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# GEOECOLOGICAL ZONIFICATION, A CRITERION FOR THE INTERPRETATION AND SPATIAL ANALYSIS OF THE URBAN LANDSCAPE

**Ayesa Martínez Serrano**
Centro de Investigación en Geografía Ambiental. Universidad Nacional Autónoma de México. Campus Morelia
amartinez@pmip.unam.mx

In recent decades, the geographical boarding of the landscape is an object of study from different approaches, which implies that exists in a parallel way a variety of meanings; Complex natural or geocomplex (Solntsev, 1948), geosystems (Sochava, 1972, 1978; Arcia, 1994), landschaft (De Bolós, 1992), Geographical landscape (Mateo et al., 1994; García y Muñoz, 2002), landscape (Turner et al., 2001; Burel et al., 2003), Environmental units biophysics (López y Villers, 1995; Castillo, 2006), also always reference is made to its close relation to external manifestations, corresponding to the human environment. According to this perspective, the term landscape is the morphology or formal expression of space and territories and reflects the view that people have about their environment.

This way the landscape it is conceived as a complex integral system and in the nature-society interface, that it takes into consideration the existence of a structure and a proper functioning of natural bodies, which it is determined by the system of economic and cultural production according to the dominant social groups, being natural areas, which transforms society to produce and inhabit.

At present, more than a individual concept, the landscape is considered a system of concepts, the concept of landscape has been transformed to the extent that the Society interacts with Nature. For each level of interaction the content of the landscape concept is defined. Thus, diverse interpretations or meanings of the concept of landscape, according to the level of interrelations between Nature and Society is identified as; Natural Landscape, Landscape Anthropic-Natural, Social Landscape, the Cultural Landscape and Visual Landscape or Perceived (Bollo y Hernández, 2008).

Between the infinity of forms and types of landscape that can be differentiated, urban landscape (anthropic and anthropogenic) it is one that has the highest degree of transformation of natural resources, and is in constant parallel change to the development of the city. Following this line must take into consideration the shape of the city in its natural setting and internal function, and dynamics therefore should be interpreted urban landscape from

two directions; an external which is the city in relation to the geographical region where it is located, and other internal which is the city and interurban system (Lucio y Gutiérrez, 2011). That is how, the concept of the urban landscape is held in the holistic and comprehensive nature of the science of landscape, from its definition in the specific category of geosystem, geoecological systems.

The cities are continuously growing at the expense of taking rural areas, so that alter environmental conditions and they build new urban scenarios. This way, the urban space is considered different in two main directions; both at flows than in the coincide as its landscape, specifically in the areas or fringe that are integrated into their environment (Rivera, 2013). This generates a new urban population, which implies a process of spatial occupation, which is in some way related to space or physical-geographical landscape that is the basis of the production for real estate, government actors and cultural variable involved in the social construction of the space.

The urbanization process is one of anthropogenic processes with more intensity modifies the physical-geographical landscapes, it does differently and with unequal intensity; the types of uses and the classes of coverage resulting from this process in time, they are varied and complex and have a direct relation with the physical-geographical landscape structure in the modified spaces. Land cover and land use of a territory are originated from the functions that the man grants to the geographical space, result of their habitat needs, resource exploitation, etc.

For its part, the scientific conception General of Landscape Geo-ecology is presented as a methodology of high efficiency and flexibility, enabling investigate and deepen the study of the landscapes of complex and comprehensive way, useful for management measures and environmental planning. This science; ... "It is conceived as a system of methods, techniques, investigative procedures, whose purposes consist of obtain a knowledge of the natural environment, which can establish a diagnosis of an operating state. From this, and on the basis of assessing the potential of resources, it is possible to formulate the optimization strategy most appropriate uses and the handling"… (Mateo, 1991: 5). Thus, the geo-ecological approach to studying of the territory might become a basic and supplementary criteria for the interpretation and spatial analysis of the urban landscape and urbanization process, in this way basic and essential information is generated for the preparation of development programs economic and social.

This work is part of a PhD research for the geo-ecological evaluation of the environmental situation in urbanized landscapes. Therefore, the objective to which fulfillment it is given in this application is the interpretation, characterization and spatial analysis of urban areas and urbanizing, by adapting geo-ecological approach. This seeks to generate a methodological tool for the description and subdivision of the landscape within the city and peripheries that contributes to obtaining spatial information at local level and mainly to interpret the landscape urbanized from its physical-geographic basis in combination with anthropic forms of appropriation of it, to check the relations of subordination between these aspects in the proliferation of environmental issues.

This proposal is inserted into the bases of the conception of the geography of the landscape and specifically the geo-ecological landscape assessment comprising the analysis of physical-geographical morphology of space and social-functional product of anthropic

activity forms, and do not have into account elements of the cultural landscape that involves the perception and heritage value of the space to be part of the second phase of analysis in later works.

Theoretical knowledge and practical around landscape studies have diverse approaches and criteria. Given this context, for the implementation of public policy, management and management of urban planning, monitoring of the environmental situation and operators or decision-makers of these programs, it is essential to obtain interdisciplinary spatial information between natural physical aspects and forms social appropriation, for further analysis in the visual field cultural y landscape in its historical evolution. This methodology is part of the objective analysis, based on the physical, natural landscape elements, functional and subjective factors are incorporated, for each space, through the assessment of land cover and land use, which they are part of the result of the diversity of socio-economic, administrative landscape transformation in relations, and policies. Therefore we found our proposal feasible from geo-ecological approach to the landscape.

The use of geo-ecological units for spatial analysis of the urban landscape, which at first instance are widely used for the analysis of natural systems integrator, is sustained in several advantages; reflects the spatial differentiation of the interrelation between the phenomena occurring in a territory an objective way, these units by definition are highly differentiable each other, correspond to homogeneous interior areas through which you can calculate, analyze, compare and evaluate the potential of resources of a territory, spatially associated and subordinated to the regularities of their formation and differentiation.

The zoning geoecological is a process of classification of space based on natural and social criteria, is based on the identification, definition and characterization of areas or zones corresponding to land use and land cover in a given geographical context, it has to do with a multitude of variables of geographical, physical and social environment variables and determinants are those that are generated on the basis of factors specific to the local landscape of each area. These areas, for this research, analyzed by the definition and interpretation of the clustering of geoecological units in the observed scenarios that make up the city, the environment at the interface of peri-urban and rural settlements next.

To get to geoecological zoning units, methodological scheme is developed, with emphasis on the multiscalar approximation to understanding the landscape of the city and its relationship with the environment. the (U-FG) physical-geographical units representing the physical-natural base in a territorial context is established, then analyzed by the type of land cover and land use, representing the space geographical and relational the social-economic context and finally the group or geo-ecological zoning of the resulting units (UG), through the characterization and analysis of spatial behavior in the local context is performed.

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The system of taxonomic units of physical-geographic units used in our work is based on the classification criteria of landscape employed by the Russian academic system (Vidina, 1970, adapted by Matthew, 2008), are established for the area study, two taxonomic units: the Locality and physical-geographical region (physical-geographical place), is taken into account the scale of representation than 1: 50 000 (local scale).

The interpretation of the geoecological units requires the development and refinement of the systemic approach, the use of modeling and management of geoinformativos systems (GIS) as tools are particularly useful. The differential analysis between anthropogenic structures allows understanding of these units.

The methodology used for the geo-ecological zoning units, part of the multivariable analysis of the distribution and characterization of these units. The spatial behavior of UGS identified in terms of economic, social variables, infrastructure and services, in order to interpret what the pattern described in the area and the formation of groups or areas which are homogeneous in nature between them, they can be defined spatially. Como resultado del análisis fueron delimitados, clasificados y se asignan 4 localidades y 30 regiones del área de estudio física y geográfica para paisajes, con un total de 51 polígonos. As a result are grouped into 6 classes and 34 land uses established in the typology that were digitized. Subsequently, 247 geoecological units were determined on the territory, 783 grouping polygons and the characteristics of each unit described with information obtained through field work and photographic references. As a result of overlapping layers Residential and Infrastructure - Equipment, are obtained from visual-spatial analysis, scenarios geoecological zoning of units; peri-urban and rural.