

UNIVERSITY OF BUCHAREST
FACULTY OF GEOGRAPHY

HABILITATION THESIS

**ENVIRONMENTAL PLANNING AS RESEARCH THEME
IN ENVIRONMENTAL SCIENCES. ROMANIAN CASE
STUDIES**

Candidate: Ioan-Cristian IOJĂ

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A.1. Abstract of the Habilitation Thesis

The environmental impact assessment of green and built infrastructures is essential in the sustainable planning process of land resources, where the human society welfare on a global, regional and local scale is crucial. Keeping a balance between the two types of infrastructure provides an adequate level of environmental goods and services by limiting the size of environmental conflicts, improving institutional flows and maintaining a high standard of the sanogenesis state for environment and people.

The Habilitation Thesis is part of the environmental science domain, territorial and environmental planning sub-domain. In this sub-domain, my scientific work has focused on 3 major directions, namely: (1) analysis of green infrastructure – structure and functionality; (2) integrated environmental impact assessment of different functional areas (e.g. residential); and (3) solution development to promote sustainable territorial planning.

The analysis of green infrastructure – structure and functionality is a topic of great scientific actuality. The importance of enhancing the connectivity and multifunctionality of the urban green infrastructure is currently included in many policies and strategies of smart territory development. Items of great originality obtained in this direction include: (a) the analysis of urban parks users' characteristics in relation to their specific requirements; (b) identifying areas with different degrees of accessibility to green spaces in representative urban ecosystems; (c) assessing the size and structure of the visitors' flow to the Bucharest urban parks; (d) evaluating the behavior of different categories of urban parks visitors; (e) highlighting attractiveness indicators for Bucharest urban parks and (f) assessment of the potential of school gardens to improve green areas connectivity and multifunctionality. Identifying the differences between the characteristics of visitors with companion animals and other categories of visitors to the Bucharest urban parks represent an issue of great international relevance, as it was published as a research paper in the *Landscape and Urban Planning Journal*.

The second direction, *the integrated environmental impact assessment of different functional areas*, is focused on an advanced research of the functional areas characteristics with *potential* negative environmental impacts. Particular attention was paid to residential areas considered as diffuse sources with an increasing aggressiveness on the global and local environment. Relevant to international research audience are the results related to: (a) the evaluation of land suitability for residential areas (e.g. heat island assessment); (b) the assessment of indoor and outdoor degradation sources (the assessment of population's consumption patterns, monitoring of Bucharest heat island, and water pollution caused by residential areas functionality); (c) the analysis of indoor environmental quality in relation to the characteristics of the urban residential areas in Romania and to the population's consumption patterns, and (d) the analysis of the relationship of residential areas with other potentially conflicting land uses (e.g. cemeteries, gas stations) .

The results were published in the following journals: *Journal of Environmental Management and Planning*, *Carpathian Journal of Earth and Environmental Sciences*,

Environmental Engineering and Management Journal, *Romanian Reports in Physics*, as well as in the book entitled *Integrated environmental assessments in residential areas*, published by the Romanian Academy Publishing House. In this book of high scientific relevance population's consumption patterns in residential areas in relation to indoor air quality, environmental externalities and internalities associated to residential area as well as the distribution of heat island phenomenon in Bucharest are analyzed.

The third direction, ***solution development to promote sustainable territorial planning*** is related to the applied research. On this research direction, the most important achievements are related to the development of methodologies for: (a) the integrated assessment of land-use conflicts in human settlements; (b) the assessment of the efficiency of land-use conflict resolution process and (c) the assessment of the effectiveness of the Natura 2000 ecological network in Romania. The results highlight Romanian territorial specificities and trends.

The results were published in the following journals: *Ecological Indicators*, *Applied Geography* and *Biological Conservation*.

My participation in the development of: the environmental action plans (Bucharest, Bucharest-Ilfov), the management plans for natural protected areas (Iron Gates Natural Park, Ceahlău National Park, Putna - Vrancea Natural Park, The Lower Prut Flood Plain Natural Park, etc.) and integrating the objectives of environmental protection and conservation in sectoral plans (especially territorial and urban plans) represent practical results of high relevance at the national level.

Future development in the environmental science domain, territorial and environmental planning sub-domain will focus on integrated environmental impact assessment of the structure and functionality of green and built infrastructures. In this way, the involvement in the international research networking, the results submission for publication in journals of international visibility and the transfer of knowledge and research tools to the socio-economic environment are the main steps of their implementation.