

# Advances in Sustainability Research from the University of Oradea

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Interest in the topic of sustainability has been constantly increasing across all domains, among scholars, policy makers, and practitioners all over the world. Moreover, the quest for greater sustainability has extended to cover various non-economic arenas, including educational institutions and universities. The concept of the “triple bottom line” highlights the three dimensions, i.e., economic, social, and environmental, that must be considered in all human activities. Sustainable development goes hand in hand with digitalization, innovation, and performance to create a suitable environment and conditions for a more sustainability-driven, prosperous, fair, and peaceful economy and society for the future. When approaching coherent strategies for sustainable development, relevant research directions and policies focusing on the implementation of sustainability have become a necessity. The main topics addressed in this Special Issue and the contributions within each field are showcased in the following papers.

Regarding the field of education, a paper from Tătar et al. (Contribution 1) examines the extent to which international students’ gender, the development level of their country of origin, and gender equality affect their choice of field of study at the University of Oradea, Romania. Buhas R et al. (Contribution 2) demonstrated the importance of sports events in students’ personal and professional development. Another research study explores sports event organization and the impact on dual-career student–athletes. A survey of 139 participants in a national championship revealed that academic studies enhance professional competencies, while participation in sports events contributes to students’ socio-professional development. The conclusions emphasize the significance of sports events for dual-career students’ socio-professional growth, calling for the development of sustainable strategies to support dual-career students (Contribution 2).

In the domain of agriculture, Budau et al. proposed a model for selecting an adequate agroforestry system to be introduced to plain sites in Bihor County (Contribution 3) Ghitea et al. analyzed the composition of grape seed oil sourced from different organic cultivated wine varieties, identifying their high nutrient value in polyunsaturated acids and high antioxidant capacity (Contribution 4). Another important contribution from Budau’s team is the identification of the beneficial influence of Driver and Kuniyuki Woodyon culture media on *Robinia pseudoacacia* development (Contribution 5). Timar AV et al. performed quality analysis on different sources of wheat, demonstrating that the Romanian variety Crisana recorded good parameters, being comparable to the Hungarian variety Bekes from Hajdu Bihar County (Contribution 6). Venig and Stănică focused on the influences of irrigation and fertilization on qualitative indices in tow plum varieties (Contribution 7).



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In the field of hydrology, mineral water sources from Tămășeu, Sîntimreu, Pădurea Neagră were evaluated from a microbiological/chemical point of view, and the results confirmed that they have beneficial hydraulic and therapeutic properties (Contribution 8).

Culture, heritage, and construction are richly represented in this Special Issue. El-hosiny et al. studied the “Night of the museums” event in Oradea, Romania, revealing that the physical environment and situational interactions played a decisive role in the contextual perception of the importance of the event, while the most important motivations were curiosity, gratuity, and the need to learn and spend one’s free time in the most enjoyable way (Contribution 9). In the analysis performed by Deac et al., a correlation was established between the ethno-religious and ethno-cultural heritage elements in Crișana Region, Romania, at the territorial-administrative-unit level, emphasizing their mutual influences, which can lead to the preservation and promotion of ethno-confessional and ethno-cultural features (Contribution 10). Another study aimed to monitor the microclimate and air quality within visitable heritage buildings and accurately correlate recorded parameters with human health and with the degree of conservation of heritage objects, as well as identifying interconnections between indoor microclimate and outdoor climate changes (Contribution 11). A scientometric analysis performed by Bungau CC et al. demonstrates the increased interest among researchers worldwide in the field of building energy efficiency and the correlations between state developments and research outputs (Contribution 12). Bungau C.C. and his team also analyzed the impacts of complex interventions, in the form of the elements of a master plan for the ecological restoration of buildings on the Campus of the University of Oradea, Oradea, Romania, emphasizing numerous benefits regarding energy consumption (Contribution 13). In the field of old buildings, Tudorica et al. performed a sustainability study on a historical building in Arad County, Romania, with the study’s main topic being the consolidation of the resistance structure of the building. The conclusions revealed the weakest points in the building, offering more sustainable solutions related to carbon dioxide emissions and embodied energy (Contribution 14). In the sustainable construction field, Tudorica and Bob demonstrate that reinforced soil retaining walls are far more sustainable than reinforced concrete in a paper evaluating a sustainable slope design while accounting for environmental, economic, and safety variables (Contribution 15). To improve our understanding of steel trusses in architecture, engineering, and construction, Savu et al. propose a methodology that represents significant advancement in 3D modeling optimization. They show that the use of BIM and 3D scanning significantly reduces non-physical waste in the fireproofing process of steel trusses, and they help determine a more precise budget (Contribution 16).

In the energy field, Secui et al. propose a novel algorithm to address the issue of economically dispatching emissions for power system optimization, incorporating wind power. According to the findings, adding wind units lowers costs by 10% and reduces emissions by 45% (Contribution 17).

In the field of waste management, Indrie et al. propose an algorithm for textile waste management, focused on visual design rather than compatibility checks and constraints, to be used for the creation of interior decorative parts (Contribution 18). Another study explored various modalities to reduce the environmental impact of medical waste from upper digestive endoscopies (Contribution 19). Costea et al. used the comet test and three cellular bioindicators to quantify the possible genotoxicity of the sludge produced at sewage treatment plants. The findings suggest that to attain a higher degree of relevance, it is necessary to combine several genotoxicity assays in a test battery (Contribution 20). In another paper, Gavrilă et al. (Contribution 21) present a sustainable approach to metal coin canceling methods using 3D modeling and finite element method analysis.

The research performed by Iconaru et al. draws attention to sustainability in the field of healthcare by applying an online questionnaire and establishing several correlations between physical activity level and health status in Romanian adults in the post-COVID-19 period (Contribution 22).

In the economic sphere, Trip et al. analyses the innovative potential of businesses operating in the tourism sector in the Baile Felix Spa Resort area near Oradea, Romania by surveying managers and business owners active in health and spa tourism services to investigate the differences between their perspectives. Considering the ongoing concern around sustainable innovation and modernization in both groups, significant achievements and strategies have been implemented by large companies (Contribution 23). Felea et al. emphasize the importance of Romania adopting the Green Deal Strategy and 0 emissions until 2050 (Contribution 24). Matei et al. have looked at the difficulties in sustainable human resource management (HRM), especially when it comes to financial restraints. They also offer a useful framework for evaluating the viability of initiatives for human resource development from a financial standpoint, as well as for promoting sustainable HRM practices (Contribution 25). In a further study, Badulescu et al. examine the connection between employment, spending, and economic growth in Romania's research and development sector, concentrating on the Northwest Region, a specific development region, and two of its member counties (Contribution 26).

Regarding public transportation, Oargă et al. address the elements involved in putting into practice a modular autonomous vehicle solution to extend travel routes, linking major urban hubs, such as train or airport terminals, to other major hubs, such as the city center, significant infrastructure, or peripheral neighborhoods (Contribution 27). For another study, using data collection methods, the energy efficiency of a fuel cell electric bus operating in an urban setting was assessed by Cărăușan et al. (Contribution 28).

Regarding the sustainable development of border regions, Chirodea and colleagues conducted a study on the mechanisms of microregional integration, which is seen as a workable and sustainable option for cross-border areas with resources that may be used to draw in investment and cultivate prosperity and wellbeing. For regional public bodies searching for workable and long-term solutions for the growth of cross-border micro-regions, the paper provides a model of study and work (Contribution 29).

In the textile industry, Tripa et al. gathered data on the mechanical, physical, and dyeability characteristics of wet-spun hemp yarn in both its natural and bleached forms. The outcomes show that bleach did not influence the yarn count, but it had a beneficial impact on the yarn twist as its value rose (Contribution 30).

Darabaneanu et al. studied the influence of environmental perception on place attachment in Romanian rural areas (Contribution 31). Another paper is related to the administrative aspects regarding the valorisation of geothermal waters for balneological purposes in Bihor County, Romania (Contribution 32).

The papers published in this Special Issue on "Advances in Sustainability Research from the University of Oradea" provide an overview of the context of developments in all types of research devoted to investigating the complex nexus among education, research, innovation, and sustainability.

**Conflicts of Interest:** The authors declare no conflicts of interest.

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