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LAND USE PLANNING AND TRANSPORT PLANNING IN SYNERGY TO UPGRADE INFORMAL SETTLEMENTS:
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LAND USE PLANNING AND TRANSPORT PLANNING IN SYNERGY TO UPGRADE INFORMAL SETTLEMENTS: CASE OF BELGRADE, SERBIA

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ABSTRACT

Land use and transport planning have a key role in delivering social, economic, and environmental sustainability. Responsive planning and good design and management of urban infrastructure can contribute a great deal in solving the variety of urban planning and transportation issues. One of the most important aspects of sustainable planning today is sustainable land use and managing city growth. By shaping the pattern of development and influencing the location, scale, density, design and mix of land uses, planning can help to facilitate an efficient transport and land use system through consistent application of sound planning principles and development guidelines to ensure the effectiveness of land use and transport policies.

Urban sprawls, regardless of reasons causing their spread, are considered as one of the biggest problems in the development of cities in developing countries. Belgrade has been and is witnessing a wide spread urban sprawls in form of illegal housing and settlements in its suburban areas during a long period. This paper will discuss the possibilities of using the instruments of land use and transport planning with the aim to achieve urban upgrading of informal housing and settlements on the outskirts of Belgrade. Thus the integration of informal settlements could become the true test of the integrated planning, since informal urban sprawls are one of the most challenging issues in Belgrade development, as well as in the other cities with similar urban problems.

Keywords: Land use planning, transport planning, informal settlements, urban upgrading, accessibility, connectivity

PLANIRANJE KORIŠĆENJA ZEMLJIŠTA I PLANIRANJE SAOBRAĆAJA KAO NAČIN UNAPREDJENJA NEFORMALNIH NASELJA: SLUČAJ BEOGRADA, SRBIJA

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APSTRAKT

Planiranje korišćenja zemljišta i planiranje saobraćaja imaju ključnu ulogu u postizanju socijalne, ekonomske i environmentalne održivosti. Odgovarajuće planiranje, dobar dizajn i menadžment urbane infrastrukture mogu doprineti rešavanju različitih urbanih problema. Međunajvažniji pitanja održivog planiranja danas je održivo planiranje korišćenja zemljišta i upravljanje rastom grada. Oblikovanje obrascarazvoja i uticanje na lokaciju, razmeru, gustinu, dizajn i mešanje namena, planiranje može omogućiti efikasan transport i korišćenje zemljišta efikasnom primenom zdravih principa planiranja i smernica razvojkako bi se obezbedila efektivnost upotrebe zemljišta i transportnih politika.

Pojava urbanog širenja/raspšrenosti, bezobziranarazlogenjegov nastajanja, jedna je od najvećih brigarazvojagrada u zemljama u razvoju. Beograd je bio, a i dalje je svedok nekontrolisanog urbanog širenja u formi ilegalnih naselja i stanovanja u svojim perifernim područjima tokom dugog vremena. Ovaj rad se bavi diskusijom o mogućnostima korišćenja instrumenata namene zemljišta i planiranja saobraćaja u cilju urbanog unapređenja neformalnih naselja i stanovanja u Beogradu. Na taj način bi integrisanje neformalnih naselja moglo da postane pravi test za integralno planiranje, budući da je neformalno širenje gradske teritorije jedno od najvećih izazova razvoja Beograda, kao što je ustalom slučaj i sadrugim gradovima sličnim urbanism problemima.

Ključne reči: Planiranje korišćenja zemljišta, planiranje saobraćaja, neformalna naselja, informal settlements, urbanounapređenje, pristupačnost, povezanost

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Biserka Mitrović is assistant professor at Faculty of Architecture, Department for urban and spatial planning, University of Belgrade. She has received B. Arch and MSc from the University of Belgrade and is professionally interested in sustainable development and design, social cohesion, methodology of urban and spatial planning and urban regulation. Focus on her work with students currently is on urban regulation, sustainable urban master planning and urban design as well as on the theory of integral urbanism and sustainable planning. She is also an author of more than 40 research and professional papers in edited books, refereed journals, and refereed conference proceedings. B. Mitrović has been and is engaged in 9 national (supported by the Ministry of Science, Serbia) and international research projects. Currently she is engaged in research project "Research and systematization of housing development in Serbia, in the context of globalization and European integrations, with the aim of housing quality and standard improvement" (TR 036034), financed by Ministry of education and science of Serbia.

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LAND USE PLANNING AND TRANSPORT PLANNING IN SYNERGY TO UPGRADE INFORMAL SETTLEMENTS:CASE OF BELGRADE, SERBIA¹

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1. LAND USE PLANNING AND TRANSPORT PLANNING IN SUSTAINABILITY FRAMEWORK

The relation between land use and transportation is well known in theory but not so well practiced, especially in the cities in developing countries such as Serbia. By shaping the pattern of development and influencing the location, scale, density, design and mix of land uses, planning can help to facilitate an efficient transport and land use system through consistent application of sound planning principles and development guidelines to ensure the effectiveness of land use and transport policies and help maximize the quality of life of the community. Planning of transport and land use must also be robust in the face of changes in technology, social conditions, values, resource constraints, and other key factors.

Transportation system shapes urban land use, while urban land use also reflects and influences the local traffic network. Land use planning decisions should support the provision of public transport services and other more sustainable transport modes and environmental sustainability. Transport routes and destinations should be managed so that priority can be given to those areas which need boost for faster development and which help in balancing the development potential of different regions/areas. The focus should be on developing regional and urban structures which make better use of the existing transport infrastructure and urban land and are

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less dependent on unsustainable forms of transport. Decisions should also take account of future land development to ensure that they do not undermine achievements in maximizing the use of existing infrastructure and land use.

New public transport routes should be planned to ensure safe and convenient passenger accessibility and also to facilitate sustainable urban regeneration. The focus is on integrated planning as a mean of achieving a balance between the need to provide for accessibility and mobility and to create a sense of place where vehicle traffic does not dominate and the impact

Broad approach	Important terms and approaches	Strengths	Weaknesses and contingencies
Smart growth and transit-oriented development	Smart growth Compact development Integrated development Mixed-use development Intensification Coordination Transit-oriented development	Encourages inter-sectoral and inter-agency links Encourages links between planning and implementation Improves sustainability Improves public transport Strong transport-land-use links Can slow urban sprawl	These good links are difficult to achieve Assumes significant capacity and organization Poor or narrow implementation undermines prospects Popular support difficult to achieve due to conflicting views and lifestyles Claimed benefits contested
Integrating land use and transport	Bus rapid transit (BRT) Corridors and axes Integrated rail redevelopment Linking economic activities to transport type New transport/land-use models	Improves public transport Improved usage of public transport Reduces energy and improves efficiency Better transport-land-use links New models enable better understanding of patterns	Heightened property prices on transport axes can marginalize the poor Required integration can be difficult to achieve Needs good understanding of social and economic dynamics and space – difficult to achieve Land use-transport links undermined by different logics, institutional divides New models still data hungry, aggregated, distant
Strategic spatial planning and infrastructure planning	Strategic plans Infrastructure plans Transport-land use links	Can give long-term direction to development Can avoid inequitable and unsustainable development Avoids fragmented development	Conditions required to work are demanding/difficult to achieve Credible analysis Inter-sectoral coordination Stakeholder involvement and buy-in Regular review Internal champions Special agencies
Integrated urban development and management plans	Multi-sectoral investment plans (MSIPs) plans (PEDPs) Physical and environmental development	More flexible, less data demanding, and easier to prepare than master plans Participatory Helps to manage urban growth in context of scarce resources/capacity Can be used iteratively in decision-making process	Problematic if seen in static or narrow way Required inter-sectoral cooperation hard to achieve Can be countered by political decision-making
Strategic structure planning	Integrative framework Long-term vision	More flexible, less data demanding and easier to prepare than master plans Participatory Multifaceted approach Combines short-term actions with long-term planning	Required political and stakeholder buy-in may be difficult to achieve May still be relatively technocratic May not provide detail necessary for some decisions
Linking spatial planning to infrastructure planning	Integrated development plans Spatial frameworks	More flexible, less data demanding and easier to prepare than master plans Participatory Gives direction to infrastructure planning GIS-based models can be used as an input	Required consistency in policy and coordination between agencies difficult to achieve Can be too broad to be useful May be contradicted by the market
Linking mega-projects to infrastructure development	Urban regeneration Multifunctional	Powerful driver in urban form Evolving approaches allow linking to planning over the long term Building cooperation between various sectors and agencies	Mega-projects often politically driven and one-off: approach is hard to achieve Level of integration and cooperation difficult to achieve

does not affect people's life styles.

Table 1 - The interdependence between land use planning and transport planning (Source: World Bank Institute (2012.): Sustainable Land Use Planning: How Land Use Planning Contributes to Sustainable Urban Development, presentation script)

The interaction between transport and land use is complex, two-way relationship. Spatial planning is one of the most important factors in creating demand, mode choice and financing for urban transport investments (Kenworthy et al, 1999; Williams, 2005; UN-HABITAT 2009; Cervero, 1998; Banister, 2005.). There are many poor examples of the mutual dependence and influence of the land use and transport/traffic system. Many land use solutions require costly transportation network. Such is the case with urban sprawls at the fringes of the cities. The other significant effect is that such solutions imply social segregation and worsening the quality of life of the lower income population, marginalizing them, since such social groups mainly inhabit cities' peripheral areas.

Table 1 shows the interdependence between overall approach on city development, the characteristic of land use planning and transport planning, as well as strengths and weaknesses of each approach/concept. Main features and negative effects of concepts are:

- Smart growth and transit oriented development assumes significant capacity and organization, narrows implementation, while it is difficult to achieve popular support and there are negative sides of transit oriented development.
- Integrating land use and transport, while forming axes and corridors and linking economic activities to transport type, also heightens property prices on axes and marginalizes the poor, integration is hard to achieve, there are complex social and economic issues and institutional divides, while new models are still not enough developed and land use-transport links are undermined by different logics.
- Strategic spatial and infrastructure planning, which is based on long term direction development - does not support fragmented development and also avoids unsustainable and unequal development, but on the other hand requires high inter-sectorial coordination, regular revision, special agencies and massive stakeholder involvement.
- Integrated urban development and management plans stress out physical and environmental planning and multi-sectorial investment plans, but on the other hand require high inter-sectorial cooperation, can be countered by political decision making and problems can be too narrowed.
- Strategic structure planning based on long term vision – though more flexible and less data demanding, can be technocratic and may not provide details.
- Linking spatial and infrastructure planning, with similar characteristics as above, requires consistency and coordination between institutions which is difficult to achieve, can be too broad to be useful and may be contradicted by the market.
- Linking mega projects to infrastructure development, though being powerful driver and multifunctional, also bringing coordination between various sectors, can be politically driven and one-off.

The examples of some very much practiced traffic and transportation solutions reflect negatively on land use changes. For example, radial and ring expressway systems often lead to centrifugal development and encourage extensive land conversion and leapfrogging, shaping urban periphery land use. Moreover, heavy investments in mass transit strongly drive centripetal development and dramatically reshape cities (WB Institute, 2012). City spatial development clearly indicates the dominant role of expressways in suburban areas, and the role of mass rapid transit in central business districts in dense centers, dramatically increasing city property prices. There is no doubt that transport planning should recognize the effects of transport interventions on future development, but the reverse process – when land use planning or even when land use development /growth happens without plan – has the same effects.

2. MANAGING (INFORMAL) CITY GROWTH

Local and global forces (economic, technological, political etc.) in recent decades have shaped urban areas towards increased fragmentation, separation and specialized functions as a result of economic drivers of change that typically lie outside the control of local government (UNDP-HABITAT, 2009: xxiii). This is especially the case in cities in the developed world, where cities grow with increasing differences between high-income and lower-income areas. Although the urban policy in EU has defined limiting urban sprawl (N. Pichler-Milanovic, 2009), Balkan states, having limited possibilities of regulation, make the exception to this rule, specially having in mind the migrations as a negative effect of the civil wars by the end of the 20th century. As an effect, bigger cities' built areas have expanded mostly in the form of uncontrolled illegal housing settlements in the suburbs. Such characteristics have given the attributes of the Third World city development to many Balkan cities. The Table 2 shows how different transport concepts shape urban land use.

Table 2 - Transport mode and land use planning (according to: World Bank Institute (2012.): Sustainable Land Use Planning: How Land Use Planning Contributes to Sustainable Urban Development, presentation script)

Non-mechanized transport	Automobile dependent	Transit oriented development
Pedestrian movement Animal dependent Water-based	Private motor cars Buses, trucks, motorcycles	Street cars Railway/metro Light rail transit Bus rapid transit
Compact city	Concentric city and urban sprawl Gridiron layouts	Liner and multi-nodal city
Explanation: Typically the oldest parts of cities are based on street patterns derived from pedestrian and horse-drawn movement and or river access. More recent urban areas in developing countries have slums and informally organized shanty towns. Some parts of city have recently organized motor-car free areas in older precincts.	Explanation: Radial routes to accommodate the widespread use of motorcar. Successive ring roads planned to relieve traffic congestion. Extended periphery development as urban sprawl and/or multi clustered satellite development. Recognising the high level of accessibility achieved by motor cars, new parts of the cities have been developed on the basis of gridironed hierarchical road system.	Explanation: Public transport networks have encouraged higher density development around principal transportation terminals within the main urban area, as well as lower density linear corridor development on the periphery.

Urban sprawls, regardless of reasons causing their spread, are considered as one of the biggest problems in the cities in developing countries. Belgrade has been and is witnessing a wide spread urban sprawls in form of illegal housing and settlements in its suburban areas during a long period. Though city development policy is not oriented to and is not officially supporting the informal housing, it is estimated that informal settlements take as much as 44% of housing areas in Belgrade. The city growth unwillingly turned to the agriculture land at the outskirts of the city. The problem of Illegal and unplanned settlements in Belgrade region is strongly related to the other problems of city development, sometimes being a cause, but more often being a consequence of complexity of spatial, economic, social and political issues.

Some of the main issues related to the Illegal and unplanned settlements in Belgrade, which have spread during more than 2 decades, are as follows:

- In most settlements relatively convenient terrain for building prevails, with the exception of left Danube river bank and there is still a decent share of green areas.
- The concentration of buildings is the highest along the main traffic corridors.
- Dominant land use is for residential areas – approximately 90% of total surface, but there is significant share of non-residential land use, such as retail, services and other commercial activities, mostly concentrated along the main traffic corridors.
- Traffic network is irregular and insufficient and except the electrical network, the infrastructure mostly does not exist. Some parts of the settlements are provided with water supply. Streets are narrow, without drainage and often are lined with large slope, so driving is difficult during winter period. There are almost no sidewalks for pedestrians. Since all kinds of transport overlap in a narrow corridor, safety is low. In the future, street regulation could be very difficult since it would cause massive demolishing of houses facing such streets in order to provide safe width of streets and sufficient place for infrastructure equipment.
- One of the main problems about informal settlements' land use structure is lack of public spaces and services, such as schools, health and children day care facilities, which are a direct effect of illegal building process and absence of regulatory plans.
- Urban structure of such housing areas is irregular and spontaneous. There is no firm urban matrix with defined size of blocks or parcels.

Instead of being respective residential area, with high quality of life, great green areas and good urban pattern with some amount of planning intervention, informal housing areas in Belgrade are mostly perceived as impersonal and disharmonized residential area, being neither quite urban, nor rural settlements.

3. POSSIBILITIES OF INTEGRATION OF INFORMAL SETTLEMENTS

Recommendations and suggestions for improvement of informal urban areas in Belgrade reflect the idea of comprehensive approach to the solution, realistic according to habitants and economic conditions of city:

- Adopting the set of special laws and regulations referring the urban planning aspect of these settlements and including urban upgrading principles and indicators. They would enable the infrastructure and traffic equipment of the most of the illegal buildings and settlements with minimum of investment. The regulations would also refer to the lower standards and 'softer' criteria than the ones defined for the rest of the city territory.
- Intensifying the production of urban land use plans for these parts of the territory, which will be the legal basis for the construction of necessary transportation, including public transport, utility and social infrastructure. The appropriate timing for making plans as well as fast implementation is crucial for the process of 'taming' the illegal – informal settlements. Planning action should quickly respond to the building initiatives, no matter if they are legal or illegal (World Bank Institute, 2012).
- Definition of special fiscal instruments exclusively for these city areas, so that the citizens can do their commitments according to their realistic economic possibilities (e.g. lower payments for the use of urban construction land and infrastructure).
- Intensifying the displacement of areas with low sanitation conditions and which cannot be upgraded. It is also necessary to provide the areas where these citizens could organize some of the economic activities that will enable them economic survival and social integration.

- Having in mind that settlements lack social infrastructure, especially education facilities, it is necessary to enable the introduction of additional lines of (less-massive) public transportation or school mini-buses that would allow children a relatively quick and safe access to schools. In this regard, it is necessary that regulatory plans provide for adequate street widths for the movement of school mini-buses. As for the day care facilities for children, it is necessary to foster building of affordable private units, since there is no chance to provide public construction land in already dense built informal areas.
- Planning the sports and recreation facilities and areas, as well as other public places, meeting the social and other needs of youth and children (such as social clubs, libraries, etc.). The implementation should involve facilities in private sector, as well as public private partnership in this field.
- With the aim to enable efficient implementation, it is suggested that viable bank loans should be offered to informal local community units, so to encourage private initiative to solve problems. As a positive side effect, the employment would be increased.
- Finally, the most important recommendation refers to the set of future actions for planners and city government: a/defining the city border in order to prevent further re-use of agricultural land out of the city territory; b/fast planning action (regulatory plans) with the aim to provide planned areas for further residential needs of the city within the city border; c/preservation and acquisition such planned areas for traffic and infrastructure equipment, using the model of public and private partnership.

Other general recommendations for wise land use in informal areas refer to the improvement of the functional structure of the units, e.g. by introducing greater share of non-housing land use, such as services, retail, restaurants, manufacture, agencies and similar activities appropriate for the local level. Apart from being recommended in regulatory plans, these actions should also be encouraged through local regulatory framework (subsidies, restrictions, different taxes). Following and compatible measure should be achieving mid-scale density (Carruthers, J. I., and G. F. Ulfarsson. 2003: 503-522). High density should be prevented as it might lead to diseconomies of scale (for example, crime and traffic congestion) (Ladd, Helen F. 1994: 661-686).

Accessibility, mobility and safety in traffic should be enabled through combination of viable ways – modes of transport, combining public transport of lower capacity (mini buses), providing bicycle and pedestrian lanes, keeping the traffic at local level and low speed without heavy transit connections. It is also necessary to introduce 'integrated' streets as zones of slow traffic, pedestrian and bicycle friendly. Traffic network should be combination of grid hierarchical layout and present informal matrix.

4. CONCLUSION REMARKS

In the context of sustainable urban planning it is important to emphasize mutual dependence between land use, transport and growth of the city on one hand, and ecological, social and economic development on the other. The urban planning should focus to be strategic rather than comprehensive, flexible, action and implementation oriented rather than end-state oriented, stakeholder and community driven rather than expert driven. It also has to be reflective of emerging concerns and focused on the outcomes, which are locally sensitive and dependent upon stakeholders.

Wise governance instead of governing as a way of implementing institutional sustainability will result in balanced land use planning and inner city growth, replacing the practice of spreading and widening the city territory.

The integration informal settlements could become the true test of the integrated planning, since informal urban sprawls are one of the most challenging issues in Belgrade development, as well as in the other cities with similar urban problems. Key stakeholders should be engaged in developing a common vision of land use and transport development that provides high levels of accessibility to all, meets safety needs and defines routes for access to facilities, services and public transport. The vision should also define common integrated development guidelines which can help in overcoming the problems of disintegration, accessibility and connectivity of present Belgrade urban sprawls and furthermore lead to the shaping of these settlements as liveable places.

Main References:

Carruthers, J. I., Ulfarsson, G. F. (2003): *Urban Sprawl and the Cost of Public Services*, in: *Environment and Planning B: Planning and Design*. 30(4): 503-522.

Ladd, Helen F. (1994): *Fiscal Impacts of Local Population Growth: A Conceptual and Empirical Analysis*, *Regional Science and Urban Economics*. 24(6): 661-686.

Pichler-Milanovic, N. (2008): *European Urban Sprawl: Sustainability, Cultures of (Anti)Urbanism and »Hybrid Cityscapes«*, Dalian.

Pichler-Milanovic, N. (2009): *The process and pattern(s) of residential sprawl in post-socialist cities: a story of Leipzig-Ljubljana-Warsaw*, *Sociologia*, LIV, 1, Cluj-Napoca, RO: Studia Universitatis Babeş-Bolyai, retrieved

from <http://kajdanek.ido3d.com/sylabus1011/cities/warsaw/residential%20sprawl%20leipzig%20ljubljanawarsaw.pdf>

Simeunovic Radulovic S., Mitrovic, B., Ralevic, M., Djurovic, M. (2013): *Informal Growth of Housing in Belgrade under the Impact of Transition to Global Economy*, *Planum-The Journal of Urbanism*, n.26 vol 1/13, pp 1-13/13.

Town Planning Institute of Belgrade (2001-2011): *Master plan of Belgrade 2021*, Belgrade

Tsenkova, S. (2011): *Venturing into Unknown Territory: Strategic Spatial Planning in Post-Socialist Cities*. In: *Urban Challenge*, pp. 83-99. Ljubljana.

UN HABITAT (2009): *Global Report on Human Settlements: Planning Sustainable Cities*. London

World Bank Institute (2012): *Sustainable Land Use Planning – Peri-Urban Growth*.

World Bank Institute (2012): *Sustainable Land Use Planning: How Land Use Planning Contributes to Sustainable Urban Development*, presentation script.

World Bank Institute (2012): *Urban and Local Government Strategy*.

Žegarac, Z., Arsić, V. (1999): *Programi unapređivanja javne infrastrukture*, Beograd.

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