Journal of Engineering

Special Issue on
Sustainable Process and Materials

Hindawi

CALL FOR PAPERS

Food, energy, and water (FEW) are the basic needs of human being. The United Nations even has a specific interagency coordination mechanism for all freshwater related issues since 2003 called UN-WATER. The industrial process related to production of food, energy, and water is often tailored to reduce costs, at the expense of the environmental and social sustainability. Sustainability has now become a global topic since its adoption by the United Nations Environmental Programme in 1989. In 2015, reduction of greenhouse gas emission was negotiated at the United Nations Climate Change Conference COP21 resulting in ratification by 118 countries indicating that a serious effort towards sustainability is now a priority. Sustainability is now the key driver of innovation and has a large role to play in achieving a transition to a more sustainable planet. Sustainable production refers to a process by which management and technological approaches are used to minimize and control the amount of pollutants produced during industrial production processes. The purpose of sustainable production is to conserve energy, reduce energy consumption, and reduce pollution. Therefore, the integration of economic growth in the process industry with the environmental and social sustainability is required for the future generation of technologies and engineers. In addition, sustainable use of energy source requires the shift of paradigm from being solely dependent on fossil fuel, which is a finite source, towards diversification into energy sources that also encompass renewable source. Renewable sources such as biomass-based and also nature-based (wind, solar, waves, geothermal, etc.) are more environment-friendly. This can ensure a better protection of environment for future generation.

The purpose of this special issue is to publish high-quality research papers as well as review articles addressing recent advances on sustainable processes and materials specifically on food, energy, and water production. The papers should combine at least two of the three areas, that is, sustainability, water, and energy, with a clear highlight of the interdependence between them. Original, high-quality contributions that are not yet published or that are not currently under review by other journals or peer-reviewed conferences are sought. This special issue will also highlight the novel approaches in food, energy, and water nexus.

Potential topics include but are not limited to the following:

- Energy
  - Biomass utilization
  - Green production
  - Green materials
  - Renewable energy
  - Energy conservation
  - Process optimization
  - Flow assurance
- Water and environment
  - Water resource management
  - Waste reduction
  - Waste-water treatment
  - Waste-to-wealth
  - Agricultural waste utilization
  - Food waste utilization
  - Life cycle analysis
  - Sustainable process design
  - Sustainable food processing

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