Specific problems with Serbian "EU-tifosi"

Always standing motif

The key motif has been to get better insight into the key open issues of strategic thinking, research and governance in Serbia, now in collapse for more than two decades, focusing on the following key issues:

- Generally, why all strategic development schemes in Serbia failed in crucial aspects?;
- Specifically, has there been any lesson to draw from that with regard to the most recent strategic commitments on the strategic spatial development of Serbia, especially in national plans?; and
- Why overwhelming majority of documents grossly replicate approaches, methodologies and categories from analogous European documents, and thereby miss to pay due attention to concrete, most burning and pressing development problems of Serbia (“acting in a geographical and politico-economic vacuum”)?

The prime theatre of post-socialist (post-communist) reforms in the SEE countries

- Public scene and the main direction of reforms are dominated by the neo-liberal doctrine (the predicaments of the *Washington Consensus*), now “refreshed” by the *Serbian New Right* and its current “boostering” (a late reflex of Thatcherite **TINA/There Is No Alternative**), followed by no attempt to construe a new **TATA (There Are Thousands of Alternatives)**.
- Continuous contests, disputes, tensions and conflicts regarding the transition reforms model issues.
- Domination of the so-called “comprador intelligentsia” , submissive and permissive to demands of hegemonic foreign actors.
- A grand redistribution of wealth, income, development chances, etc. –to add on “**A GRAND ROBBERY OF THE CENTURY HAS BEEN COMPLETED**” (Branko Horvat).
- Now Serbia – to note, along side with the majority of the SEE countries – belongs to a group of economic, political, diplomatic, ecological etc. (semi)colonies, part of the “inner peripheries of Europe” (“third Europe”, “Fourth Europe”, and similar), with the endangered territorial capital, otherwise underutilized.
- Extremely negative impact of the 2008 crisis, putting additional burden onto national economies, and picturing future development prospects in bleak tones: public finances on the verge of collapse, a lack of exit strategies, and a lack of institutional and organizational arrangements for new development cycle.
- A slow departure from “government” to “governance”, in parallel to a slow democratization of society.
- In sum Serbia has a hybrid social, political and economic system, generating economic retrogression, vast social anomy, differentiation and polarization (especially after 2008), and constant political conflicts, paralleled by a bleak development prospects.

Planning system and practice and collapse of strategic thinking, research and governance (STRG)

As result of applying a number of post-socialist ideological and political mantras of dominant neoliberal doctrine, the systemic and practical status of strategic planning has been constantly deteriorating, now planning playing the role of "junior partner of market" (otherwise equally undeveloped, i.e., still being in the phase of the so-called "post-socialist early-capitalist proto-market"). Planning cluster is composed of a number of elements from disparate planning modes, where three modes are dominant, viz.:

- Planning as the crisis management;
- Planning supporting and enabling "wild" privatisation and marketisation of public goods; and
- Various types of quasi/pseudo planning.

What is most lacking, especially vis-à-vis bleak future development prospects, are three following modes:

- Planning as a means of political pluralisation and democratization; and
- Planning supporting complex societal transformation and modernization; and
- Effective strategic thinking, research and governance (STRG)

"Developmental schizophrenia"

As from 2000 onwards, at least 1,000 various strategic documents (plans, programs, strategies, strategic projects, and so on) have been adopted at all governance levels, but the country is still missing effective "exit strategies" .

General development conditions of Serbia: a brief account on past historical sequences

Now the country has found itself in a prolonger period of suspended development, resulting from:

- Development stagnation in 1980s;
- Miss-event in 1990s: disintegration of SFRY, wars, UN sanctions and isolation, excessive damage to infrastructure and industry by NATO bombing in 1999 (estimated at 30 -100 billion USD), when at least 300 key industrial compounds were destroyed (mostly those in the public sector), with a subsequent collapse of a major part of economy and extreme hyperinflation; and
- Miss-directed post-socialist transition reforms as from 2000 onwards, under dominant neoliberal agenda, governed by predilections of the *Washington consensus*, comprising:
 1. Economic transformation from socialist self-management economy into market (etatization, privatization, marketisation, liberalization, deregulation, etc.);
 2. Post-Fordist development (shift from industrialisation to services), paralleled by curtailing of a large part of real economy;
 3. Nominally dynamic economic growth, fast GDP growth (5% per year), with selective and slow recovery and restructuring of real economy ("growth without development") in the period 2000-2008, based on imports and supporting services (banking, transport, insurance, etc.);
 4. Austerity and deprivation measures after the outburst of the crisis in 2007/2008, orchestrated and directed by WB, MMF, EC, and so on, unable to develop prosperous economy and to re-industrialise the country; and
 5. An obsession with "developing a market economy", despite the fact that Serbia had already in the second half of 1990s been exchanging some 60% of its exports and imports in the OECD countries, that is, in the most competitive markets.

General development conditions of Serbia: some facts

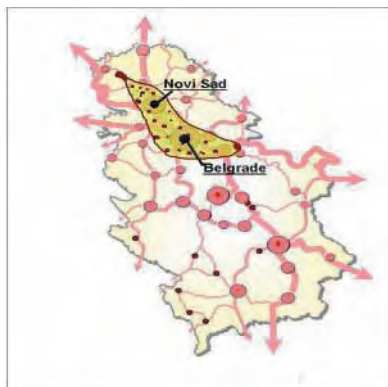
Serbia, as one of the least developed European countries, has found itself at the very bottom or close to bottom of almost all European lists of economic, social, health-medical, ecological, demographic etc. development, few details:

- GDP per capita is only 2/3 (65%) of that from the end of 1980s, not exceeding 3,500 € (nominally), among the lowest in Europe;
- Enormous total unemployment (estimated at 25-30%), social differentiation and polarization and ever larger share of precariat;
- Enormous brain-drain;
- Basically unsustainable pattern of development: among the most polluted countries in relative terms, that is, if compared to the economic development level reached, with lowest sustainability rates, energy efficiency, etc.;
- Poor HDI;
- Second to lowest month income in Europe, some 350 € per month;
- The highest rate of deindustrialization among all ESCs: the industrial production in Serbia is 70% less than at the end of the 1980s;
- Enormous domestic and foreign debt;
- Among European countries with the largest number of refugees (in relative terms), following the miss-events of 1990s and afterward;
- Almost 100 industrial centres, growth poles and growth axes "disappeared", paralleled by technological retrogression: the share of LT in total industrial sector is ca 50%, and the share of LM is ca. 27%;
- Extremely unbalanced regional (spatial, territorial, etc.) development, among all European countries;
- Extremely polarized spatial pattern of FDI (otherwise heavily subsidized), the overwhelming majority newly located in the "Serbian spatial banana", i.e., in the Belgrade – Novi Sad Metropolitan Area; and
- Out of some 3,500 SMEB (Business Register, Summer 2016), only one (1) out of eighteen (18) operates in some productive activity, other seventeen (17) occupying some service activity.

Serbian economy, "failed Balkan tiger" : *dead cat bounce effect*
(Maričić, Zeković, 2016, after Yanis Varoufakis, 2014)



Serbia belongs to the group of European countries with largest regional/spatial differences: at less than 10% of total surface of "Serbian spatial banana" (SSB) ca. 2/3 of the GDP has been produced (2015), ever increasing from 40% at the end of 1990s, to ca. 50% in the 1990s, and ca. 60% in the first decade of the new millennium.



Two attempts to resolve the problem of regional-territorial disparities in Serbia, by means of which clearly demonstrated **two kinds of political wills (out of three)**, first, to place key problems on the main political agenda; and second, to produce, in a competent and democratic way, implementable strategic documents

The *Spatial Plan of the Republic of Serbia (1996)*: ambitious, not implemented for missing implementation programme, lack of political will and the impact of some exogenous factors.

The *Spatial Plan of the Republic of Serbia (2010)*, followed by a programme for its implementation: equally ambitious, implementation questioned if not abandoned, both for a lack of political will of the most recent Serbian *New Right*, lack of financial resources, shrinking public sector, and pending problems with the servicing of ever larger foreign debt in a prolonged global and national crisis.

Two attempts to redirect and control spatial development of Serbia by means of national spatial plans (1996 and 2010), cont'd

- **The Plan from 1996: its intention was to act as “more than a plan”, that is, to introduce necessary changes in the legislative framework of planning and other governance instruments, in order to depart from the system of socialist ideological and political monopoly towards post-socialist market-oriented system (although not always explicated in this way), Serbia being at that time the only post-socialist country having such strategic document newly adopted.**
- **The Plan from 2010: to integrate various sector approaches into a common strategic framework, in accord with the current discourse on sustainable spatial development and new European “spatial planning” (also not always explicated in this way).**

Implementation of the Plan (2010)

Plan was followed by a very ambitious implementation program, accepted in 2011, now (2016) effectively abandoned, for: first, a lack of political will of the current Serbian government, a New Right political cluster in a Serbian version, supported by MMF, WB, EC and so on, which (government) only insists on conjuncture „boosterism”, thereby neglected putting any strategic issue and scheme on the agenda; and second, for very complex IP, too complex, enthusiastic, optimistic and so forth vis-à-vis miserable development reality of Serbia, as it contains more than 500 various stipulations, propositions, provisions etc., viz.: visions, general and specific aims, goals and targets (operative goals), general and specific (sector) principles, concepts-and-conceptions, scenarios, guidelines, implementation policy measures and instruments, strategic priorities, programs, etc., not supported (propped-up) by appropriate supports (institutional, organizational, logistic, financial, etc.).

To note, analogous warnings and lessons from the implementation of the Plan from 1996 have been ignored.

Key characteristics of the SPRS (2010), otherwise promulgated by a special law/act

Plan is imbued with general categories/notions from the ESDP and subsequent strategic pan-European and pan-EU papers: missions-and-visions; compact, smart and similar cities; urban-and-regional hubs and nodes; FUAs; “unavoidable” SWOTs, general and sector-wise; balanced territorial, economic and social cohesion; strategic planning of local development; social coherence and inclusiveness; economic-and-regional interactivity; institutional and organizational responsibility; optimal utilization and management of TK; functionally economic regions and areas; territorially and regionally balanced development; renewable energy sources management; climate change control and management; polycentric urban (spatial, regional, territorial etc.) development and systems; urban-rural cooperation; strengthening of urban identity; inclusive management of informal/illegal construction; regional/urban/spatial accessibility; sustainable technical infrastructure; spatial integration (of Serbia) into its regional surroundings; etc.

Prognostic part has been elaborated without any prior rigorous and systematic analysis of the past, and especially with regard to the ex post evaluation of the correlation between multi-decennial urban, spatial and demographic trends, current situation and the implementation of policy measures from a number of previous (earlier) documents of the kind.

Also, no specific implementation provisions have been explicated regarding either the role of Belgrade as a Gateway City of SEE, or regarding resilient (adaptable, stabile, resistant, and so on) urban development. Especially, there has been no implementation mechanism defined with regard to strategic governance of the SSB vis-à-vis other parts of Serbia, otherwise dramatically loosing their respective development potentials.

SPRS (2010): the key vision for one of the least developed European countries, a paradigmatic example of a “phantom” vision

“In the future Serbia should be territorially defined and regionally well balanced, competitive, socially coherent and stable with sustainable economic growth, proper infrastructure and good transport accessibility, preservation and protection of natural and cultural heritage, enhanced environment and functionally integrated with neighbouring countries and regions”.

Spatial Plan of the Republic of Serbia until 2020 (2010)

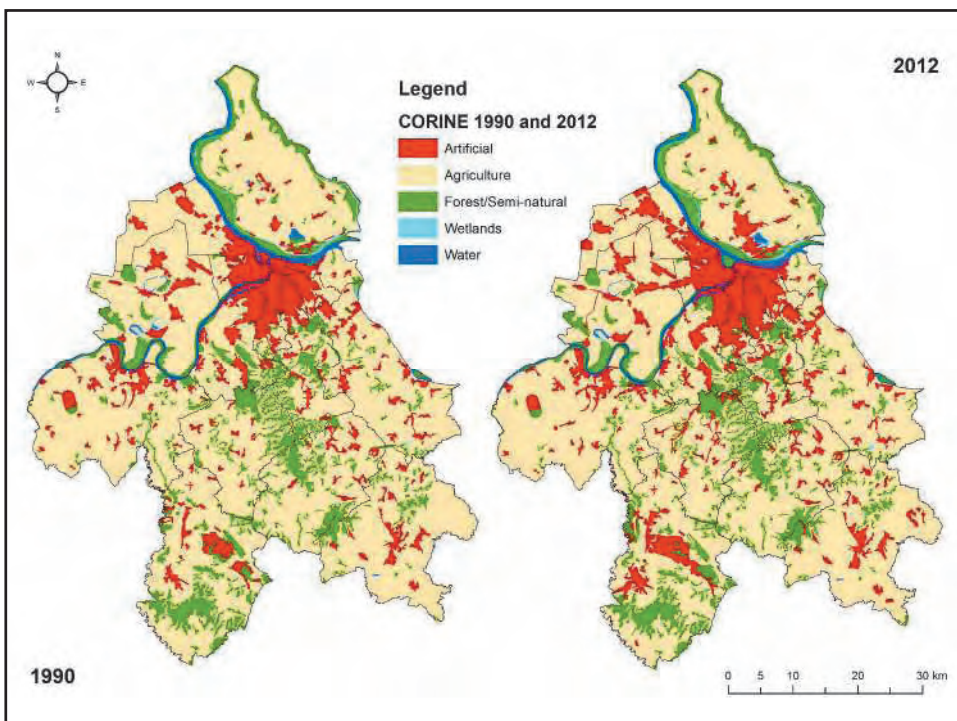
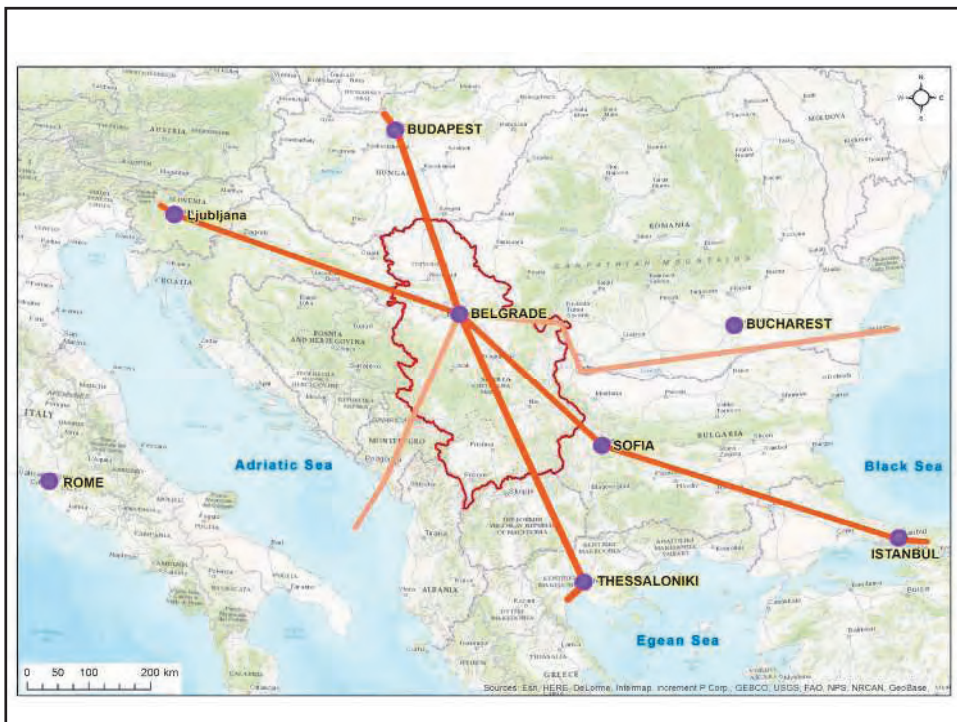


SPRS (2010): key insufficiencies regarding the TK of Serbia

- **The Plan lacked explicit substantive and implementation provisions on the role of the BMA and the SSB in improving TK of Serbia.**
- **The Plan lacked substantive provisions regarding how to counter the concept of Western Balkan and its destructive role for Serbia.**
- **No provisions have been defined regarding the institutional and organizational arrangements for strategic governance of BMA and SSB.**

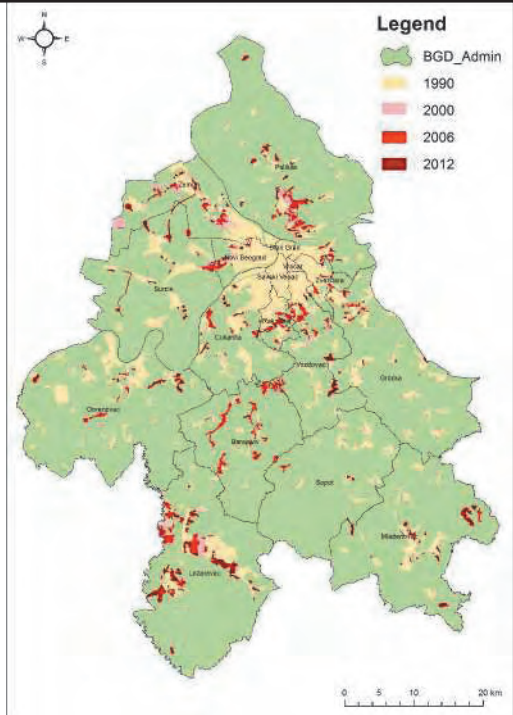
Belgrade Metropolitan Area: some facts

- **Dynamic demographic, urban and economic development after the WW II: in the period 1948-2011, the number of inhabitants in the Belgrade metropolitan region has grown over 2.5 times, from 634,000 to 1,639,121. In the analysed period, the administrative area of the City of Belgrade has enlarged several times, i.e. from 52 settlements of the City of Belgrade and Belgrade County (*beogradski srez*) back in 1948 to the present 166 settlements, out of which there are 27 urban and 139 so-called “other” settlements.**
- **Considerably uncontrolled growth and urban sprawl: almost 400,000 illegally constructed buildings (out of some 1.500,000 in Serbia), out of which some 250,000 are eligible for legalization.**
- **Demographic forecasts for BMA in the Plan (2010):**
1.675,000 (PESIMSCEN) 1.709,415 (OPTIMSCEN).
- **Estimation for the end of 2015 = 1.679,895.**



Development of build-up land

- **UMZ increase from 173 km² to 252,6 km²**
- **Build up land from 373 km² to 459 km²**



Summary of facts

- **A small increase of population (index 103,6), most intensively in peripheral municipalities.**
- **Increase of build-up areas CLC-urban area (index 123), extremely in periphery.**
- **Decrease of population density in 13 of 17 municipalities.**
- **Small increase of migrants in total population (index 106,6).**
- **A considerable increase of commuting in all municipalities (index 117,8).**

Future development prospects for Serbia

- Serbia is a part of “inner peripheries of Europe” with a predictable “Europeanization of Serbia outside the EU and with its limited support”, under prolonged overall crisis.
- General development prospects for Serbia are bleak, with ever narrowing manoeuvring space to introduce more redistributive policies.
- Former government’s slogan „Europe & Kosovo“ now is „Europe & Russia & China & etc”.
- Ambivalences predominate although the opening of negotiation with EU should be “a point of no return” in Serbia commitment, with dilemma about its geo-strategic future has not been solved yet.
- The “new Jasons” of the post-socialist Argonautics (a “long voyage of Serbia to Europe”), should solve more complex problems than 1990s (during the “transitional Argonautics”).
- Where is new Kolchida to be found now and where to search for a new Golden fleece - in the West or East, or somewhere in the ex-Third World, or elsewhere? – still unanswered!

Destructive role of the concept of WB

Extremely destructive concept of Western Balkan, a POLITICO-DIPLOMATIC CHARADE (by applying the formula “former Yugoslavia minus Slovenia plus Albania”), imposed by Washington and Brussels, its main role being to represent the key instrument for further political fragmentation of space in the Balkans. **This concept contradicts mere geographical facts: Serbia occupies the central part of Balkan, along its north-south axis, stretching from Budapest, via Belgrade and Macedonia, to Salonika Bay. By means of WB Serbia is disconnected to its immediate neighborhoods in the East, South and North.**

Also, it contradicts a chance offered by **Chinese Drang nach Europa** (Chinese nach Nord).

It contributes to a further fragmentation of economic, political and ecological space, orchestrated by Washington and the Brussels.

Also, it contributes to a petrifying of the current situation of the European periphery in its role of a colony, and it play a key role against assuming an authentic role in defining and promoting its genuine interests and common development policy, and thereby counter its constant instrumentalization on the part of Washington and Brussels in servicing their strategic interests.

It is also about the ultimate handicap: a lack of the elites carrying modernizing and emancipatory potential of Balkan elites.

Territorial capital of Serbia in the Balkan pentagon

- After almost three decades of “transitional societal experiments” *in vivo*, the country found itself in a development impasse, facing extremely unfavourable future development prospects. Here of particular importance is endangered territorial capital of the country, constantly loosing its strategic relevance in the pentagon: Constanța – Budapest – South Adriatic Coast (Bar, Durres, Valona) – Thessaloniki Bay – Istanbul, which has been of vital relevance for the utilization of territorial capital of Serbia. via Belgrade assuming the role of a Gateway City in the South-eastern Europe, and assuming the key role in improving the utilization of the territorial capital of Serbia (Corridors VII, X – and XI?).
- The country has been facing weakening of its “territorial capital”, especially “institutional capital”, in parallel with “planning culture” which poorly support the co-called “strategic thinking in alternative frameworks”, now in a deep crisis for more almost 30 years, in a prolonged period of SUSPENDED DEVELOPMENT.

More argumentation against the geo-political concept of Western Balkans

The most destructive impact of the concept of “Western Balkans”, a politic and diplomatic charade, which was imposed to a number of Balkan countries by few most powerful and influential European countries, has brought forth a number of negative impacts on the current development and future development prospects of Serbia. This political and diplomatic “charade”, construed by applying the formula “Former Yugoslavia minus Slovenia plus Albania”), has effectively been serving **four key aims**: first, to blur the memories of the former Yugoslavia and its *acquis communautaire* (a respectable member of the Third World Movement; industrial and territorial participation and self-management, within a specific model of “titoist” Bolshevik socialism/communism, medium-developed country, exchanging ca. 60% of its goods and services in the most competitive markets of OECD countries; high social, educational, health/medical and other standard, etc.); second, to make easier imposition of the EU *acquis communautaire* (The Community *acquis*) to this group of countries, even to those that will never become members of EU (upon the chimerical “Union as constantly moving target”); third, to implement some other dictates from the Brussels and Washington, in the first place that regarding “Kosovo” (nominally, following the *Constitution of Serbia*, Kosovo i Metohija); and fourth, to ease further political fragmentation of Balkan space, fuelled and directed by Washington and Brussels.

Contrary to its nominal declarations, the concept of WB, at least debatable not entirely absurd notion (the absurdity of the charade of WB is manifold, starting from that it contradicts some basic knowledge, e.g., that Serbia, Macedonia and a large part of Greece occupy the central part of the Balkan Peninsula along its north-south axis, thereby implying that Serbia cannot be a part of the phantom “Western Balkan” whatsoever), so far has neither productively contributed to the regional integration and cooperation of this group of countries nor to its development recovery. A more veritable concept is that of South-Eastern Europe, but it seems that this concept introduces a dissonance into the currently “boosterish” orchestration of the most powerful European actors, focused on the political narrative of the Western Balkans.

Concluding remarks: Specific problems with Serbian “EU-tifosi”

The country has been facing a number of specific problems with its **“EU-tifosi”**, who until recently had been aggressively using their hortatory language in persuading the public at large that “There is no alternative to Euro-Atlantic integration” – vis-à-vis an apathy if not rejection of the majority of population of that cause – and now ever faster retreating from it.

In that respect, perhaps, a reminder seems to be in place here, following Albert Einstein words (at least three versions on the net):

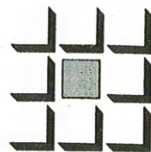
“We can not solve our problems with the same level of thinking that created them.”

“We can't solve problems by using the same kind of thinking we used when we created them.”

“We can not solve our problems with the same people who created them.”

Acknowledgments

In this contribution a number of findings have been presented from two current research projects financed by the Ministry of Education, Science and Technological Development of Serbia in the period 2011-2016, viz., *The role and implementation of the National spatial plan and regional development documents in the renewal of strategic research, thinking and governance in Serbia* (No. III 47014), and *Sustainable spatial development of Danube basin in Serbia* (No. TR 36036).



УДРУЖЕЊА УРБАНИСТА СРБИЈЕ

ЖИРИ И САВЕТ
23. МЕЂУНАРОДНОГ САЛОНА УРБАНИЗМА
ДОДЕЉУЈЕ

ТРЕЋУ НАГРАДУ

У КАТЕГОРИЈИ
ИСТРАЖИВАЊА И СТУДИЈЕ ИЗ ОБЛАСТИ УРБАНИЗМА
ЗА РАД

СТУДИЈА О РЕЗИДЕНЦИЈАЛНИМ ПРЕФЕРЕНЦИЈАМА
СТАНОВНИШТВА КАЛУЂЕРИЦЕ КАО ПРИГРАДСКОГ
ПОДРУЧЈА БЕОГРАДА

Институт за архитектуру и урбанизам Србије

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УДРУЖЕЊА УРБАНИСТА СРБИЈЕ
мр Душан Минић



БЕОГРАД, 7.11.2014.

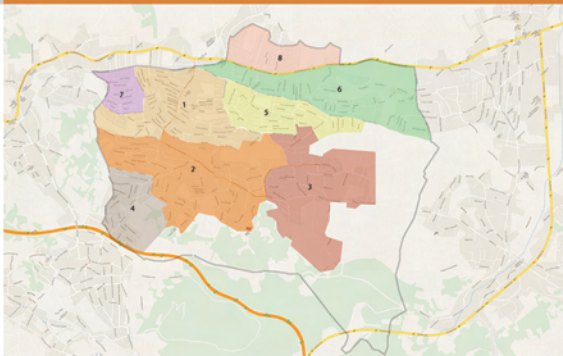
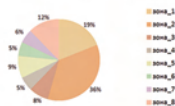
Студија о резиденцијалним преференцијама становништва Калуђерице као приградског подручја Београда

2014.

аутори: др Јасна Петрић, дипл.р.планер, Тања Бајић, магистр.арх.



Период испитивања по издвојеним зонама становања у Калуђерици



ПРОФИЛ ИСПИТАНИКА

- Од укупно 90 анкетираних (представника домаћинстава) преко половине чине особе 20-39 година старости, а удео мушкараца и жена је готово уједначен. Највише испитаника је са завршеном средњом школом као највишим нивоом образовања. Више од половине чине запослени.
- Величина домаћинства испитаника је натпросечна (4 чл./домаћ.) али има случајева да домаћинства броје и до 9 чланова, када три генерације живе под једним кровом. Највећи је удео домаћинстава где родитељи живе са најмање 1 дететом до 19 година старости.
- Изаузито је учешће староседелца - испитаника који у Калуђерици живе дуже од 20 година. Највише је настаних у индивидуалним породичним кућама са две или три етаже.



МОТИВИ ЗА ДОСЕЉЕЊЕ У КАЛУЂЕРИЦУ

- Основни мотиви за досељавање у Калуђерицу је стамбена јединица у власништво, што је ујупошљено фактором величине и квалитета стамбеног простора и одговарајућим ценама некретнина, односно нижем трошоцима нивоа одржавања.
- Од осталих фактора који су утицали на избор Калуђерице за место становања, истиче се организован систем јавног градског превоза.



ЗАДОВОЉСТВО ПОГODНОСТИМА ЖИВЉЕЊА У КАЛУЂЕРИЦИ

- Везаност живљења за Калуђерицу је подељена. Највише испитаника се изјашњава да је тренутно везано за ово место живљења али да размишља и о пресељењу. Готово 1/4 испитаника искључиво жели да живи у Калуђерици, а најмање је учешће оних који се не осећају као да су код куће у свом суседству.
- Највише позитивних ставова (задовољство) становници Калуђерице исказују према добро организованом јавном градском превозу, добром комуникацији и самој локацији Калуђерице. Негативан став (незадовољство) преовлађује према квалитету животне средине и нивоу заштите.



ВАРИЈАБИЛНОСТ РЕЗИДЕНЦИЈАЛНИХ ПРЕФЕРЕНЦИЈА

- Изузимајући око 37% испитаника који немају жељу за пресељењем из Калуђерице, међу онима који би желели да се одселе у неку другу подручје Београда, највише је одређено за општину Звездара (Лино) због: ранијег живота у том крају; близине града; уједино и чинеће да није у питању строга цензура; близине школе, болнице, пијаце и других трговина; и добре саобраћајне повезаности.
- На другом месту међу жељеним дестинацијама за пресељење је општина Стари град (Дорћол) због: повољне локације; близине свих установа и сервис; могућности за пешачење уместо коришћења јавног градског превоза или аутомобила; порека испитаника и др. Општина Врачар је привлачна због: већег избора градског превоза; мање зависности од аутомобила и пешачких могућности; близине центра града; близине културних дешавања и факултетима. Општина Вождовац (Банажа) привлачна становницима Калуђерице због: квалитета ваздуха; добро организованог превоза; и порека испитаника. Мирјево је привлачно због близине Калуђерици и породичних веза испитаника. Земуни је привлачан због порека испитаника. Кошутњак привлачан испитанике због зеленила, а Дедине због претпостављеног вишег квалитета живљења и близине месту рада. Бели Поток као дестинација за пресељење се издваја због квалитета ваздуха, а Коњарник због близине центру града; већег избора градског превоза и трговачких садржаја.



