

HABILITATION THESIS

USE OF GEOGRAPHICAL INFORMATION SYSTEMS AND SATELLITE IMAGES IN THE MANAGEMENT OF NATURAL RESOURCES

FIELD: MINES, OIL AND GAS

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SUMMARY

The habilitation thesis considers both the course of my academic career and the scientific concerns and contributions, through reference works in the field of Mines, Oil and Gas, respectively of Geodetic Engineering, Geomatics and Precision Agriculture.

Doctoral thesis sustained in 2009 at the Faculty of Mines of the University of Petroșani, under the coordination of Prof. univ. dr. eng. Dima Nicolae, through the chosen theme "Realization of a Geographic Information System in areas affected by mining using modern techniques and technologies" had as main purpose the implementation of a computerized decision-making system on areas affected by mining in general and the municipality Petroșani in particular, taking into account the economic and social situation of the area but also the difficult situation of the mining areas nationally and internationally.

All the results presented in this paper are included as time frame after the presentation of the doctoral thesis and until now.

The habilitation thesis accomplished after 10 years from the presentation of the doctoral thesis, presents in a structured and documented way the main professional achievements and scientific contributions of this period, being organized in four parts.

Part I - SYNTHESIS OF DIDACTIC AND SCIENTIFIC ACHIEVEMENTS *presents personal achievements in the postdoctoral period, namely from 2010 - present. This synthesis points out the research areas covered, describes the didactic and research activity, as well as the visibility and impact of the research at national and international level. It also presents the managerial experience gained so far within the Department of Sustainable Development and Environmental Engineering and within the Faculty of Agriculture of USAMVB Timișoara.*

As a consequence of the participation in various scientific events in the country and abroad, affiliation to national and international professional and scientific societies (ARACIS - Geodetic Engineering Commission, Union of Romanian Geodesists - Vice President at Timiș County, Romanian Society of Photogrammetry and Remote Sensing, National Evaluators Association in Romania, etc.), study visits abroad, collaborations in the field of education and research with groups from other universities in the country, as well as collaborations with the socio-economic environment, these have contributed essentially to a thorough knowledge of the higher education system and research in the country.

Between 2010 and the present I have developed 6 scientific books (1 sole author, 1 first author, 4 co-authors, six textbooks / course materials (1 first author) and three practical guides (1 single author, 1 first author, 1 co-author), which were published with ISBN in some CNCSIS publishing houses.

The results of the research were materialized by publishing a number of 32 ISI indexed scientific articles, of which 10 ISI articles with impact factor, 82 scientific articles published in indexed journals in international databases (BDI).

I also had the position of director/manager in three projects, as well as membership in three other consulting projects.

Professional prestige also emerges from the Hirsch indicators: 5 Claryvate Analytics Web of Science, 5 Scopus, 15 Google Scholar.

Part II - DESCRIPTION OF SCIENTIFIC CONTRIBUTIONS

presents during 3 chapters the synthesis of the most important scientific contributions in the research fields approached after obtaining the title of doctor engineer. The main research directions have focused on the use of modern topo-geodetic techniques and technologies such as:

- *SCIENCE OF GEOGRAPHICAL INFORMATIC SYSTEMS (GIS)*
- *USE OF REMOTE SENSING IMAGES IN NATURAL RESOURCES MANAGEMENT*
- *MODERN METHODS OF MONITORING THE LAND SURFACE*

Part III - ACADEMIC CAREER DEVELOPMENT AND SCIENTIFIC RESEARCH PLAN *presents the future directions of the academic career, both in terms of teaching and research.*

Regarding the didactic activity, I am planning the elaboration and / or re-edition of books and didactic materials (courses, guides of practical works) that are in accordance with the requirements of ARACIS and with the novelties in the field MINES, OIL and GAS, and regarding the teaching methods, modern means are necessary of transmitting information (multimedia, collaborative learning, e-learning, web-based learning, etc.) are required.

Research directions will be developed so that together with future collaborators / partners we can access research grants launched in national or international competitions, and the dissemination of research results will be achieved by publishing scientific articles in prestigious journals ISI or BDI.

The training and preparation of future specialists is a necessity that higher education must perceive as an essential priority, both by allocating the necessary time to transmit such knowledge and by the ability to select and transmit values and knowledge that can contribute in a substantial manner to the training of high-performance specialists.

Part IV –BIBLIOGRAPHY *is structured on 2 directions, namely the own bibliographical references and general bibliographical references, which were the basis for the realization of this habilitation thesis.*

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