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HABILITATION THESIS

INFLUENCE OF WASTE AND WATER MANAGEMENT, AS WELL AS MANAGERIAL DECISIONS ON THE ENVIRONMENT AND AGRICULTURE

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A. ABSTRACT

The habilitation thesis is structured in three sections, in accordance with the regulations in force, and briefly presents the most important results in the scientific, professional and academic field, obtained after conferring the Ph.D. title.

The synthesis of the habilitation thesis is found in the form of a summary in Romanian and English. Then follows the presentation of scientific and professional achievements, academic background and career development plans, this part basically including 3 sections.

The first section (B1) presents the personal scientific achievements, original and documented, analyzed in the context of the global scientific achievements as revealed by the main flow of publications. The original scientific achievements presented in my habilitation thesis, in the form of interdisciplinary research directions, are based on scientific papers published in ISI indexed journals (WOS, Clarivate) (24), as well as in journals included in international databases (IDB), as well as in volumes of the various scientific events I attended (84), indexed by ISI or not, as well as results obtained from research conducted through research projects (14, of which for 6 I was project manager). The publications and research projects I've considered the most important, the basis of the results presented, are listed at the beginning of this section.

The first direction of interdisciplinary research is represented by the ***Influence of waste management on the environment and agriculture***, which analyzes:

- Food waste management in Iași area;
- Food packaging waste management in Iași area;
- Toxic packaging waste management in Iași and Neamț areas;
- Management of aluminum packaging waste in rural and urban areas of Iași;
- Analysis of the packaging waste management system in Romania.

All the results obtained are grouped around the complex relationships between waste and its management, and effects on the environment and agriculture. It is very difficult to analyze separately any of these important sectors of modern life. Energy and nutrient recovery will continue to be essential components of food waste management.

Personal research has shown that there is an average difference of 89% between the amount of food waste produced in urban and rural areas of Iași county. In addition, we found a huge difference of about 75% between food packaging waste generated in the two areas. In rural areas, disposal costs could be almost 99% lower. The impact on the environment seems to be much greater in rural areas.

My researches found the existence of a difference of around 71.31% between the quantities of aluminum packaging waste generated in the same two studied areas.

We further found that there are no differences in terms of total quantities of toxic packaging waste generated in two municipal areas, Iași and Piatra Neamț.

Finally, based on the data collected and published by Eurostat, I conducted a study that aimed to analyze the packaging waste management system, packaging waste recycling, economic and financial analysis of the entire waste management system packaging in Romanian case.

The second direction of interdisciplinary research is represented by the ***Influence of water management on the environment and agriculture.***

Structural projects, particularly those related to the reuse of treated wastewater, are very rarely subject to economic analysis. But a new era of integrated management or the so-called "one water" management is rapidly developing, which, in fact, uses with increased efficiency all the amount of water can obtain or has at its disposal, to ensure meanwhile sustainable supplies for the benefit of cities, agriculture and the environment.

There are multiple tripartite and, at the same time, bidirectional relationships between raw or drinking water management, the environment and agriculture. Treating these complex relationships as a whole will allow us to achieve a balance of human life.

The third direction of interdisciplinary research is represented by the ***Influence of managerial decisions on the environment and agriculture.***

The concept of corporate social responsibility requires extensive win-win collaboration between civil society, the business community, investors and governments.

Organic farming systems have many benefits for ecosystems.

Satellite accounts, an integral part of the system of national, functional accounts, focus on the description and economic analysis of a function, such as the environment, health, agriculture, research and development, transport, etc.

Building resilience in human-environment interaction systems is an effective way to cope with any changes, including climate changes. A new term

is strongly found in the literature and in political discourse: intelligent climate agriculture. In the current context of explosive digitalisation, smart agriculture can fundamentally transform the agricultural sector in terms of economic, social and environmental sustainability.

The second section (B2) presents at the beginning, in a concise way, the main landmarks of my professional and scientific evolution, with reference to the academic achievements. The academic and scientific career development plan is further based on these landmarks. These two plans specifically include both the proposed objectives and the modes of action for their full implementation.

Section three (B3) presents the references that support the content of the first two sections, including my own publications.