



HABILITATION THESIS

Field: Mines, Oil and Gas

GEOLOGY, BETWEEN MINING ACTIVITIES AND SUSTAINABLE USE OF GEORESOURCES

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SUMMARY

This habilitation thesis is a synthesis of the author's scientific activities performed after the public presentation in 29.02.2008 of the PhD thesis entitled *Study of bauxite deposits from south-west Sebes Mountains towards including this area into "Grădiștea Muncelului Cioclovina" Natural Park*, which was elaborated under the coordination of Professor PhD.Eng. Nicolae UNGUREANU. The habilitation thesis is mainly focused on accomplishments that certify the author's capability of leading research activities in the field of Mines, Oil and Gas, especially in the field of geosciences and their applications in mining etc.

Structured in three distinct parts, the thesis begins with a Technical Presentation of scientific and professional achievements (in Part I), followed in Part II by the Career Development, only because, in the last part, the own bibliographic references and those of general character are to be classified (Part III).

In the **first chapter** of the habilitation thesis there was presented the framework of the current paper and the summary of the most important results obtained in the post-doctoral research activity. Thus, it results that over the years, both at the level of teaching and of the areas of interest and action in research activities, the following disciplines / directions have been individualized, grouped by families: Geology and Natural Risks, Protected Natural Areas and Biodiversity Conservation and Geo and Biodiversity Conservation, Ecology and Environmental Protection in Tourism, Ecotourism and Rural Tourism and Cultural and Touristic Heritage.

I coordinated graduation theses, dissertations and I was a member of the guidance commissions as well as chairman of the committee for the public presentation of more PhD theses at the University of Petroșani, in Engineering Sciences, field of Mines, Oil and Gas.

I am the founder of the museum laboratory of the Petrified Botanical Garden, of the virtual laboratories of Geology (GeoLabUPet) and president of the Scientific Council of the Grădiștea Muncelului Cioclovina Natural Park in the second term.

From a managerial point of view, the practical experience acquired by exercising the functions of president of the CDPM University of Petroșani Union, head of the Department of Environmental Engineering and Geology and Dean of the Faculty of Mining are doubled by the completion of the study cycle degree - Management from the Faculty of Sciences, University of Petroșani.

Obviously, the central part of the thesis, with the two chapters: Geology and mining (Chapter 2), respectively Geology and sustainable use of resources (Chapter 3), is the essence of the paper.

In **Chapter 2**, practically, the transition is made from the use of raw materials and minerals from prehistory to their industrial exploitation, with all the implications and societal transformations, highlighting the role and place of geology as a science. The second chapter concludes with some landmarks regarding the modern applications of geology and the presentation of unconventional technologies for the exploitation of useful mineral substances.

Chapter 3 emphasizes the main scientific contributions materialized through the works published by the author in the postdoctoral period, which were to be grouped in a harmonious way, due to the coherence and consistency shown over the years, emphasizing the role of geosciences in sustainable use of resources by highlighting „wonder materials” revealed by geology, through the implications of geology in the security of some engineering, civil or industrial objectives, through the implications of geology in geoarchaeology and / or judicial practice and through the implications of geology in the conservation of geological heritage.

Although closely studied, the implications of geology in the development of geological phenomena for tourism, recreational, curative or scientific purposes have not been yet the subject of any of the authors’ publications, that is a reason enough for them to be transposed in the directions of some future research.

Finally, in **Chapter 4** of the habilitation thesis I presented the directions and future development objectives that I proposed in the didactic and scientific activity. Thus, in professional perspective, I aim to advise PhD theses in the field of Mines, Oil and Gas, with applications mainly in the family of geosciences for which this paper is a pleading argument. I would also like to be involved and to participate in consolidating this PhD domain at the University of Petroșani.

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