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

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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.

Keywords: resilience; urban areas; network of settlements; Serbia.

1. INTRODUCTION

Urban resilience discourse marks a relatively recent and overarching topic that has become a modern substitute for the sustainable urban development. Big cities, in particular, have become the main forum for examining the resilience concept, both from the aspect of ‘resilience of cities’, which operates at the scale of ‘network of settlements’, or ‘resilience in cities’, which is closely linked to ‘urban form’ and ‘land-use patterns’.

Starting with the broader picture of the urbanisation process in Serbia, one can distinguish two phases in its development, i.e. the phase of primary urbanisation in the period following the Second World War (which lasted approximately until the 1980s), and the phase of demographic transition, which, in a way, already formed its routes during the 1960s, yet after the 1980s demographic transition became the dominant trend for (urban) population development of the country. Throughout both phases, but especially after the 1990s, urban dominance of the two largest and physically close cities - Belgrade and Novi Sad has been growing and widening the gap between them as poles of development on the one hand and ‘the rest’ of underdeveloped regions of the country, on the other hand. Nowadays, the area of those two cities cumulates disproportionately large amount of people and activity and creates a dominant share of the national GDP. Although that is not a particularity of the Serbian case, other urban settlements, especially small and medium-sized towns, which are numerous yet ‘shrinking’, have not been empowered enough to substantiate better links with smaller and larger settlements within urban-rural interface, and their role has been challenged in that respect.

With a general notion that no city today could survive if disconnected from its hinterland (regardless the scale) this paper regards recent changes in urban society (population dynamics) as well as implications on metabolic flows, built environment and governance when the wider metropolitan region of Belgrade and Novi Sad is in concern. With that in view, some implications have been drawn in case this scenario would continuously progress, or as a preferred alternative, adaptation mechanisms and effective steering would bring to ‘concentrated decentralisation’ within

the network of settlements in Serbia as well as to ‘decentralised concentration’ in the context of a metropolitan region.

2. DEFINING RESILIENCE IN THE URBAN ENVIRONMENT OF SERBIA

2.1 Resilience perspective on cities and urban society

The concept of resilience has been applied in many disciplines of natural, engineering, and social sciences with slightly different but all legitimate meanings and definitions depending on different epistemological traditions. It appears that **resilience** became a new ‘buzz word’ [1] as well as the ubiquitous concept, which may overthrow several decades’ long dominance of sustainable development as the concept being also attached to a number of domains.

The traces of resilience concept being applied in the fields of urban science and spatial planning could be found in the science of ecology, where it has been described as the capacity of an ecosystem to tolerate disturbance without collapsing into a qualitatively different state, i.e. the ability of a system to absorb disturbance and still retain its basic function and structure [2]. Resilience theory is closely linked to complex adaptive systems theory, with a key thought that processes and structures that mutually reinforce one another sustain dynamic and path-dependent stability regimes (positive feedbacks), which shape and govern system dynamics [3, 4]. By and large, **resilience** is a ‘newly wrapped’ concept which leans on the previous knowledge of **vulnerability** and **sustainability** studies [5, 6]. As from an engineering perspective, which uses the term to explain the stability properties of a system that recovers from the disturbance, resilience is all about ‘reducing vulnerability’, ‘adapting’, ‘recovering’, ‘maintaining’, and ‘bouncing back’. On the other hand, the resilience of social-ecological systems [7, 8], such as human settlements, deals with continual evolution of living systems, which ‘happens in different trajectories (non-linearly), within multi equilibrium states and with short, medium and long-term perspectives, integrating the dynamics of social and ecological systems as paired/coupled ones’ [1]. Therefore, urban resilience is shaped by the ideas of ‘renewal’, ‘transformation’, and ‘re-organisation’ [1].

The umbrella concept of ‘resilient cities’ is challenged by a number of ambiguities that are induced by the concept’s fuzziness and policy detachment. In addition to that, since cities function as multiple networks of dynamic relationships at different scales, the most critical challenges for the resilient cities are the uncertainties within the urban planning [9]. For example, increasing uncertainties in an urban context due to sudden shocks (earthquakes, wars, etc.) and slow variables’ modifications (climate change, changes in capacities of an ecosystem to generate goods, etc.) require a shift from ‘planning for a predictable future’ to transitions in urban planning and governance, that would help navigating the cities in constant transformation and adaptation cycles, in order to make the entire system (city) evolve [4]. Cities express their resilience over time through ‘a culture of optimism’ influenced by political and social factors [10], where ‘social learning elements and processes make people change their behaviours and adapt to stresses’ in the interplay between the ‘disaster-recovery’ process and the on-going evolution of cities [1].

Big cities, in particular, have become the main forum for examining the resilience concept, both from the aspect of ‘resilience of cities’, which operates at the scale of ‘network of settlements’, and from the aspect of ‘resilience in cities’, which is closely linked to ‘urban form’ and ‘land-use patterns’ [4]. These two aspects are equally important in addressing the big city resilience, as well as the resilience in the network of settlements. Such theoretical notions are further examined at the urban context of Serbia, especially in reference to two of its biggest cities – Belgrade and Novi Sad.

2.2 Challenges of resilience for urban settlements in Serbia

From a general point of view, the resilience of urban settlements is influenced by specific threats and drives at national, regional and local scales. Those could be summed up by the following intertwined themes for prioritising urban resilience research [11]:

- metabolic flows (chains of production, consumption and supply);
- governance networks (structures and organisations which support the society to learn, adapt and reorganise);
- social dynamics (population change and disproportion); and
- built environment (the change of land cover and physical pattern of urban form).

The city metabolism concept focuses on circularity, balance and order within city-hinterland interface, i.e. on inputs and outputs between city and its surroundings in terms of natural resources, energy, services, information, etc. With this in view, it can be asserted that the ‘Short Cycle City’, as a model for further development of the polycentric city brings to more effective local use of the natural resources and brings less adversity to its hinterland [12]. When this is translated in the urban context of Serbia, with the emphasised development of the Belgrade-Novı Sad metropolitan area in comparison to the rest of the country, it is the network of small and medium-sized towns (with respective population under 100000 inhabitants) that may be seen as playing a significant role in rural-urban interactions given the usually strong link and complementary relationship that these towns form with their hinterland. However, despite small and medium-sized towns are the most numerous urban settlements and well dispersed at the territory of the country, their demographic and economic capacity has been reduced in the latest intercensus period. Their total population size fell from 2.5 million to 2.4 million in the period 2002-2011, whereas the total population of five big cities in the country grew from 1.7 million to 1.8 million people. In addition to that, the economic perspective of small and medium-sized towns relies on a number of parameters, both internal and the external ones, but most important is the professional human potential as a resource which is also crucial for building the governance networks. In that respect, the situation has not been very promising in Serbia, mainly because of the continuous ‘brain-drain’ of the most educated people towards big cities, especially to Belgrade and Novi Sad, as well as to various destinations abroad.

Social dynamics of urban settlements in Serbia indicates a clear dominance of Belgrade-Novı Sad metropolitan region, which cumulates a disproportionately large amount of people (almost 40% of total urban population in Central Serbia and Vojvodina) and creates almost 60% of the national GDP [13]. Also, the regional disparities in Serbia, which well exceed the ratio 10:1 between the most and least developed regions, demonstrate tendency of further broadening. Despite negative implications of such scenario, social dynamics of urban settlements in Serbia is shaped by the complex interactions between population growth, the impact of changing transport, as well as of other facilities and amenities.

Finally, built environment of Serbian cities is challenged by sprawl, i.e. scattered development of built up area into rural land in the city periphery, qualified by lower density, single housing, inadequate infrastructure and social facilities supply, etc. Although sprawl is not a unique phenomenon for Serbian cities alone, it is largely emphasised here through spontaneously and illegally developed city outskirts, without adequate provision of quality of living standards. This is not just an outcome of the weakness of planning policy to protect public goods from sprawl but also the issue of incomplete and prolonged post-socialist transition in Serbia.

3. HISTORIC PERSPECTIVE, PRESENT CONDITIONS AND SOME FUTURE PROSPECTS OF A (DIS)BALANCED NETWORK OF SETTLEMENTS IN SERBIA

Development of population and settlements in Serbia can be analysed from the historic perspective, i.e. according to available census data originating from the 19th century onwards. As recorded by the first census conducted in 1834, Serbia had a total population of 678192, while population density was only around 18 p/km². Back then only 6.5% (41347 inhabitants) were town residents. In the period 1834 - 1874, the total population in Serbia grew up to 1.9 million and population density was more than doubled (39.4 p/km²). Though population in towns was also growing, by the end of the 19th century it accounted only 10.3% of the total population in the country. The 1910 Census results show that in Serbia the total population was already 2.9 million while average population density was 60.3 p/km². Out of the total population, urban residents accounted for 13.1% (382434 inhabitants). At the beginning of the 20th century, Belgrade as the largest urban settlement had the population of 77816, while the population of Novi Sad was 33590 [14].

The two World Wars caused huge human losses and demographic changes, which, to a great extent, also changed the physiognomy of the then towns. The 1921 Census results show that in Serbia the total population (excluding Vojvodina and Kosovo and Metohija) was around 3 million people. Furthermore, Belgrade as the capital city recorded significant population increase from 142713 (1921 Census) to 279218 inhabitants (1931 Census) [14].

After the end of the Second World War, social transformation, as well as intensive industrialisation and urbanisation processes, took place. The 1948 Census results show that the total population of Serbia was 6.5 million people, with a high share of rural population of 74.5% [14]. The beginning of urbanisation and industrialisation processes after the adoption of agrarian reform brought about changes in economic structure of the country. This was reflected in movement of people from rural to urban areas, as well as in increased migration to towns/cities, particularly to Belgrade [14]. Furthermore, vital and educational structure of population also changed, while tradition and way of earning a living in rural areas were gradually suppressed. All this opened a way for mass migration directed to cities and more prosperous regions, as well as it was joined by a noticeable decrease in natural population renewal.

In the post World War period until the 1980s, the main feature of urbanisation process in Serbia (as well as in the former Yugoslavia) was concentration of population and work places in towns and cities, accompanied by general exodus of rural population [15]. Back in the 1980s, in comparison to the more developed countries, the level of urbanisation in Serbia was still modest (50.4%). However, urbanisation of the country, which wasn't under a serious or systematic control, unlike the parallel processes of politically initiated de-agrarisation and emphasised industrialisation, had different effects on macro-entities and conditions in regions of Serbia. Similarly, at the local (municipal) level, towns which were the municipal seats had accelerated growth in comparison to traditional villages that were demographically and economically shrinking. In Central Serbia, polarisation effects and stimulation of development were clearly and to a greater extent pronounced only around a small number of cities, i.e. around Belgrade, Niš, Kragujevac, Kruševac, Kraljevo and Loznica [16]. At the same period of time, Vojvodina (northern region of Serbia) had a polycentric polarisation, which involved not only the two of its biggest cities (Novi Sad and Subotica) but also a number of towns of more or less similar size (Zrenjanin, Pančevo, Sombor, Kikinda, and Vršac) [17] (see: Figure 1).

Figure 1



Polarisation of urban settlements in Serbia until 1980s

Urban population of Serbia kept growing in the period 1981-1991, but its stagnation (mainly because of exhaustion of demographic reservoirs in rural areas) followed in the next two intercensus periods (1991-2002 and 2002-2011) [18]. Also, it should be noticed that this process coincided with one of the greatest de-industrialisations in the former communist world, which Serbia experienced throughout the period of post-socialist transition, i.e. starting from the 1990s. Still, the level of urbanisation in Serbia has been growing (59% in 2011), but this is just an evidence of greater concentration of population in urban areas in comparison to constant decreasing of population in the country as a whole.

Basically, in the period after the 1990s, the network of settlements in Serbia has been even to a greater extent dominated by the strong position and urban primacy of Belgrade, likewise the network of settlements in Vojvodina has been transformed due to strong monocentric polarisation with Novi Sad having a dominant role in it [17]. On the other hand, some previously developed urban centres started lagging back, and this is particularly relevant for the group of small and medium-sized towns which used to be strong, but recently became the *loci* of depopulation (in the period 2002-2011) [18]. This can be ascribed to synergy effects between negative natural and migratory balances in small and medium-sized towns of Serbia, especially to pronounced demographic ageing of their respective populations. With that in view, one may argue on disrupted role and potential significance that these lower-order centres would now have in rural-urban interactions. According to conventional wisdom, small and medium-sized towns are essential providers of regional services for the rural hinterland development through direct production linkages and ‘trickling down’ effects [19]. Also, they contribute to modernisation of rural areas and should function as service centres for preventing rural exodus. However, when the small and

medium-sized towns' economic performance and human potential have been reduced, one may argue on their prospective role in the network of settlements in Serbia.

As the things presently stand, a highly uneven regional development in Serbia could be ascribed to much faster development and strong polarisation in demographic and functional sense of a wider Belgrade- Novi Sad metropolitan region. The in-migration plays a crucial role for further strengthening of this locus of competitive advantages. For example, in the period 2002-2011, the City of Belgrade has lost over 20000 people due to negative population growth, but at the same time its total population increased because of positive migratory balance (over 38000 people). Novi Sad has grown in the same period of time both because of slight natural growth of population (919) as well as by noteworthy positive migratory balance (around 30000 people) [18]. In quantitative terms, migrations towards the biggest cities (i.e. Belgrade and Novi Sad) are much more pronounced than the migrations from rural areas to towns of other regional or municipal seats in Serbia. According to exhibited inertia, it is indicative that lower-order urban centres in the network of settlements in Serbia served only as a 'temporary stop' on the way to the capital city. In qualitative terms, Belgrade and Novi Sad have achieved significant advantages in terms of attracting most qualified and educated human potential. This implies that the wider agglomeration of Belgrade and Novi Sad has also developed an absolute domination of economic performance in comparison to the rest of the country.

Although it is inevitable that the biggest cities of the country demonstrate a stronger position in terms of competitiveness and agglomeration advantages, moreover if they are physically close one to another, the future prospects of balancing the development of network of settlements in Serbia lie 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) in order to advance the position of macro-regional and regional centres. 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 as well as its position on the international scene based on competitiveness and urban twinning process.

4. RESILIENCE IN BELGRADE AND NOVI SAD – URBAN FORM AND LAND-USE PATTERNS

4.1 Resilience in the City of Belgrade

The City of Belgrade (Belgrade Metropolitan Region) presently encompasses 3223 km², or 3.6% of the territory of the Republic of Serbia, and is home to approximately 1.6 million people or 23% of the country's population¹ [20]. By the level of urbanisation, the City of Belgrade respective territory consists of three parts: *continuous urban territory of the city* (6 municipalities: Stari Grad, Vračar, Zvezdara, Savski Venac, Rakovica, and Novi Beograd, with the total area of 126 km²); *inner urban territory of the city with peripheral rural-urban belt of several individual settlements* (4 municipalities: Voždovac, Čukarica, Palilula, and Zemun, with the total area of 904 km²); and *suburban belt of the city* (7 municipalities: Surčin, Grocka, Mladenovac, Sopot, Barajevo, Lazarevac, and Obrenovac, with the total area of 2,196 km²) [21].

Although the majority of residents in the City of Belgrade live in urban areas (78%), suburbanisation of its territory is neither new nor the insignificant issue. Over the past several decades, the City of Belgrade territory has undergone noteworthy growth, both through the process

¹ Not including Kosovo and Metohija, for which relevant data have not been registered.

of unplanned and uncontrolled expansion into its rural hinterland, and through intensive building on the vast unurbanised areas inside the city, primarily in the function of residence.

Initially, the sprawling of Belgrade started as a response to monopolistic and restrictive housing and urban policy during the socialist planning system of the former Yugoslavia. In the postwar period, in particular throughout 1960s and 1970s, the population influx resulted in creation of new housing settlements on the vast vacant sites, partly developed by means of state companies or state organs that were entitled to develop flats for their employees. Although extensive, state housing production during the socialist regime could not fully meet the overall high demand for housing, due to the structure of housing supply and its failure to adjust to economic conditions of citizens [22]. This opened the way for illegal construction of individual houses, which began at the late 1970s, and led to creation of informal ('wild') settlements on the peripheral areas of the city. The growth of the illegally built areas continued during the 1980s and reached its peak in the 1990s, along with the abolition of the state housing system, and the massive inflow of refugees from the former Yugoslav republics and internally displaced people from Kosovo and Metohija, looking for the new permanent residency in Belgrade. Illegally built houses have been constructed out of solid materials and they mostly fulfilled the conditions of housing comfort, but the overall quality of life in these settlements has been rather low, due to the lack of services and facilities and the problems related to utility infrastructure.

Nowadays, urban form and land-use patterns in the City of Belgrade have not been influenced only by the conditions of sprawl towards periphery, but also by the so-called 'implosive sprawl' [23]. The latter involves development towards the inside of the city area, where large zones of open spaces, such as: green areas, forests, riverbanks, and land occupied for infrastructural objects, have been transformed into built-up developed land, and converted to single-use districts, typically for housing, but also for commercial or industrial use. This process brings to much higher densities within the city (and perceived compactness) but it deteriorates the quality of living standards, hence reducing the desirability of inner-city areas.

4.2 Resilience in the City of Novi Sad

The City of Novi Sad (Novi Sad urban region) presently encompasses 1100 km², and is home to approximately 336000 inhabitants. Similarly to other big cities in the country, Novi Sad experienced intensive development in the period after the Second World War, mainly as a result of rapid industrialisation. Currently, the City of Novi Sad consists of 16 settlements in total, out of which 3 are urban (Novi Sad, Petrovaradin, Sremska Kamenica), and 13 are suburban (Begeč, Budisava, Bukovac, Veternik, Kać, Kisač, Kovilj, Ledinci, Rumenka, Stari Ledinci, Stepanovićevo, Futog, Čenej).

Similarly to Belgrade, the City of Novi Sad has majority of population (71%) living in urban areas, yet the city experiences sprawling effects. The origins of sprawl of Novi Sad could be traced to the 1970s. Back then, following the examples of other socialist cities, large projects of new residential buildings emerged at the city edges in order to accommodate the huge influx of people from the countryside. Also, in the late 1970s and during the 1980s, considerable sprawl of Novi Sad took place because of (mostly illegal) development of the weekend and vineyard houses primarily on the right bank of the Danube and the slopes of Fruška gora mountain. This was enabled by the accumulation of surplus funds of citizens who received the state housing, and invested in facilities for temporary residence which served for rest and recreation.

Later on, especially during the 1990s and after the year 2000, structural and functional transformations of the periphery of Novi Sad have taken place under somewhat different social and

site-specific circumstances, but basically, uncontrolled growth of the city over the last couple of decades has been caused by illegal construction.

The in-migrations at the beginning of the 1990s, which were caused by the wars in the former Yugoslav republics led to the instant demographic boom and the rapid, uncontrolled expansion of Novi Sad in its peripheral parts. The uncontrolled sprawl firstly formed a ribbon development along the main access road connecting the inner city with the suburb of Veternik, and the next phase of growth involved emergence of the complexes of individual houses on the agricultural land [24]. Significant increase of population was achieved in the largest suburban settlements, e.g. Veternik, Kać and Futog. These data indicate that at the time of the forced migration in the last decade of 20th century, most immigrants settled in Novi Sad and its inner circle. As Kostreš and Atanacković-Jeličić point out, this brought up new contrasts on both spatial and social levels and caused blurring of the urban-rural distinction and declining of harmony between built environment and nature, given that the city of Novi Sad has always been strongly rooted in its agricultural hinterland [25].

5. CONCLUDING REMARKS

Urban society and cities reflect now more than ever the accelerated changes, driven by place-specific contextual conditions on the one hand and the effects of globalisation, on the other. In order to respond to new challenges, viz. urban resilience, there need to be engaged the alternative paths (solutions) which address existing socio-economic, historic and other perspectives on cities. With that in view, it is required to have a long-term and integrated approach to urban planning and development, although this goal is often difficult to realise ‘under pressure’ of sudden shocks or prolonged crisis.

According to demonstrated social dynamics, the network of settlements in Serbia is clearly dominated by Belgrade-Novı Sad metropolitan region. Already present regional disparity in the country has thus been intensified, especially after the 1990s, with the lack of effective implementation instruments for mutually coordinated demographic and regional concepts. From the aspect of *resilience of cities*, the reflective scenario implies concentrated decentralisation, i.e. strengthening and advance of macro-regional and regional urban centres in Serbia, which represents the major challenge for adaptable governance.

Simultaneously, the development within Belgrade and Novi Sad agglomeration demonstrates sprawl, as a result of variety of forces – some working on the individual and some on the systemic level. The *resilience in cities* concerns strategies for limiting urban sprawl, i.e. application of decentralised concentration principle in order to retain valuable agricultural land and natural areas, to reduce energy costs, as well as to limit the negative effects of densification (potential threats of ‘implosive sprawl’).

Potential for adaptability within urban settings of Serbia is generally marked by the radical recentralisation of the country, which was initiated in the 1990s and hasn’t been effectively combated ever since. This is largely due to a prolonged post-socialist transition of the country as well to reflections of the relatively recent global economic crisis. Still, in spite of some general anti-planning stances, the way forward for Serbia necessitates renewal of strategic research, thinking and governance, with focus on metropolitan level (in particular on a wider Belgrade-Novı Sad metropolitan region).

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