LANDSCAPE CHANGES OF IMMEDIATE SURROUNDING OF THE CITIES

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Abstract

The dynamics and intensity of changes in the surroundings of towns, and especially of rural zones, have been a specific feature in the Republic.

Research done for the purpose of regional and urban planning has shown that the growth and development of physical structures with towns have been taking place within periurban zones, where the interests and conflicts regarding the manner of land usage have been most evident. It is within this space that demands and requirements have been coming into contact (and conflict) regarding land usage as a space (for construction) both as ecosystems in agriculture and as other primary activities, but also as concepts of private property, and common interest resources.

The present paper discusses the results of research done in the Skopje Valley, that is, in area surrounding Skopje. The scope and dynamics of changes in the areas surrounding the city have been posing an especially huge problem at national level which is mostly due to the long period of population, industries and infrastructure concentration. An analysis as such covers the period between 1961 and 1994 in which the city physical structures came to cover half of the Valley area whereas nearby infrastructure concentration drastically changed rural areas.

Introduction

Development dynamics of towns in the FYROM and the urban development processes in general mark the population transfer from villages to towns, from dealing with rural to non-rural activities, from doing less productive to more productive jobs, from non-skilled to skilled workforce, a transition from a non-arranged to a communally arranged area, to better culture and technical living and working conditions. The development, i.e. construction of physical space structures bearing high architecture and artistic values

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etc.. Nonetheless, urban development, and especially the growth of larger towns, have imposed problems occurring with the massive unplanned construction, evident with both the settlement urban coverage and with their surroundings through transformation of highly productive farming land to construction land. Villages today are becoming increasingly „urban developed” by introducing to them „urban” elements of living and working into them, by the construction of industrial, commercial, public utility and other service facilities. This has become especially evident with the development of basic regional infrastructure, by the development of modern traffic connections among villages and towns; transition from traditional to modern agriculture has led to qualitative changes in the structure of some areas.

**Demographic component of changes**

The Republic of Macedonia is a small country (surface area is 25,713 km²), its relief being characterized by a chess table distribution of mountain massifs and small valleys. Planes cover only 4,900 km² or 19% of the total territory. Other areas include hills and mountains with slopes higher than 10%. Out of the total population that, according to the 1994 population census, amounts to 1.9 million inhabitants, 60% live in urban areas which means that 1 million inhabitants is mainly located within the valleys of the country. If one adds to this figure the population living within rural areas scattered within plane areas, it comes out that some 85% of the population have been concentrated today on 19% of the territory of Macedonia.

An analysis of urban development processes and trends demonstrates the relatively high degree of inconsistency between the rapid increase in the urban development level and the economic development level achieved which is expressed as a figure through the level of GDP per capita and the urban development extent achieved. This is the basic reason why the urban development process is not always expressed as a positive factor in the general development of the country.

Migration has been a dominant process in the population space distribution. The insufficient planning channeling, the intensity and one-way movement of migrating population to urban settlements were the main features of the population migration process until the 1990.

The comparative analysis of the population polarization process within the urban settlements of the country in 1961-1994 demonstrates on extensive increase in the number of inhabitants with the category of settlements with more than 50,000 inhabitants. Country centre Skopje – being a highly attractive centre and the capital of the country, is the focal point where 22.8% of the total population and 37.3% of the urban population have been concentrated.

It is evident that within urban development process in the Republic of Macedonia in the past, two parallel correlative processes were evolving, triggered by the migration process dynamics: at the micro-regional level, the population polarization within urban settlements - municipal centres; at macro-regional level, the generation of zones with higher concentration of settlements and population. These zones represent the areas surrounding larger urban settlements.

Following the dynamics and deep structural changes having occurred under
the influence of the rural depletion, the process of ‘deruralization’ has intensified, expressed through the form of demographic depletion of rural settlements. The decrease in the rural population is a global process taking place with minor oscillations since 1961, and especially evident between 1981 and 1994. The process of ‘deruralization’, i.e. rural settlement depletion in the form of permanent dynamical migration with the rural population was a major factor of the significant changes in the structure balance between the urban and rural population, and thus directly affected the rural landscape transformations.

The urban settlements category includes 29 settlements or 1.6% of the total number of settlements in the country (1.753). The advantages of favourable configuration are used by total 25 urban settlements or 86%, placed within plane and moderately hilly terrain in the valleys. The remaining 4 towns are placed on terrain with complex hilly or mountainous configuration.

Under the complex impact of relevant development factors, a specific heterogeneous size structure has been created within which mostly predominant are small urban settlements with less than 20 thousand inhabitants each.

The large urban settlements (more than 100,000 inhabitants) and the medium-sized ones (between 50 and 90 thousand inhabitants) have been demonstrating the largest absorption power. In 1994, demonstration a steady demographic increase, the settlements of Skopje, Bitola, Kumanovo, Prilep and Tetovo absorbed over 60% of the urban population and over 35% of the total population.

The settlement and population space concentration in the northern (Skopje, Kumanovo, Tetovo, Gostivar) and the southern (Bitola, Prilep) parts of the country has considerably lowered the positive effects resulting from the urban settlement homogeneous space distribution. In the north and north-west of the country (17.6% of the territory), within the four urban settlements (Skopje, Kumanovo, Tetovo and Gostivar) and within settlements belonging to their urban coverage, some 50% of the total country’s population have been concentrated.

<table>
<thead>
<tr>
<th>Inhabitants</th>
<th>1981</th>
<th>1994</th>
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<tbody>
<tr>
<td>Settlemens</td>
<td>Total inhabitants</td>
<td>Share in the urban population figure (%)</td>
</tr>
<tr>
<td>More than 100.000</td>
<td>1</td>
<td>408.143</td>
</tr>
<tr>
<td>20.000 - 99.999</td>
<td>12</td>
<td>509.041</td>
</tr>
<tr>
<td>By 19.999</td>
<td>16</td>
<td>135.918</td>
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<tr>
<td>Total</td>
<td>29</td>
<td>1.053.102</td>
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The space development of towns and suburban zones

Both complexity and intensity of demographic and economic changes have come to impose the considerable extension of the towns impact zones over the surrounding areas. The size of the scope and the intensity level of impacts correspond to the population size and the functional capacity existence of a town. Large and medium towns in the country obviously have the largest impact zones and by that appropriate numbers of settlements in their immediate vicinity or urban coverage.

Conditioned by the global frames of the demographic and the space-physical components of the urban development process, the territory and morphology development of towns and settlements within suburban areas has been directed towards two basic types of inter-linkage: functional and the space-physical inter-linkage.

The first type represents an inter-linkage based on the principles of functional complementarity and it excludes the possibility of establishing physical inter-linkage between settlements. On the contrary, the second inter-linkage type includes both the spatial-physical inter-linkage formation and developing continuity, being thus a more complex type of area transformation. The first type has been present in the vicinity of all urban settlements. The number of settlements within a coverage varies and is directly related to the size and the functional ‘equipment’ of an urban settlement. The second type has been characteristic for the category of large and medium cities/towns and results from towns intensive spatial-physical growth, and an intensive process of population moving in, accompanied by an appropriate construction work within suburban areas.

The spatial-physical interlinkage of urban agglomeration and suburban zone settlements, especially evident within the impact zones of large and medium urban settlements, has the following forms:

- Continuous and linear construction subject to communications.
- Construction coverage radial extension and creation of areas built in a compact manner within surrounding settlements.

The processes of both forms mentioned above have been registered in the space frames of the country, in particular within the surroundings of large and medium urban settlements (Skopje, Bitola, Kumanovo, Prilep etc.), this being the result of major demographic and spatial-physical changes. As opposed to other towns where a relatively low number cases of radial extension has been registered, within the surroundings of Skopje urban agglomeration, being traditionally the most significant centre, the phenomenon of the city physical merging with the surrounding settlements in a radial form and the generation of compact developed space have been the main forms of the process of a continuous increase of the built-on land surface.

Problems and collisions identified through the analysis of processes and phenomena in the immediate surroundings of towns point out to the following:

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2 The differentiation between the notions of a „large” town (city) and a „small” town is a complex exercise. Various countries have been using various criteria for the defining of such notions, depending on the degree of the urban development achieved. Using the size of our country (surface and population) as a starting point, the city of Skopje (444 thousand inhabitants) is a large town or a city.
- Inappropriate intensity of urban construction land usage demonstrated through low average housing and population density bearing negative impacts over the rationality and organization of basic functions and of the urban infrastructure.

- The legal, planned form of construction and increasing in urban construction land area accompanied by an intensive extension of areas under structures developed without planning. The migrant population concentration within suburban areas has been caused by the high migration rates and the relatively low construction costs in the peripheral areas in comparison to the construction costs within urban developed areas.

- The low living standard level caused by the lack of communal (public utility) infrastructure – full or partial; poor public hygiene conditions; unsatisfactory housing construction quality; lack of basic supplementary functions with settlements in peripheral zones built without planning.

- The permanent purpose change of high quality farming land and environmental degradation within certain areas being a result of the insufficient planned organization, arrangement and usage of land within peripheral zones are of extensive impacts over landscape structure of certain zones and their environment quality.

- Collisions between main infrastructure systems and urban settlements having emerged as a result of urban construction land expansion and its merging with the settlements built without planning in peripheral zones.

- The existence of settlements built without planning is a factor of suburban zones saturation with the poorest population. Thus, with the lack of planned rehabilitation measures, parallel emerging and reproduction have occurred of sub-standard living zones under circumstances of environment quality being disturbed; moreover, unfavourable living conditions directly affect the occurrence of a specific public health and social status of the population.

The former development of rural areas was taking place under the dominant impact of the ‘deagragation’ process. Determined by the global frames of urban and industry development, rural settlement development, was taking place under the circumstances of continuous decrease in the rural population. Under the circumstances of discouraging farming policies and rural settlements depressed development, the ‘deagragation’ process has been accompanied by a dynamic spatial distribution of the rural population and by demographic depletion of the most of rural settlements - called a „deruralization” process.

An analysis of processes, trends and the current status of rural areas show the following:

- Demographic vitality has been recorded only with the category of rural

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3 A total of 103,000 ha or 21% of the surface under fields in the country have been developed into settlements and infrastructure.
settlements of over 2,000 inhabitants, especially within farming microregions (Polog, Skopje Valley, Strumica Valley, the Ohrid-Struga Basin, Kumanovo Valley etc.) and in the surroundings of the national centre - Skopje – and medium urban settlements (Kumanovo, Tetovo, Gostivar, Strumica, Ohrid, Struga, Gevgelija).

- The farming population share (1994 data) amounts to 11.6%; the figure of rural workforce within rural settlements has been continuously decreasing.

- The number of purely farming settlements has been continuously decreasing; such settlements have been going transformation into settlements with more complex socio-economic structures by means of population transformation into mixed and non-farming population.

- Favourable physical and geographical prerequisites for development have been recorded with settlements located within planes (38%) with a compact-dense morphological structure and with settlements having favourable geographical and transport position, located at or near main transportation lines (11%).

The above facts demonstrate the intensity and inevitability of changes in areas surrounding larger towns. These changes have mostly been sensible and objective consequence of development rules. Conflict conditions and landscape degradation occur in the surroundings of towns where planned development solutions are deviated from or where the implementation of such solutions has been inconsistent - the main result of it being the transformation of highly productive farming land into land under construction.

**The changes in the structure of the Skopje region**

The City of Skopje and its surroundings are an excellent example of the essence of land usage and the interest conflict regarding the manner of such land usage. Structure and changes in that the manner of land usage are usually much more complex and dynamic in the periurban zones than in rural areas. Within such space contacts, and very often conflicts as well, occur with the needs and demand related to land usage as a construction space and farming eco-system, but also between the concepts of land as private property versus land as common property. The manner of land usage in periurban zones has actually been the result of the relevant social policy and planing, enabling domination of one or the another concept, that is, the ownership economic category.

Most of the classic models of manner and structure of land usage have been based upon the relation between a town and the rural area around it, the public interest and control being determining factors. If one takes as accurate the conclusions of Von Thunen’s analyzes⁴, a town should be surrounded by concentric circles of zones bearing

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various manner of land usage for farming and forestry purposes, the structure of which will depend upon each product type and features regarding its transportation. In reality, only few towns have been surrounded by well-developed farming zones although some minor remaining items present their spatial identification in the surroundings of large towns (cities). The evident complexity of the land usage structure within suburban zones suggest that Von Thunen’s findings are somewhat simplified, that is, that there are other factors besides distance and transportation costs that bear considerable impact over the manner of land usage and its future purpose as such.

One of the major features of Skopje in the recent thirty years has been its rapid growth and development (in spatial, population and economic terms); this is why any model based upon the city as a static model is wrong. By its extension, the city not only takes in arrable land but also changes the structure of land purpose and usage within peripheral zones. The extent of such impacts depends upon the urban development intensity; channeling of such impacts, and the channeling of pressures over farming land depend upon the planning system type and upon other public systems of land management and control.

Land purpose and usage as well as its structure are mainly the factors determining its price and property relations. These two most general categories of factors result from numerous parameters expressed through economic indicators.

In 1965, Skopje Valley was purely farming, i.e. rural, area with small settlements, no major infrastructure corridors, and surface and ground water regulation. Actual physiognomy of the area reflects a highly urban developed area with high population concentration (255 inhabitants per 1 km\(^2\)) and a high percent share of arranged zones under settlements and road infrastructure. Out of the total surface area of the valley (344 km\(^2\)), 150 km\(^2\) are under settlements and infrastructure facilities (44%), of which only Skopje urban coverage amounts to 85 km\(^2\). These data speak about the high coefficient of rural area construction development, that is, of transformation of most arrable farming land into non-productive purpose land. The increase in the non-productive (construction) surface area from 10% in 1961 to 44% in 1966 out of the total surface area of the Valley is a consequence of demographic explosion having occurred between 1948 and 1994 with an index of 433% and, according Namely, construction land costs about 10 times more than the farming land, therefore triggers its higher turnover and, by that, the change of its purpose. Such transactions were for a long time enabled by the lack of urban planning legislation and the non-compliance with the Law on Farming Land Conservation (being in force since). On the other hand, the employment and housing policy in Skopje have indirectly enabled the pressure

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5 Centripetal and centrifugal trends, the impact intensity of which determine the development of a large city, cause a specific evolution of certain parts of such city’s surroundings. Geographic factors influence the spatial layout of functions, channeling the directions of city impacts extension, resulting at a certain development stage in a direct integration of surroundings parts in the city’s extended economic structure. The environment determines the city’s development in both spatial and functional respects. For complex socio-economic structures of a city that impose the need of function distribution by zones, areas have to be sought having certain advantages for each
of certain social strata on rural settlements in the city immediate vicinity. Such constellations should be considered together with the dominant private ownership which enabled an intensification of buying and selling out, the property transformation of households from rural to non-rural and mixed. And finally, the land being a goods item, in the market-oriented economy gains environmental criteria require the reconsideration of requirements of raising garden and fruit items within the zone of dense road traffic network, heavy industry is located in the vicinity of farming zone (the Skopje refinery, „OHIS” chemical plant, Skopje eastern industrial zone), the insufficient investigation of continue in the future period as well. Such a conclusion also results from the previously analyzed economic and geographic layout of the area and settlements within it. The finding that more than 60% of households in the Valley settlements do not possess farming holdings, and that only 10% of the population earn their existence from the city and their contact with the City urban agglomeration have been showing highly positive tendencies. Namely, former barren areas with high level erosion on the Vodno mountains (1,160 m.a.s.l.) and Skopska Crna Gora (1,600 m.a.s.l.) have been fully forested (in natural and artificial manners), especially the sides contacting the Skopje Valley. Thus, Skopje has gained a large regional natural park called „Vodno” which is the main recreation and excursion site for its inhabitants. Additionally, these forest areas are the main environmental and climate corrector to the extreme summer climate conditions (tropic temperatures above 30°C, minimum air humidity, wind lack and long draughts). The limited access to motor vehicles, mostly due to relief conditions and the fact that there is no road infrastructure developed there, have enabled preservation of these mountainous areas as environmentally healthy zones. With the excessive construction in plane areas, these create pleasant living conditions during most of the year for the whole population of the Skopje Valley. The significance of these forested zones surrounding Skopje and within the Skopje Valley, where more than 600,000 inhabitants have been concentrated on an area of 350 km², including the canyons of Treska, Vardar, Lepenec and Pcinja rivers, will be even greater in future with the population public and private standard increase.

**Conclusion**

A periurban area is a transitional zone between a town (city) and a region. Urban impact is very strong and shows itself through the demand for land i.e. areas for construction, purpose separately. The physical scatered division of the Skopje city area enables a huge advantage in this context. This is why the extended function distribution within the Skopje Valley should not be seen as a result of the critical limitation of the city’s space. The urban development is first and foremost initiated by social factors; the city’s natural features and the natural features of its immediate surroundings enable certain prerequisites for their parallel development. The development intensity of the suburban zone i.e. of its components is influenced by several factors and by the complex of regional geographic structures within the dider surroundings as such.

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6 I. Aceski, Suburban Settlements in the Area of Skopje, PhD paper, the Philosophy Faculty at Skopje, 1989.
recreation or infrastructure development its general consequence is the change in the structure of the in. These changes are of variant intensity and variable symptoms. The direction of changes and consequences thereof is clear: the land that used to be exploited for farming purposes is to be now used for construction. The manners of land usage are numerous and often are mutually incompatible. The land sale and purchase have been very extensive and have been dictating a degree of changes. All land users are located within town surroundings that are not able to afford or cannot find an adequate site of their own within the urban agglomeration in question, as well as those not welcome in a town/ city. Due to such reasons, the following is necessary:

1. Defining capacity of valley areas regarding people’s settlement, settlement and infrastructure development and the determining of the upper limit of the area load bearing.

2. Overcoming inadequacy of planning and arranging treatment of areas in the immediate vicinity of towns and design urban development plans as instruments for periurban area management.

3. Rationalization of the extensive city development by an adequate land evaluation, a homogeneous allocation and planned construction of the space contents, respecting therein the public interest, sustainable development principles, environmental protection and maximum protection and conservation of the farming land for food production purposes.

4. Using up advantages of vacant areas within suburban zones to locate urban contents and functions under the conditions and in a manner so as to avoid the causing of degradation processes and undesired landscape changes.

The national general strategy of productive farming land conservation and recent investigation of areas in the immediate vicinity of towns clearly indicate the need to have these areas as subjects of regional and urban planning and of special space arrangement plans.

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