

UNIVERSITATEA SPIRU HARET

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ECOLOGIE URBANĂ,  
DEZVOLTARE SPAȚIALĂ  
DURABILĂ  
ȘI LEGISLAȚIE



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The book "*Urban ecology, sustainable spatial development and legislation: An ecological approach of the relationships between man, the built space and the environment*", written by Associate Professor Alexandru-Ionut Petrisor, Ph.D., does not tackle a new topic. As it is written in the book, the concept of "urban ecology" was introduced in 1968. However, the issues of urban ecology, and also of ecology, are as actual now, in 2008, as it was in 1968. The science of ecology had evolved and continues to evolve, and Dr. Petrisor's book, aligned to the latest conceptual models, is a novel work and fills a gap in an inter- and trans-disciplinary field insufficiently known in Romania, where the only existing books are written from a geographical perspective or represent translations of books published abroad.

Dr. Petrisor's authority in the field is illustrated, beyond his education, by his 18 publications cited in the reference list - theses, peer-reviewed articles published in Romania and abroad, papers published in the proceedings of international conferences, other books and chapters of regulations specific to the field of study.

The paper has nine chapters. The first one is a recapitulation of general concepts of ecology referring to the structure, functions and hierarchy of ecological systems, as well as a spatial approach to biodiversity. The second chapter presents urban ecology: cities approached as ecological systems, followed in the third chapter by issues related to environmental deterioration and their causes. The solution to this problem is sustainable development, discussed in detail during the next chapter, along with sustainable spatial development and models of sustainable development, presented through a critical analysis from the standpoint of ecology, in a chronological setting. The fifth chapter presents International and Romanian legislation from two perspectives: environmental legislation with a spatial component and urban/spatial planning with environmental implications. The next chapter, titled "Culture, Urban and Rural", is dedicated to the analysis of differences between urban and rural and the relationship between space and culture, as well as their variations across continents (the author pursued doctoral and postdoctoral studies in the United States). The seventh chapter synthesizes the main theoretical elements laying the fundament of green architecture. The next chapter draws the conclusions, proposing a new approach to the elaboration and approval of chapters related to the environment and its protection within the urban/spatial planning documents, according to current developments in ecology. Finally, in a chapter titled "Conceptual delimitations", the author presents a dictionary of the main concepts. Each term is often defined from the standpoints of more disciplines, and personal definitions are occasionally proposed. The book is sustained by over 200 references (10 pages) including published papers, studies and books, conference papers and regulations specific to the field, out of which about one quarter were published in the last five years and one tenth in 2008.

The following elements sustain the novelty of the book:

- The work fills in a gap, approaching an insufficiently known issue;
- The book fills in a gap in the academic scene, as the courses using it as a textbook are a novelty, as *Spiru Haret* University performs a pioneering work;
- The experience of the author is demonstrated by the references to his own research results;
- The inter- and trans-disciplinary character: natural sciences (ecology, biology, physics, chemistry, mathematics) socioeconomic disciplines (anthropology, sociology, environmental economy, management, demography), urbanism, architecture, spatial planning and law are among the disciplines reflected in terms of concepts, methods and approaches by the book;
- The didactic experience of the author, as well as in writing scientific papers, is demonstrated by the clear and logical writing (accompanied by almost 60 figures and conceptual diagrams), and by the fact that the book is self-standing: its understanding does not depend on reading other publications.

## **Abstract of the book, by chapters**

### **Chapter 1. General concepts of ecology**

Ecology provides the theoretical background for perceiving and interpreting the "environment", including both physical and natural/biological environments, as a hierarchy of organized and dynamic units with identifiable and quantifiable structural and functional properties. These units, called *ecological systems*, consist of two closely related components, forming a whole: a biotic (living) and an abiotic (lifeless) component. The functions of ecological systems are energy and matter flow and self-regulation, the latter providing dynamically for the spatial and temporal continuity of the structure. Based on energy consumption, ecological systems evolve against entropy: increase their inner diversity, acquiring more stability, interpreted as some regularity or periodicity of the variation of factors, *i.e.* a status of regime. The study of ecological systems is based upon elaborating their homomorphous models.

### **Chapter 2. Concepts of urban ecology**

Urban ecology, branch that appeared in 1968, considers that human settlements, particularly the urban ones, are ecological systems at the rank of ecosystems or complexes of ecosystems. The essential difference from natural systems is the presence of the human species as dominant species, subjected first to socioeconomic laws, and not to the biological ones, and of pollutants resulted from human activities. Functionally, the urban ecosystem includes socioeconomic elements and constitutes an energy parasite of natural systems.

### **Chapter 3. Environmental deterioration**

Environmental deterioration is an "umbrella concept", including all anthropic activities with negative impacts on natural ecological system. The engine of this process is the exponential growth of human population, paralleled by an increase of the human needs, which form, in Abraham Maslow's opinion, a hierarchy. Phenomena reunited under the name of "environmental deterioration" are pollution - dysfunction (breaking) of biogeochemical cycles, loss of bio- and eco-diversity, fragmentation of habitats, introduction of new species, genetic manipulations, execution of ample works on streaming waters and other phenomena as well.

### **Chapter 4. Sustainable development**

If the solution proposed in 1972 by the Club of Rome for problems related to environmental deterioration, *i.e.* the "zero growth", is an utopia, it becomes easy to understand a continued search for a new solution until the concept of "sustainable development" was identified. This concept had been defined theoretically in 1987, acquired a practical definition at the 1992 United Nations Conference on Environment and Development, and is still re-defined nowadays. A new dimension, *i.e.* the territorial one, had been added to its classical pillars - economic, social and ecological. Paralleling the theoretical refining of the concept, pragmatic approaches involved the elaboration of models of development: urbanistic, economic, mathematical etc. Sustainable development also implies preserving natural systems through the institution of protected areas, in the spirit of long-term thinking. Even though since 1987 sustainable development seemed to be the solution of current environmental crisis, criticisms had been developed particularly with respect to the real implementation of regulations supporting it.

### **Chapter 5. Sectoral ecological policies, environmental law and projects**

Sustainable development has an obvious political character, involving the implementation of environmental protection policies in sectoral development strategies and laws. This is why environmental policies supporting it must translate into legislative changes. International, European and national documents, both strategic and operational, related to sustainable spatial development are analyzed, especially those regarding environmental protection, urban and regional planning, and the institutional frame of implementing policies from these areas.

## **Chapter 6. Culture, urban and rural**

Since urban ecology considers that human settlements are integrated in the hierarchy of organized system, it implies also recognizing that ethno-cultural diversity is a component of biodiversity. In this regard, it is important to look at differences between urban and rural, especially in a global context, and analyze the impact of these differences on the relationship between man-dominated systems and the natural ones. Their role cannot be neglected, especially when considering sustainable development a particular type of ecological succession. The role of culture in this framework had been underlined at the 2004 Ouagadougou Francophony Summit: cultural diversity represents an economic growth factor.

## **Chapter 7. Ecological architecture**

A recent concept, *ecological architecture* does not benefit yet upon a clear definition, as there are two approaches in place: "green" (environmentalist) and sustainable architecture. The first one represents the practice of increasing the efficiency of obtaining and using energy, water and materials by constructions and their adjacent land, and reducing negative impacts of constructions on human and environmental health by improving design, usage, maintenance and demolition methods, whilst the latter concepts refers to the compliance of "green" architecture with the principles of socioeconomic and ecological sustainability. In practice, the products of ecological architecture consist of *passive, zero emissions, green/ecological/sustainable*, etc. buildings.

## **Chapter 8. Conclusions**

Even though the systemic approach was accepted in ecology since the period around 1990, determining a transition of the discipline to the stage of systemic ecology, other disciplines did not adopt the new conceptual models, especially in Romania. This inertia makes regional and urban plans, instruments that should support sustainable spatial development, to be elaborated from a sectoral and obsolete standpoint, with disastrous environmental consequences. A change of the methodologies governing their elaboration, approval and implementation process is obviously a necessity.

## **Chapter 9. Conceptual delimitations**

Through its multi- and trans-disciplinary character, ecology finds itself often "borrowing" the language of other disciplines, while other disciplines use its own language. Consequently, there is a need for clear conceptual delimitations of the terminology used in this book.

## **Cuprins**

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1.2.2. Functions

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    - 6.3.2. Conception of Waltraud Kokot (2006)
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    - 6.3.6. American conception
    - 6.3.7. Urbanistic differences between America and Europe (particularly Romania)
    - 6.3.8. The problem of food
  - 6.4. Evolutionary ambient esthetics or “How do Stone Age people (still) live in glass and steel blocks”
- Chapter 7. Ecological architecture
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- References