

LANDSCAPE ANALYSIS IN SPATIAL PLANNING

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Abstract

Landscape analysis has a significant function in the process of decision making for the future land use, organization of the space, nature protection, and rational use of the nature resources. Basic problems and tasks of the landscape analysis and planning are located in discovering and solving the conflicts among the development of the society and very complex task in nature assignment. Although landscape analysis and planning have no formal and legal background and status of a legal document in the FYROM, landscapes are a vital part of spatial planning having relatively long tradition, which is the subject of this paper.

Foundations of the methodological approach and assumptions

The development covers more intensive engagement of space and more intensive landuse, organization and arrangement. The features of the land and space with their entire natural and produced substratum are the significant categories for determination of future development. In this context, landscape analysis and planning appear as an activity of primary task to connect developing possibilities and tendencies for certain space. FYROM landscape planning has a significant role in the determination of the policy for land use, environment and nature resources, and generally, in the realization of the common states for nature protection and sustainable development. The primacy problems of landscape and special planning are found in conflict between the necessity for development and nature protection. Therefore, it becomes obvious that the integral planning combines, in the most convenient way, complementary and intertwined cycles of landscape protection and its development.

The methodology of the analysis of the landscapes is being developed in the same directions as well as the methodology of the space or integral planning. According to this, it can be seen how much contribution landscape analysis can offer to the spatial planning. In the previous practice of the space planning in the Republic, the landscape is not formally defined as a planning category, but actually in the process of planning, the landscapes is recognized and developed as a basic spatial researching and territorial

unit¹. The existing experiences allow us to make a review of the approach to landscape analysis in spatial planning practice in the FYROM.

The methodological matrix of spatial planning in the Republic with tradition of about 30 years uses methods of analysis, and synthesis, induction and deduction, comparative analysis and some attempt for system approach as to the treatment of the space. Recognizing the space as a system, as a sum of elements, which are in interaction, caused the necessity for perceiving the behavior of the men towards the space features. The compilation of a space plan consists of the following procedures and methods:

- planning process which is convenient to the constant character of the spatial planning;
- dynamism by means of which through a number of successive projections in a many years series the proposed level of development will be achieved;

The research work of each separate element and the whole process of making spatial plan consists of inventory and evaluation of the landscape conditions conflicts, determination, development foreseeing, planning of the organization and landuse, as well as determination of the instruments for realization of the plan. As the landscape is a subject of planning, its management and protection are the most effective by means of the spatial and urban planning mechanism.

Regarding a complete estimation of the nature potential, research, evaluation and landscapes play a very significant role. By evaluating features and potentials of the landscapes features, the planning approach can be influenced to optimal coordination and organization, as well as achievement of convenient development and optimal conditions of the environment.

In the sphere of planning, the research and evaluation of landscapes as well as landscape plan itself mean creation which of concepts will cover the need for balance and nature processes development. The contemporary planning finds these issues as a matter of coordination of landscape features with the human activities. Therefore, landscape research itself, today is more connected with the spatial planning, namely with the activities being connected with the landscape as a primary milieu providing elementary conditions for life.

The meaning and the contribution of the analysis of the landscapes does not only refer to the knowledge achievements as to the natural structures and their ecological connection and mutuality, but also to landscapes planning analysis as complex systems. Landscape planning directs and coordinates different activities in the use of nature resources and according to Steiner (1991): „Landscape plan express the strategy and policy for management. It points out the conflicts and integrates the strategies for the land use”. In that way landscape and its features and values represent a communicative channel between the development and the protection, too.

Since the landscape research is connected to spatial planning the aims and tasks of the analysis of the landscapes are mutually connected arise from the aims of spatial plan, and are defined in the following way:

¹ Ceratian difficulties exist because the notion „landscape” is not still clarified (except in biogeography) and because of the use of the term „paysage” with the similar meaning

- analysis of the landscape and their potentials, and looking for the most convenient way for keeping the natural values stable factors of development;
- coordination of the development with the actual reproductive possibilities of the nature;
- establishing biological potential of the landscapes through an ecological balance;
- decreasing the effects as a result of landscape degradation, as well as natural and produced values the landscape possess or activities that may probably change the landscapes;
- stopping natural values disappearance;
- establishment and improvement of the relations between the man and the nature.

In the spatial planning practice, the landscape structures are defined interdisciplinary, as a result of separate criteria, not as their simple sum, but as a unique complex of connected and mutually dependent components. Integrated in the spatial planning process, the landscapes are seen:

- a) in a sector way, through the study of the nature, dynamics of the processes with evaluation potentials;
- b) in an integral way through the process of the strategy definition and the policy instruments of the future development and land use;
- c) through the feed back method the landscape is an element of a separated study that determined the instruments for environmental protection.

„The nature is a process knowing interaction, it is a subject to legalities, processing values and possibilities for the man, but without doubt, its use has borders and even prohibitions”, says Mc Harg. This statement means that a complete introduction of the complex ecological interaction and processes of a landscape is necessary, with analysis of its functions and respect of the ecological, social and aesthetic values. In the integral planning, ecological research points out the landscape usability. Here, significant premises are the limitation in the distribution of the natural resources, the variety, as well as the fact that the natural resources are not renewable. The following elements are determined with the application of this kind of research:

- biological (ecological) potential and the dominant character of the landscape;
- functional convenience of the landscape for certain assignment;
- certain natural advantages and disadvantages;
- realization of the possible future result of the various changes in the landscape;
- knowledge for study concerning the natural conditions for development.

The well known ecological analysis, especially those of Mc Harg, Hills, Lens (available in our country) were used for the research. The disability to use sophisticated methods made us adjust the same our specific cases. For the documentation elaborated for areas with special purpose (such as national parks and tourists regions), special thematic research patterns had been used and produced.

Landscape research for the needs of the spatial planning is always at the level of a certain natural geographic units. This process begins with determination of the landscape structure and texture, and based on determined condition of all natural components (geographical, geological, climate, floristic, hydrological etc.).

The features of the landscapes have been researched and trail has been made for estimation of the antropogenous influence and possible disturbance of the ecological processes. The level of changes of the natural landscape expresses at the same time the

significant features of the changed landscape. Analysis of the changed landscapes has been made with identification and estimation of the scope spread, structure and quality of the following group of elements: presence of the man, settlements construction, agricultural activated surfaces, managed forests, presence of the production structures, or the culture heritage.

The primary functions of the landscapes, which result from their dominant features, have been determined, including the following kinds: urban, industrial, agricultural, forest, recreate or multifunctional landscapes. But the identification of the landscapes being researched in this way is not sufficient. When the landscape is observed as a spatial-planned category, it is very important to determine its ecological stability, due to determination of the potentials of the landscape and definition of the policy for the future development. Elements of landscape evaluation are all its components (standpoint, composition and state of both plant and animal population, level of landscape changes). Evaluation of the landscapes and their estimation in the spatial planning procedure is carried out on the base of two aspects:

1. Determination of the ecological stability.
2. Estimation of the potentials of the environment for development and appropriate use of the natural resources.

Estimation of the ecological stability or ecological values of landscape points out the state and conditions of the landscape, namely the state of the balance. The simplest approach for assessment of the landscape stability is a view of the syndynamic processes of the vegetation, appearance of erosion or any other degradation processes. Such analysis was possible due to a well-made research of the floral community, specially the forest ones, the well made research of the erosion processes in Republic, as well as the relatively successful exploration of the soils.

Criteria used for the assessment of landscape ecological value are those features of the ecosystem being considered as determinants of the ecological functions and applicable to this approach. Concerning the planning aspects, it is most important to estimate the state of the naturalness and the necessity to save and protect the natural, specific or rare landscapes. It is also important to estimate regeneration of the disturbed landscapes possibilities. The issue for the way of defining the policy for development in the changed or so called semi-natural landscapes is very important, since the area of the Balkan Peninsula is inhabited for millenniums, thus pointing out that these are the landscapes where the ecological processes and the sustainable land use are traditionally connected. So, this was the reason to be base land use policy upon the strategy of sustainable development with respect and research of the traditional forms and methods of agriculture, especially practiced in the spatial plans for the national parks in the FYROM.

The procedure of the landscape resources evaluation has been carried out through statistical and analytical research, and separate studies of water, soils, mines, forests etc. The results were processed cartographic ally and presented through a spatial distribution. The synthesis of these analyses enables mutual comparison and determination of particulars for successful development. This is just one step in the whole process of land use management and spatial organization of a certain area. The

procedure of landscape structures evaluation has been realized with analysis of the functionally determined landscapes, which are in fact homogenous nature units.

Researches of the nature and its features are among the primary tasks of the spatial planning. These investigations are actually the basis of the advantages and potentials determination. The same provides establishing the frames for a rational use of resources, choice of the common development and the concept of the environment protection.

The final aim of the evaluation made this way is identification of the key problems in the landscape not only of those, which refer to the level of the social development, but also to those, which results of the permanent spatial organization. By means of this procedure the following has been recognized:

- the spatial and landscape advantages, needs and tendencies;
- determination of the possibilities and aims of the development on the base of the natural conditions;
- determinations of the significant problems which should be solved or improved depending upon the spatial organization, the available potential, the possibilities and the future needs.

The complete evaluation of the conditions and the potentials of the landscapes determine the purpose and land use management. The landscape planning represented one of the primary categories of the spatial planning and the landscape plan consisted the assumptions for the future spatial organization.

Experience

Territory of the FYROM represents a mosaic of different landscape structures used and adapted to the needs of the man throughout a long period of time. An area of the Republic well as the Balkan Peninsula is very rich and heterogeneous by its biogeographical and ecological characteristics. This territory is characterised by significance of mutual biogeographical and ecological connections, which are more intensive at the lower level. More types of ecological conditions exist, distributed in different landscape zones. A lot of wider spread families exist in each landscape with strongly expressed richness of the species and forms. The primary purpose of the landscapes results from the condition, the potentials and the way of land use and management.

Landscape analysis is a permanent activity in spatial planning process. Landscapes are analyzed through a common review of elements of the nature and environment, so called exosphere (1978). This, at the level of the whole Republic, then regions, communities, as well as for the communities with special purpose, such as the National parks and touristic regions. The whole territory of the Republic is covered with the spatial plans, the communities, some regions and the three national parks have also been elaborated through the process of spatial planning.

The knowledge received by the previous research in different fields – forestry, science of soils, waters, biogeography, were of great use for the determination of main

landscapes features when the spatial plans was being prepared. Namely, this knowledge determined the primary directions of the land use policy and the protection of natural landscapes. The work on this issue brought to creation of the primary ecological network used in the Spatial Plan of the Republic. These steps in the study of the landscapes, their features, dynamics and meaning, are a basis for determination of land management plan, and appropriate regulations.

At the lower level preparation of the plans – regions, communities, regarding specially the regions for special purpose, it was much more difficult to work on this issue. Mostly because of the fact that the landscapes as spatial units can hardly be differentiated, since this region (Balkan) – as it was mentioned – is a complex mosaic of heterogeneous territories accordingly to the origin, ecological and biogeographical features, as well as accordingly to the antropogenous influence. Then, in most, cases a reserch on vegetation has been very helpful, happily in measure of 1:20000 up to 1: 5000, the water studies presented in high level of details, as well as the research of erosion. Sometimes, human activities defined landscapes character and pointed to its potentials. This knowledge was much functional in the work on the spatial plans for the national parks, for example.

No matter how much this approach has an affirmative tone, it has to be stressed that the presented one is a result of an experience of a team working on the spatial planning problem. Unfortunately, this large and significant experience of the Macedonian spatial planners still is not included in to educational program, or legal regulations. Therefore, within experts community some misunderstandings may exist, resulting from the terminological and conceptual impre-ciseness. In practice itself, some more modern models for assessment haven not been created, yet. There has not still been made a more contemporary regulation in accordance with the environmental capacity research that should represent a legal obligation. The same as the achieved knowledge regarding the values of the landscapes and the ecological processes are not covered and followed by an appropriate regulation. Also, it could be said that there is a certain imbalance and discoordination as to the level of knowledge in professional world from which the relevant knowledge about the landscape is being used (e.g. civil engineers, biologists, ecologists, and geographers). It is more obvious that the traditional professions especially the agriculture and the civil engineering are more and more becoming professions and not the crafts which rested upon the knowledge for the features, values and characters of the landscape and its elements. This appearance has also its evident aspects in urbanization and building. Finally, something has to be said about the consequences of the transition process. Beside the significant planning experience and more completely prepared regulation, the period of transition caused new problems. The poverty itself leads to disobedience of the regulative, increase in the pressure regarding the landscape and environmental quality. The privatization processes created a new way for decision making and it realization that are of common valid character and interest.

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