

# Possibilities of Spatial Development of Industry in the Serbia's Cities

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*Abstract.* In the paper are considered strategic framework for long-term spatial industrial development in the cities of Serbia. There are consider some approaches and propose a strategy of spatial industrial development and location of the new location form of industry in the cities of Serbia consistent Strategy of economic development of Serbia till 2012 and Spatial plan of the Republic of Serbia. In the paper are elaborated the problems of spatial industrial development in Serbia in the last time and possibilities for the sustainable spatial industrial development and pattern, in the urban context. Three scenarios of spatial industrial development have been identified.

*Key words:* spatial industrial development strategy, spatial pattern, industrial park, sustainable development

## 1 Introduction

The political changes of October 2000 opened up room for accelerating economic transformation. After years of political crisis, real chances for intensifying development appeared. Transition steps are generally sporadic, inadequate, and lack a strategic framework. The Government of Serbia has not prepared a general, comprehensive strategy of development, with a strategy of spatial development of economy and industry as its most prominent element.

Analysing some previous trends of spatial industrial development, planning-developmental perspectives and possible scenarios of industrial sectors, it might be assumed that in the oncoming period, an expected is increase of economic, environmental and other risks.

The process of production and trade exchange globalisation initiated by direct foreign investments manifests itself through trends of spatial desegregation and/or reintegration of production and services. This originated in new spatial investment models: industrial and technology parks, scientific parks, free zones, high tech agglomeration complexes, etc. These location patterns are in fact materialised conglomerates of the spatio-developmental dimension within the production and trade internationalisation. At the same time, they perform as urban, regional

and technology development models of certain developed countries, based on direct foreign investments elements. In their genesis, a major role is played by the state administration and multinational corporations.

Some new tendencies of spatial industrial development initiated strategic solutions of capital allocation and models of foreign investments in cities of Serbia. The spatial organisation of economic activities on attractive locations is a mode of state redistribute intervention within the economic restructuring strategy realisation, privatisation, small enterprises and entrepreneur development. To launch developmental and spatial protection processes, different ways and forms of direct foreign investments and financing are needed. This enabled new economic activities and "new" location and development factors: urban and regional infrastructure, scientific and developmental-research institutions, highly educated professionals, development of ICT, agglomerate and location economies of urban centres, life quality, large scale infrastructure, stimulating legislative and business milieu, etc. It is anticipated, that in the oncoming period a substantial international capital pressure will be manifested, especially as regards the most valuable urban and some attractive locations in the metropolitan regions of Belgrade and Novi Sad and cities in the zone of corridor X.

## 2 A Review of the Strategy of Economic Development of Serbia till 2012.

Republic Serbia located in South-East Europe with 88.361 sq km. Capital is Belgrade (1,6 million inhabitants). Other regional cities are Novi Sad (capital of north region Vojvodine), Niš, Kragujevac and Priština (capital of Kosovo). Total population of Serbia 2002. are 7,49 million (excluding Kosovo). The industries are represented with 34,05% of the GDP. The vision and objectives of economic development of Serbia formulated in the *Strategy of Economic Development of Serbia till 2012* [1] give preference to sustainable development of Serbia economy, in the sense of achieving a constantly sustainable growth. This approach to studying complex social, economic and ecological/spatial issues in the period of transition towards a market economy does not have an all-inclusive character.

According to the experiences of Eastern European countries, transitional recession is caused by negative rates of economic growth, that is, by a process in which 'healthy' parts and resources from inefficient companies are used in newly founded enterprises. This is the method to provide sustainable economic growth and to achieve increased levels of the GDP in the beginning of transition. New private enterprises become the 'generators' of sustainable economic growth. In 2008, the level of the overall GDP and the GDP per capita was around 80% of its value in 1990. [2] Basic strategic orientations of pursuing the National Strategy for Economic Development till 2012. are as follows:

1. *Creating an attractive business environment as a basic condition for increasing the overall competitiveness of Serbian economy.* This task demands determined pursuing of all transition and reform processes that could activate the country's development potentials – human, material and natural - and make Serbia attractive for faster development of the domestic private sector and higher foreign capital inflow. Attraction of larger volume of foreign direct investments demands pursuing development policy without interference of bureaucratic authorities, and certainly without administrative delays in registration, employment, export, profit repatriation, etc.

2. *Knowledge-based development.* Main competitiveness factors in the economic development are knowledge, and knowledge-based product innovation, new technologies and system of services. Considering that the education results are not noticed only in individuals but in the society as a whole, it can be said that knowledge is becoming a basic development factor that Serbia needs to use to the utmost extent, regarding the available potentials, which demands further reforms of education and employment.

3. *Development of efficient economic infrastructure.* The sector of economic infrastructure, including traffic, telecommunications, energy industry and water management, is rendering services of key importance for the development of industrial sector and trade. The transition in the sector of economic infrastructure of Serbia demands advancement in the key areas of the tariff reform, commercialization, competitiveness, privatization, legislation and institutional development.

4. *Balanced stabilising, developmental and social role of state.* The Strategy will be pursued within deep restructuring at great social expenses: cumbersome inheritance of the previous period, high poverty rate, high surplus of labour, still modest standard of living of the majority of population, dissatisfaction of many citizens regarding themselves as losers in the transition process.

5. *More balanced regional development.* The decades-long inheritance of regional disparities deepened in the transition process, demands a special strategy for regional development which would stimulate the development of undeveloped and devastated regions, especially the South of Serbia.

6. *Sustainable development.* Serbia needs to base its development on the principles of sustainable development.

When it comes to industrial development, the so-called 'neuralgic points' in the economy have their spatial form:

a) The process of privatisation has direct effects on the element of spatial structure, structure of cities and other settlements, the changes in the structure of economic activities, employment, unemployment, social problems, the use of public property and resources, over-development of particular areas, the changes in real-estate prices, etc;

b) There is a lack of co-ordination between economic policies and the policies of urban and spatial development, regional policies, policies of innovation, policies of using construction land, etc. It is well known that the mechanisms and levers of spatial development are beyond the domain of spatial planning.

c) The development of small and medium enterprises is left to chance in terms of economic branches and spatial allocation. There are usually no equipped and prepared sites, there are no exact rules of construction, and the road to getting building (construction) permits, approvals, etc. is full of barriers. It is necessary to remove all the barriers and create the institutional conditions for efficient functioning and directing industrial development and allocation. There is no adequate policy of changing the industrial/economic structure (as the vehicle of all reforms in the economy and the society), as well as no policy of spatial development of industry (and small and medium enterprises) on the strategic and local level.

The ‘Strategy...’ does not assign any importance to spatial elements affecting development, not even on the level of distinguishing between developed and underdeveloped areas, establishing ‘corridors’ and ‘key urban points’ of development, environmental protection, etc.

### 3 Planned Spatial Development of Industry in Serbia

According to the *Spatial Plan of Serbia* [3] the model of controlled polycentric and distribution of activities is the basis for long-term spatial planning in Serbia. From the spatial viewpoint, today the model is based on existing large and medium-sized industrial/city centres and city/industrial centre development in insufficiently development areas (Table 1.). This concept entails considerable decentralisation in the development and distribution of industry and will be carried out through the controlled concentration of industry. This approach consist of:

- partial removal of industrial activities from urban areas and selective dislocation from the Belgrade metropolitan,
- more balanced regional development and distribution of industry,

- intensifying industrial development in certain zones in the Danube-Sava river belt and in certain large, medium-sized and small industrial/city centres,
- development of more complex and high technology in the Belgrade agglomeration and in certain urban-industrial centres.

Table 1. Number of industrial centres/cities in Serbia, 2008.

Cities – industrial centres	Number of industrial cities
1. Belgrade (>135.000 employees)	1 (Belgrade)
2. Big industrial centres (20,000-50,000 employees)	2 (Novi Sad, Nis)
3. Industrial centres (10,000-20,000 employees)	8 Kragujevac, Subotica, Lazarevac, Smederevo, Pancevo, Cacak, Krusevac, Leskovac
4. Industrial centres (5,000-10,000 employees)	15
5. Small industrial centres	64 (without Kosovo)
Total Serbia	124

In regard with the spatial-ecological goals of industrial development and distribution, favourable locations for the placement and development of industrial facilities have the following features: (the best location-development capacity in cities in the European corridor VII / Danube river and Sava river-front belt and zones in the cities in the European corridor X, (b) a number of industrial/city centres have an advantageous transport position and other comparative advantages, as well as certain limitations (insufficient water supply, difficulties in removing and treating waste water, environmental limitations, etc.), (c) primary agricultural-raw materials areas are found in the Pannonian and Peripannonian zones and larger valleys, (d) zones/urban centres with favourable conditions for the development of smaller, special primary processing facilities (wood industry, food industry, etc.), (e) zone with favourable conditions for the development of extraction industries and power production.

The framework for industrial development consist of key potential belts: (a) the Danube – Sava rivers, (b) the Velika Morava and Juzna Morava rivers (Central and South Serbia), (c) the Zapadna Morava river (Central Serbia), (d) Timok river (East Serbia), (e) Vojvodina region, (f) Kosovo region, etc. [3]

In the *Spatial plan of the Republic Serbia* predicted 14 new locations for the formation of free zones (Subotica, Zrenjanin, Pirot, Vranje, etc.). But, because transition recession and global economic crisis, today in Serbia registered 3 free zones - Belgrade, Subotica and Pirot [4].

In the strategy for the development of Republic of Serbia, has been planned an initiative for establishing the industrial and technological parks in Serbia. The industrial and technology parks represent one of the most effective forms of assisting and promoting the development of high-tech small and medium size enterprises (SME), together with the development of new technologies in the given environment. As a rule, technology parks are an integral part of any strategic plan for economic and spatial development of cities, regions and states. The development areas for industrial and technological parks are planned in the corridor X mainly in Belgrade, Nis (South of Serbia) and Vrsac (bordering town near Romania in East Serbia). The main focus being the providing support to, a newly founded SME, through various forms of production and technical co-operation, joint ventures and capital investment, the exchange of business experience, abilities and connections with foreign partners in order to optimise the regional potentials. The core objective for the development of SME within the industrial and technological parks is the introduction of profitable production, along with the efficient utilisation of limited resources and implementation of the highest environmental standards. From the point of view of the urban and regional environmental interests, the main priorities in the selection of development activities and business programmes are: (a) harmonisation with resources and capacities, (b) an increase in the employment rate, (c) acceleration of the economic growth rate and GDP, (d) high return rates of investment, (e) contribution to a more even distribution of activities and production facilities, (f) attracting of foreign investments and business activities, (g) application of energy efficient and environmental-friendly technologies, (h) an increased share of technology and innovation in the cities.

*The National Investment Plan of the Republic of Serbia* predicts the construction of 64 industrial zones and industrial parks or

readjustment current zones in cities which cover 5, 300 ha.

In the *Spatial plan of the Republic of Serbia*, the development and concentration of immovable industry on current industrial sites has been foreseen: revitalisation of black metallurgy capacity; structural transformation and development of non-ferrous metallurgy and cooper processing; development of energetic, production and processing of coal; basic inorganic chemistry and basic organic chemistry; metal processing industry, electric machines, processing equipment, goods (freight) and special vehicles, vessels, motors, measuring and precise instruments; exploitation and processing of non-metals; food processing industry; production of building materials; sand&gravel extraction, etc.

According to the *Spatial Plan of Serbia*, in the planned state of the environment, most of urban settlements and Serbia's areas are classified as category of polluted sites. Hot spot locations are cities Pancevo, Bor, Sabac, Kosovska Mitrovica (Kosovo), Subotica, Baric, Krusevac, Loznica, and Lucani. The planned environmental protection measures in cities are mostly in the sphere of previous effect revitalisation or protection, without preventive actions concerning future development. If the current trend of global ineffectiveness of production factors will persist, concurrently with ineffective use of natural resources in industry and the realisation of proposed development policies in this field, very environmentally unfavourable effects might be expected in future. Furthermore, some negative ecological consequences are foreseeable in respect to the planned development strategies and perspectives, economically uncertain development results and outcomes, together with socially unacceptable spatial resource usage. Therefore, it is essential to define a strategy of sustainable industrial development within the urban&spatial planning.

#### **4 Scenarios and Possibilities of Sustainable Spatial Development of Industry in Serbia**

The general objective of sustainable industrial development is the development of economically profitable production, with produces which are environmentally friendly.

Furthermore, the decrease of polluting substances in air, water and soil, waste decrease, efficient use of (non) renewable resources, suspension of certain production types would meet this end. General strategic objectives encompass: employment increase, production restructuring leading towards a bigger share of processing industries, development of small enterprises (as 'regional catalysts' of development), development of industrial clusters, development and application of more advanced technologies, co-ordinated territorial distribution of industry (in urban and regional context), rational use of non-renewable resources, a more efficient use of renewable resources, decrease of polluting emissions from industry, minimisation of industrial waste, substitution of certain resources, etc.

In this paper, an effort has been made to assess a preliminary framework, with hypothesis, perspectives and spatio-environmental effects of potential spatial industrial development scenarios in Serbia. Starting from basic trends of the reform process, foreign investments dynamics and the structure of future industrial development, three scenarios of spatial development have been identified: a) The scenario of receding industrial growth, b) The scenario of modest development changes and c) Sustainable spatial industrial development scenario. Each of them has certain implications in the institutional domain, the industrial structure, environment and land use.

*a) Scenario of receding industrial growth* – development based on the resources, with include process deindustrialisation, conservation of current industrial structure, decrease of employment, devastation of the environment, moderation of current spatial structure of industry, metropolitan concentration of industry, polarisation of the effects, spatial specialisation and spatial fragmentation of industry.

*b) Scenario of modest development changes* – industrial development based on the efficiency of resources using, which implied reindustrialisation, deindustrialisation by blackout of uncompetitive production, slow growth of employment, locational incompatibilities of productions, the instalment of territorial concentration in the development

corridors, Belgrade's metropolitan region, larger cities, menace of the environment, etc.

*c) Sustainable spatial industrial development scenario* – development based on the knowledge and innovations, reindustrialisation and spatial reintegration of industry, growth of employment, competitiveness, the export, the attracting of new investments, eco-restructuring, growth of domestic and FDI, decrease of raw materials and energetic sector and the exploitation of resources, implementation of SEA and IPPP Directive of the EU, the industrial eco-management, industrial growth into rural and suburban area, industrial development as main factor of territorial cohesion, development of SME, development of regional industrial clusters, the establishment of new locational forms of industry (industrial zones and industrial parks, technological parks, business incubators), work on the principles of sustainable business, dispersion of industrial locations in cities, polycentric development of industry, etc.

The strategy of industrial Eco-restructuring entails the decrease of the relative importance of particular branches of the basic and intermediary sector (e.g. energetic, ferrous and non-ferrous metallurgy, non-metals, production of building materials, etc.). Furthermore, it entails the increase of the importance of materially intensive branches, high-tech production, with the revitalisation of existent plants effects upon the environment.

The sustainable industrial development adopts the application of the preventive approach: involvement of the spatio-environmental criteria, optimisation of the material input use, minimisation of polluting substances, restructuring of the production pattern towards an environmentally acceptable technologies, etc. This concept leads towards the decentralisation and decrease of global developmental disparities, development of small urban centres, balance provision between socio-economic and spatio-environmental objectives, a more rational land use and resources, [5] better infrastructure access and an overall increase of the life quality.

The aim of the industrial policy is the creation of conditions for the development of an innovative and market competitive industrial sector, which should provide an environmentally sustainable production and location in the cities. In regarding with

Zekovic, S. [6] this encompasses: (a) the application of innovations in the industrial strategy, towards enabling an ‘environmentally friendly’ development; (b) implementation of SEA Directive, (c) the application of the EIA Directive (85/337) and implementation of the IPPC Directive [7] for industrial enterprises and SEA Directive [8]; (d) a clear responsibility concept for environmental damages; (e) emission standardisation for all industrial sectors, depending on the technology type, etc.; (f) development and use of ‘clean’ technologies and BAT (best available techniques); (g) rational energy use in industry; (h) fiscal support for enterprises which acknowledge environmental demands.

## 5 Conclusions

The transition of the economic system towards market economy leaves deep traces on the spatial industrial development and planning policy as well as on urban planning in Serbia. Strategic planning of the territorial development of industry means managing change and creating and managing new spatial organisation, the role of location factors, changing the location performance of industry and creating new ‘aggregate’ forms of industrial location – industrial zones, industrial and technological parks as a part of urban structure. Based on the three scenarios of spatial industrial development in cities of Serbia it is estimated that an approach change in spatial management and environment protection is necessary. Sustainable industrial development implies the definition of development managing modes of this activity, concerted with the principles of sustainable development. The increase of the industrial efficiency and territorial capital is imperative for different territorial entities in Europe [9], and so comprises an integral part of the new policy of sustainable European spatial development [10].

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