Guest Editorial on the special issue "Green Technologies for Sustainable Environment"

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"Green Technologies" are a subset of sustainable solutions that have grown in popularity during the last couple of decades. Green technologies represent the most inventive endeavours that brighten our existence as the globe witnesses the tremendous consequences of climate change and ecological deterioration. Green technology, in brief, is concerned with ecologically responsible techniques that don't harm the surroundings or other environmental assets. Human consequences on the ecosystem are clearly rising on a daily basis. It is true that individuals must make proper efforts to save the environment from serious ecological issues. If left neglected, such negative consequences may possibly threaten the survival of the human race and cause significant environmental degradation in the coming years. As a result, it is critical to incorporate green technological methods in order to limit the environmental harm caused by them. Green technology use efficiently reduces the detrimental consequences of global warming and lowers the generation of greenhouse gas emissions. All of those behaviours demonstrate that green technology is an unavoidable resource for a sustainable future. Green technologies in practical use, on the other hand, remain in their development and need further development. While green technology techniques are challenging to execute and adjust to at first, they do bring significant benefits to the community if properly applied.

The purpose of this special issue is to highlight concerns and the latest developments in green technology to achieve a more sustainable future. Based on the assessment criteria, seven papers were accepted for publication in this special issue after the peer-review procedure. The following aspects highlight the noteworthy technological discoveries of the accepted works:

The first paper, entitled "Study on Biodegradability and Mechanism of Cyanoethylated Waste Paper," was written by Qin Li et al. This article used microbial experiments to investigate the biodegradability of thermoplastic cyanoethylated waste paper (CWP) and to hypothesize on the degradation procedure. The findings demonstrate that the biodegradability of CWP was superior compared to that of waste paper; the rate of degradation of CWP was hugely enhanced; the advancement in biodegradability of CWP enhanced the surface contact; and structural analysis of CWP before and after degradation revealed that biodegradation bacteria destructed the CN bond and established hydrocarbon bond.

The paper, entitled "Air Quality Prediction Based on Wavelet Analysis and Machine Learning," was written by Qi Ren et al. This study utilizes Chongqing's historical weather time series as the test samples. The information in this research is organized using the wavelet transform, followed by the data collected being divided into training sets and test sets to evaluate the correctness of the Naive Bayes Model assessment. The findings suggest that the Naive Bayes Model has good reliability and precision for assessing Chongqing's air quality, and it has the potential to evaluate urban ambient air quality.

The next paper, entitled "Modelling a Sustainable Smart City Based on Human and User Centred Design," was written by Guoan Wei. The purpose of this research was to construct a user-centred design utilizing sustainable big data analytics assisted optimization framework (SBDAAO) to accelerate innovative solutions to urbanization with minimal environmental consequences. This study is the first step in offering views and benefits in the development of smart cities to ensure sustainability. A computational investigation was carried out utilizing the information acquired on city infrastructure. The proposed approach achieves excellent accuracy ratio, the efficiency ratio, energy consumption, average communication delay, and renewable power.

The upcoming paper, entitled "Production of Nanocarbon from Local Raw Materials," was written by Kholmirzaeva H.N. et al. This article intends to synthesize nanocarbon from local raw sources by thoroughly studying its properties. The research of the thermal properties of fruit kernels and walnut kernels; identifying the ideal methods of the carbonization process for every kind of raw material; constructing a technique for synthesizing spherical granules by fluid granulation; and identifying the optimum amount of the sulfuric acid solution used during granulation are all components of the work.

The findings of the dynamic sorption of petroleum products revealed that the most effective sorption occurs.

The forthcoming paper, entitled "Evaluation Model of Rural Environmental Sustainable Development Capability under the Background of Rural Revitalization," was written by Yan Peng. Taking into account the relationship between ecological livability and SRD, this research proposes structural equation modeling based on sustainable rural development (SEM-SRD) to construct an SRD index system with a universal value. According to the studies, agriculture eco-efficiency is significantly larger than rural growth in the economy. The experimental analysis of the proposed technique improves the ineffective administration of RES improvement, rural development ratio, stability ratio, productivity ratio, and rural growth loss.

The sixth paper, entitled "Technical Convergence and the Adaptive Resilience of Regional Economies," was written by Luo Jia. This paper analyses the influence of diverse regional technological characteristics on the resilience of the domestic economy to extreme events. This research proposes an adaptive resilience of the regional economic model (ARREM) that incorporates essential financial elements and preserves the industrial development time-path as it recovers both with and without stronger financial adaptation. The analysis revealed that regions with technologically connected instead of merely diversified information collections are adequately equipped to withstand disasters and display adaptive resilience.

The final paper, entitled "Environment pollution analysis on smart cities using wireless sensor networks," was written by Qingsong Zhang. This article recommends a wireless sensor network (WSN)-based environmental pollution analysis (WSN-EPA) to minimize air pollution in a smart city. WSN nodes have indeed been placed to constantly evaluate the town's quality of air and public transit vehicular traffic. Wireless data collection from base stations would've been accomplished via nodes on public transit, buildings, and automobiles. The results demonstrate that the proposed method is an optically efficient environmental surveillance system.

These articles disclose a wide range of issues as well as the most recent breakthroughs in green technologies for a sustainable environment. We applaud all researchers and reviewers for their prompt and fruitful participation. We are grateful to the journal's Editor-in-Chief for providing us with the opportunity to manage a special issue of this distinguished journal. We feel that this special issue will be extremely beneficial to the academic community.

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