

Editorial

Modelling the Economic, Social and Environmental Components of Natural Resources for Sustainable Management

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The recognition of the multifunctional role of natural areas has resulted in a growing interest in sustainable natural resource management, in order to prevent degradation and depletion, ensuring income-generation activities, sustaining culture and employment, and increasing environmental benefits, such as carbon sequestration, hydrogeological protection, biodiversity enhancement, and many others.

Natural areas generate income in terms of flows of ecosystem goods and services that are directly related both to healthy ecosystems and to human well-being.

In this context, the correct use of natural areas and their resources, such as vegetation, water, soil, climate, represents the key to achieving sustainable development goals (SDGs) and ensuring the promotion of an economically, socially, and environmentally sustainable future.

The scientific research on natural resource management has grown substantially over the past decade, highlighting the important role played by natural ecosystems in supporting human well-being.

Hence, quantitative or qualitative studies from all aspects of the sustainable management of forests, agriculture, and the environment are encouraged to promote knowledge and sustainable strategies for upgrading sustainable natural resource management.

This Special Issue will contribute to advancing and exchanging scientific knowledge of natural resource management systems. In consideration of all this, this Special Issue will explore the state of the art in its field and present a set of theoretical, methodological, and applied papers focusing on the analysis of sustainable natural resource management (four research articles and one review paper).

The research of Olivieri et al. [1] is related to promoting social learning, contributing ideas and information regarding best practices on social innovations that are potentially helpful for the development of policy, as well as ideas that are useful, in practice, for communities at various levels. This interesting review focused on the analysis of 63 articles (peer-review) is divided into three areas of influence ((a) Of policies; (b) Agricultural and social; (c) Ecological). The main results show how two approaches are used for environmental policies in agriculture: results-based and collective contracts. In the action-based approach, farmers receive funds based on actions that they have implemented, and payments are usually related to an estimation of sustaining costs. Collective implementation refers to a type of contract that promotes the involvement of stakeholders in the definition of strategies that must be pursued by a multiplicity of actors, rather than from a single farmer. More specifically, the collective contracts represent the most concrete solutions that could be implemented in the new regulation for improving the provision of public goods. With this scheme, the farmer has no direct responsibility, but there is a distribution of costs, risks, and, finally, knowledge. The article includes interesting considerations, one of which being how a general optimal solution could be represented by the integration between these tools.



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The environmental dimension of the impacts of production activities is a topic of great interest since they contribute to a large extent to the emission of greenhouse gases. In this field, the papers of Hempel et al. [2] investigate the evaluation of methane emission levels in two dairy cattle buildings of different sizes. It was interesting to discover how the parameter that most influences emissions is temperature, and that the optimal range is between 10 and 15 °C. This temperature range is optimal both from the point of view of methane gas emissions and the excellent temperature that satisfies the welfare of the farms.

Gisladdottir et al. [3] discussed the field of perceived corruption in the economies of scale of natural resources management, a sector notoriously subject to important public economic interventions. In general, the term corruption refers to an activity of abuse of power aimed at private interests; in the work presented, this concept was extended to the issue of rules that are unable to guarantee the public interest and sustainability of the use of natural resources. To explore this concept, three surveys were carried out (in productive sectors and different countries in Iceland fisheries, forestry in Romania, and arable soils in Ukraine) through interviews with stakeholders. A fact of common interest to the three areas investigated, which arises from the research, concerns the dynamics that address the transition towards economies of scale and the progressive strengthening of large companies, vertically integrated and dominant in the sectors to which they belong.

The issue of changes in the landscape as a consequence of the strategies and policies implemented both nationally and internationally, as well as the demographic and socio-economic dynamics, is discussed in the work of Tattoni et al. [4]. The research conducted in the Italian Alpine boundaries, estimates Ecosystem Services (ESs), both through the use of Geographic Information Systems and through the use of bibliographic sources and research already conducted. Curiously, for the cultural ES estimate, the tool used for the comparison between the landscape variations that occurred over time is old postcards taken in the survey area, in which the most frequently reproduced image is a fragmented environment composed of woods and open spaces. The results obtained confirm how the use of preferences, expressed through the purchase preferences of postcards depicting landscapes, can be extended to the number of views of the images online, in terms of likes received and shares made. These numbers can therefore express levels of ES and, ultimately, guide certain development choices.

Remaining in the field of ESs, the research of Riccioli et al. [5] is focused on the mapping and estimation of recreational values in a coppice forest. Three different management systems were considered, characterized by a different degree of evolution and naturalness. Consolidated models for the assessment of environmental functions were also applied; these models require the geo-referenced compilation of questionnaires for the detection of willingness to pay (WTP). The results of the survey showed that the WTP values are influenced both by the management system and the place where the interviewees live. The closer they live to the places of interest, the more significant is their sensitivity to the characteristics and levels of naturalness of the places where they live.

Ultimately, the works included in this Special Issue address, from different perspectives, the issue of sustainable management of natural resources, from an economic, social, and environmental point of view. The different models used to provide answers to the specific questions posed by the research presented highlight both characteristics of consolidated scientific knowledge, but also ideas for innovative and not widely established approaches within the bibliographic review.

Normally, all the research conducted and the manuscripts present within the SI highlight the difficulty in indicating a specific solution to the problems, but rather aim to provide general guidelines.

To conclude, we believe that the topic discussed in this Special Issue is far from being fully understood and exhaustive. We hope readers may be inspired by the manuscript included here, and find useful ideas for their research.

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