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Editorial

A Sustainable Revolution: Let's Go Sustainable to Get Our Globe Cleaner

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Abstract: The concept of sustainability is a clear blue sea, a snowy mountain, a flowery meadow, in which there is resource sharing that allows us to satisfy human needs without damaging natural resources. The challenge is complex, and we hope to support the decarbonization of our society and mitigate climate changes. This Special Issue aims to outline different approaches in several sectors with a common point of view: seeing our world with a green perception and encouraging a sustainable revolution to provide a cleaner world.

Keywords: circular economy; bioeconomy; green economy; sustainability

1. Introduction

The parties of the United Nations Framework Convention on Climate Change (UNFCCC) reached the Paris Agreement to combat climate change and intensify the actions needed for a sustainable transition towards a low-carbon future. This transition will require holistic approaches and complex societal changes, necessitating solutions and collaboration between private, public, and academic sectors. Many previous studies have identified potential areas for improving societal and environmental impacts of several sectors, including transitioning and improving our energy and food supply and transforming our economic system to deliver more environmentally-friendly products and services through a more circular and bio-based economy.

The term "sustainable revolution" is discussed by McManners [1], in which the revolution is associated with the actions following people's concerns over climate. Sustainability has required a paradigm shift in towards strategic and long-term thinking where organizations are asked to implement practices and daily work based on environmental protection [2]. Sustainability is based on a balanced relationship of the triple bottom line—people, profit and planet [3]. An effective management of people, oriented to see the workforce not as a cost to be minimized or avoided, is able to determine a sustainable competitive advantage [4]. Following this direction, human needs are not always in contrast with the protection of ecosystems. Sustainability requires the development of local, regional and global solutions [5]. For this ambitious goal, a collaboration between technical and social profiles is needed. The concepts of bioeconomy, circular economy and green economy have the common objective of developing a sustainable economy [6].

This Special Issue aims to encourage studies exploring the transition towards a more sustainable future, encompassing and identifying the development and implications of more sustainable options in collaboration with communities, firms, policymakers, and researchers to achieve this transition.

2. Form and Contents of the Thematic Issue

Sustainability issues towards a low carbon economy have been investigated both at the macro and micro levels.

Sadik-Zada and Ferrari [7] reconsider the pollution haven hypothesis with a refined dataset containing observations for 26 OECD member countries and innovative cointegration methods. They found a solid verification of the pollution haven conjecture indicating that, a purely national perspective of the Environmental Kuznets Curve is not always adequate.

Based on macro data, Caruso et al. [8] use a Panel Vector Auto Regression technique applied to a group of European Countries, to show the importance of implementing a stringent policy for the development of renewable energy consumption and its impact towards social aspects (e.g., general public awareness, lobbying activity, etc.).

The relevant role of policymaking has been stressed also by Jiang et al. [9]. Looking at inherent dynamic connectedness among coal market prices, new energy stock prices and carbon emission trading prices (CET) in China, the authors suggest that the policymakers not only should take actions to stabilize China's CET market price, but also should develop the financial function of this market.

In a subsequent paper, Lynch et al. [10] present a conceptual-analytical work aimed at exploring the construction of various publics in the bioeconomy by focusing on a specific case in the Netherlands. Authors emphasized the lack of a single all-encompassing "public perception of the bioeconomy" highlighting the need for a better understanding of different segments of the public in sustainability transitions.

Moreover, focusing on a national setting, Delcea et al. [11] analyze the influence of social media towards the actions taken by the government and nongovernmental organizations in Romania, with the purpose to understand the determinants in the e-waste recycling process. Their results showed that the demographic variables, such as age and gender, impact the predicting residents' pro-e-waste recycling behavior.

The 4.0 industry approach opens new opportunities in terms of sustainable development. García-Muiña et al. [12] explore the introduction of sustainability in the corporate value proposition, through the evolution from a traditional to a sustainable business model by focusing on a ceramic tile producer. The innovation of the business model represents an opportunity not only from an operational perspective but also in terms of the company's value creation.

In the same vein, Rocca et al. [13] provide a laboratory research case to show how the 4.0 industry paradigm can stimulate the adoption of circular economy (CE) practices by virtually testing waste from electrical and electronic equipment (WEEE) employing dedicated simulation tools. When looking at the factory level, service-oriented, event-driven processing and information models could foster the combination of digital and smart solutions.

Innovative technologies are paramount for sustainable development. Argentiero and Falcone [14] introduce, discuss and present a research case based on the role of Earth observation satellites in maximizing renewable energy production. Building on a large database of satellite parameters, results show how to discriminate, in the pre-feasibility phase, the type of installation not efficient for the selected location or not convenient in terms of internal rate of return (IRR) on equity.

Developing innovative approaches to plastic waste disposal that are able to consider both the economy and environmental protection is of paramount importance. Rashidi et al. [15] appraise the impacts of using expired plastic syringes as fine aggregate on fresh and hardened features of flowable concrete as a potential solution to environmental issues. Results show that, at the age of 28 days, using waste aggregates increased the compressive strength of the samples.

The efficient use of local resources is also paramount to achieve sustainable energy systems. Rocha-Meneses et al. [16] explore the potential of employing Napier grass, to produce ethanol via the nitrogen explosive decompression (NED) method at different temperatures. They find that Napier grass is a suitable feedstock for the process, an extensively available grass in Africa, but that the process is influenced by temperature and further refinements will be needed to explore its potential, and market, in Africa.

Wastes, especially household wastes, are important to address. Mihai and Grozavu [17] review the possibility to improve household waste collection and disposal in Romania. By reviewing waste statistics, they show that there are discrepancies in reported household waste collection, and highlight the use of illegal dumping. They suggest that CE based policies should be in place to improve waste collection and recycling through composting, recycling schemes and valorization processes to reuse and upcycle waste streams.

Martin et al. [18] also address urban wastes and residual materials to improve the resource efficiency of urban farming systems. They find that residual streams, such as brewers spent grains (BSG), paper and compost can replace potting soil used in indoor farms producing leafy greens and other plants. Furthermore, digestate from biogas plants, also employing urban bio-based waste, may play an important role in reducing the impacts from fertilizers for these systems.

Choi et al. [19] explore how business can contribute to sustainable development by reviewing socially responsible firms and the effect of their corporate environmental responsibility (CER) information on business. They found that environmental responsibility has importance for profitability by improving information transparency and increasing shareholder value. Such findings are important to promote more socially and environmentally sound businesses and investments.

Busu [20] also discusses the need for more investment in renewables in Europe. Using a multiple linear regression analysis, the study examines the carbon dioxide emissions in the European Union (EU) by testing the relationship to urbanization and population and carbon dioxide mitigation pathways, e.g., renewable energy consumption, biofuel production, resources productivity, bioenergy productivity. The findings further support the role of renewables, encouraging increased policy support to mitigate climate emissions in Europe.

In order to promote more environmentally sound systems, Guo and Bai [21] suggest that the public has an important role in environmental governance to promote changes. They model the potential effects of public participation and identify that the public can have an influence on the important environmental enforcement of polluting enterprises, extending empirical research to promote public involvement in environmental governance.

Directly supporting the reduced potential for pollution, Ferella et al. [22] study the potential for aerobic biodegration of toxic solvents used in the semiconductor industry. The study reviews aerobic biodegration of Tetramethylammonium hydroxide (TMAH), concluding that more than 99.3% of the solvent can be removed through the process, which can significantly improve the reduction in pollutants entering the environment.

An approach often highlighted to achieve sustainability is the adoption of circular economy principles. However, this shift could have complex logistical needs and require the redistribution of materials and resources. González-Sánchez et al. [23] study these changes through supply chain mapping and a literature review. They recommend that support for new supply chains from a circular perspective are needed, including greater intensity in the relationships established in the supply chain, the adaptation of logistics and organizational, disruptive and smart technologies, and a functioning environment.

In the final paper, D'Adamo and Rosa [24] study the potential risks with the growing number of electric vehicles (EV), and their subsequent end-of-life strategies. They conduct a literature review of EV management practices identified in the literature and find that end-of-life strategies have been extensively covered, with a number of potential applications and management systems, especially for the critical materials used in EVs, although the economics have received little focus.

3. Concluding Remarks and Further Issues on the Research Agenda

This Special Issue aimed at collecting studies suggesting innovative ways to cope with the transition from current (consumerist) behaviors to more sustainable lifestyles. Even if the messages of the experts are widely distributed in different ways (depending on their knowledge), the common logic linking all these contributions is the central role of the environment in human activities. No one (neither private nor industrial, nor public actor) can nowadays act on the global market without having a clear perspective and strategy about the environment. Technologies, processes, products, services, policies, and financial activities must consider the sustainability aspect, and, with time, their sustainability level will improve further through advanced performance assessment methods. Sustainability has become a way of reaching a competitive advantage in the market. Its influence has changed the way in which companies act on the market, organize themselves internally, interact with suppliers and customers and innovate their portfolio of products and services. At the same time, Industry 4.0 technologies are supporting companies in managing this transition and exploiting its benefits. The reported contributions offer to managers and common readers a good sample of how researchers are mapping this sustainable (re)evolution.

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