Advanced methods and technologies towards environmental sustainability

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Environmental sustainability has been facing numerous challenges with increasing industrial and agricultural development. These challenges have also been strengthened by the increasing number of formulation of megacities with large population densities. The pandemic caused by the COVID-19 revealed the vulnerability of globalised and concentrated society and brought challenges to many environmental issues, in particular medical waste management and water pollution issues (Klemeš et al. 2000). The pandemic has been remarkably affecting people's social behaviour and lifestyle, which are correlated with the energy and water demand, mobility system, as well as the environment of the cities. Besides, these influences and other potential impacts are possible to remain even after the pandemic period in both social, economic, and environmental aspects. Facing those challenges, clean technologies and policies seeking the potential of resource consumption and environmental pollution reduction are of significant importance. The Conferences on Sustainable Development of Energy, Water and Environment Systems (SDEWES) have been continually providing a platform for researchers and multi-stakeholders from academia, industries, and government to share knowledge and experiences in emerging and promising clean technologies and methods towards cleaner production and sustainable development. The conference covers a wide range of topics related to various aspects of sustainable development.

The 14th SDEWES conference, which was held 1–6 October 2019 in the historical city of Dubrovnik, Croatia, brought together around 570 international and local

researchers and experts from 55 countries. The conference served as a high-impact platform for knowledge transfer and communication, which provided a total of 17 Special Issues and covered more than 500 lectures. This Special Section presented by courtesy of the journal of Clean Technology and Environmental Policy is dedicated to this SDEWES conference. The Special Section aims to provide a state-of-the-art in the concept and methodology development in sustainability-oriented clean technologies and environmental assessments that were presented at this conference.

After a careful selection and screening procedure, 39 invitations were sent to the SDEWES 2019 authors to prepare articles. After thorough reviewing procedures, 13 papers have been finally accepted for publication in the Special Section in the journal of Clean Technologies and Environmental Policy. The contributing researchers are from 11 countries, including Brazil, China, Croatia, Germany, Italy, etc.

The submitted papers can be classified into the following groups based on their research scope:

- Environmental Assessments
- Advanced clean technologies towards efficient resource exploitation
- Paths to Environmental Sustainability

Post-assessment of environmental impact has been one of the significant fields in sustainability research (Vanham et al. 2019). Evaluating and benchmarking human activities' environmental performance provides the foundation for pollution reduction and the introduction of cleaner technologies and operations. Advanced developments of clean technologies and environmental policies can mitigate the environmental burden directly and indirectly. In this Special Section, two selected papers contributed to comprehensive overviews and analyses of the life cycle environmental impact of transportation and wastewater treatment technologies. Another two articles proposed novel methodologies and new materials to improve resource-use efficiency. The other selected papers

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contributed to comprehensive review and methodology development pursuing environmental sustainability.

This Special Section provides a selected collection of the advanced contributions to the development of clean technologies and environmental assessments methodologies and frameworks presented at the 14th SDEWES conference. The future SDEWES Conferences, in close cooperation with the journal of Clean Technologies and Environmental Policy, would continue to serve as an international platform for academia, industries, policy-makers, and the general public, for knowledge promotion and exchange in the field of sustainable development.

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