

Guest Editorial Preface

Special Issue on: Standards for a Bio-Based Economy

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Governments and companies across Europe and worldwide are confronted with the depletion of natural resources due to, among others, their unsustainable use; increased global competitiveness; increasing population; and other challenging environmental and economic issues. Promoting the sustainable growth of dynamic bio-economy sectors will contribute to the transition from a fossil fuel-based society to an innovative, resource efficient, competitive and bio-based one. Bio-based products represent a great opportunity to reconcile sustainable long-term growth with environmental protection through the prudent use of renewable resources for industrial purposes. However, managing those resources in a sustainable manner implies facing major challenges.

In this context, this special issue on ‘Standards for a Bio-Based Economy’ provides a collection of high-quality papers, investigating the specific role of sustainability schemes and standards in ensuring a clear and evidence-based view of the environmental, economic and social impact of the emerging bio-based economy.

The manuscripts composing this special issue of the International Journal of Standardization Research (IJSR) are revised and extended versions of five selected papers presented at the EURAS (European Academy for Standardisation) Annual Standardisation Conference. The 24th edition of this conference was held in Rome on 13-15 June 2019 and was centred on the role of sustainability standards in the transition towards a bio-based economy. The conference was organised with the support of the EU-funded project STAR-ProBio (Research and Innovation Action – Horizon 2020), which aims at developing sustainability assessment tools for bio-based products, and credible cases for those with the highest actual market penetration. This showing a growing interest of the European Academy for Standardisation in environmental topics, which represent a growing momentum in Europe and all-over the world.

The ‘Fridays for the future’ generation has succeeded in bringing climate change to the center of the political debate, heating the hearts of many, and bringing millions of people to the streets. The European Commission has just launched its “Green New Deal”, which will be the hallmark of a Europe which aims at becoming the first climate neutral continent. For this to happen it is required, in the words of Ursula von der Leyen the European Commissioner, “collective ambition, political leadership and a right transition for the most affected.”

The kind of research works presented at the 24th ERAS Conference, and which have been selected and collected in this Special issue, is ever more relevant in this dynamic and exciting moment of time. Changes, especially when radical, are never smooth rides. The transition out of a carbon-based society needs clear guidance and sense of direction to policy makers, citizens and companies. The science-policy bridge is fundamental in providing such guidance. This is where the role of sustainability standards becomes ever more important. To achieve climate neutrality - producers, consumers, policy makers and citizens need to know exactly what it takes, from an environmental point of view, to be neutral. But sustainability bears also economic and social dimensions: true sustainability requires economic viability and that the most vulnerable parts of society are properly supported and not left behind.

In this regard, well-developed sustainability standards, able to look at the three pillars of sustainability (environmental, economic and social), can provide a valuable guidance in steering

the transition along the right direction – being crucial for the development, implementation and management of effective regulatory frameworks.

The five papers in this special issue cover a range of aspects of sustainability schemes and standards, addressing for different perspectives the various dimension discussed above.

Bracco et al. evaluates the potential to use standards, certifications and labelling (SCL) schemes as a source for monitoring and evaluating the sustainable bioeconomy, by analysing the sustainability aspects (chain-of-custody, environmental, economic and social themes) considered in selected SCL schemes. The assessment conducted by the authors shows that SCL schemes can be used to inform on product sustainability in terms of environmental aspects, However, it also highlighted that socio-economic standards should go hand in hand with chain of custody and bio-based mass content indicators to guarantee the sustainable growth of a dynamic bioeconomy.

On a similar ground, Wurster et al. identifies and analyses different criteria proposed by ecolabels for conducting a sustainability assessment of bio-based products. The authors found that, by properly modifying and integrating the set of ecolabel criteria and by developing new labels for bio-based products, environmental knowledge can be increased and, in turn, increase consumer concerns, ultimately resulting in environmentally friendly consumption behavior.

The issue of pro-environmental behaviour is taken up by Orviska et al. Specifically, the authors investigated how pro-environmental behaviour and the growing EU environmental legislation are perceived by EU citizens. Moreover, the authors assessed the positive perception European have of the role of EU environmental regulations and standards in assisting non-EU countries to improve their environmental standards.

Ladu and Vrins focus their attention on the role regulation and standards play in prompting the creation of a level playing field for the bio-based economy. The authors first present an overview of existing regulatory and standardization barriers that are hampering the market uptake of bio-based products. Subsequently, they formulate suggestions to overcome these barriers, including: the adoption of relevant principles for the cascading use of biomass, the use of alternative innovative feedstock (e.g. waste), and the update of existing standards (e.g. compostability). Proposed suggestions were validated and verified by stakeholders through interviews and workshops.

Finally, Falcone and Imbert zoom in to the high degree of complexity and uncertainty characterising the bioeconomy. Specifically, the authors claim that accounting for uncertainty requires multidisciplinary tools and approaches, in order to reflect the different perspectives and issues. Moreover, a new perspective, which brings technological and behavioral aspects together, while balancing different sustainability pillars, is advocated. This should lead to a well-balanced sustainability transition, bearing in mind that there is no “one-size-fits all” formula due to the mentioned system complexity.

The overall message emerging from the five papers presented is that adequate sustainability standards and environmental regulations are fundamental if one wishes to steer the ongoing transition in the desired direction. On this front, a lot has been done, but more needs to be done. May this collection of papers pave the way to a fruitful discussion between research and policy, leading eventually to the development of improved standards and regulations able to accelerate the transition out of the unsustainable fossil based linear economy into a sustainable circular bioeconomy!

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