sciendo

DOI: 10.2478/eces-2022-0020 ECOL CHEM ENG S. 2022;29(3):283-285

Wei LIU[1], Sang-Bing TSAI[2], Chia-Huei WU[3], Xuefeng SHAO[4] and Maria WACŁAWEK[5]

CORPORATE ENVIRONMENTAL MANAGEMENT AND SUSTAINABLE OPERATION: THEORY AND APPLICATION

Industrial pollution and over-exploitation of natural resources adversely affect the environment and are also a serious threat to society and economy development. At present, climate change, destruction of the ozone layer, water shortage, and sharp reduction of biodiversity have also become widespread environmental problems. Therefore, people have started to explore how to solve the environmental pollution problems in the process of economic development from corporate environmental management. In addition to corporate environmental management, we also focus on the study of sustainable operation. Improving operational efficiency can also effectively reduce environmental pollution and promote sustainable development. This special issue of *Ecological Chemistry and Engineering S* (ECE S) collects 10 articles focusing on challenges and issues in corporate environmental management and sustainable operation, aiming to share and discuss the latest advances and future trends of theories and applications in academia, promote innovation in rural economic development models, improve the ecological environment, and bring practical insights and experiences to industry developers.

Increasing sustainable operation paths in various industries

Scholars have researched sustainable operation paths for the agriculture, tourism, and e-commerce industries. The research focuses on promoting low-carbon development, modernisation, pollution control in the rural. Traditional rural economic development model is no longer practical. Based on sustainable operation, the goal is to improve the basic conditions and land quality of the rural, in order to improve operational efficiency and achieve rural revitalisation. From the perspective of low-carbon construction, a research has proposed a framework for rural landscape planning and design with rural landscape as the research object. Then, they carried out the practice of applying specific strategies to calculate and compare the carbon emissions before and after the planning and design, taking Xiwuli Village as an example. The result is that the net carbon footprint and total

[1] Business School, Qingdao University, Qingdao 266061, China, ORCID: 0000-0002-3044-9795
[2] School of Business, WUYI University, Nanping 354399, China, ORCID: 0000-0001-6988-5829
[3] Department of Hotel Management and Culinary Creativity, Minghsin University of Science and Technology, Hsinchu 304, Taiwan, ORCID: 0000-0001-6399-2113
[4] Newcastle Business School, The University of Newcastle, Newcastle 2300, Australia, 0000-0002-4267-9600
[5] Society of Ecological Chemistry and Engineering, ul. Zawiszaków 3/103, 45-288 Opole, Poland, ORCID: 0000-0003-2366-0530
[*] Corresponding authors: chiahuei530@gmail.com (CW), sangbing@hotmail.com (ST)

carbon footprint are significantly reduced after the low carbon planning and design of the rural landscape. It contributes to the development of low-carbon rural tourism. With the development of economy and society, people aspire more to an unrestrained lifestyle, such as rural tourism. In order to better promote the development of rural tourism, it becomes more important to modernise the countryside. In conclusion, the net carbon footprint and total carbon footprint were significantly reduced after the low carbon planning and design of the rural landscape. With the development of economy and society, people aspire more to an unrestrained lifestyle, such as rural tourism. In order to promote the development of rural tourism, it becomes more important to modernise the rural areas. A research proposed an evaluation model based on AHP and association rules, aiming to analyse a sustainable rural tourism land evaluation system based on the value of ecosystem services. The study found that the number of tourists doubled and the tourism income was great than before from 2014 to 2020. In order to promote the modernisation of the rural, the establishment of a sustainable tourism land evaluation system based on the value of ecosystem services in the rural has become more important.

The rural pollution problem is worth discussing. Another research analysed the path of rural environmental pollution management from the government's perspective. In addition to this, an empirical analysis of the willingness to pay for rural living environmental pollution governance in Huzhou, Zhejiang Province, based on the CVM (Contingent Valuation Method) was conducted. The results show that the government's administrative intervention in rural environmental governance can have improved governance efficiency. Finally, suggestions are made for the management of rural environmental pollution from the government's perspective.

Innovating sustainable operation methods of ecology

In order to investigate the problem of ecological environment in the Central Plains, a research based on e-commerce media platforms, selecting six major cities in the Central Plains as research objects, and the characteristics of ecological crisis of e-commerce media platforms were explored and analysed in depth by using case studies and interviews. By citing the PSR (Pressure-State-Response) model, they used factor analysis method to determine the evaluation index model with 16 sub-indicators. Finally, researchers used entropy to standardise the original indexes and determine the index weights, analysed and evaluated the ecological environment level of the six cities, and proposed comprehensive ecological environment zones for different regions. In order to research the sustainable innovation of urban landscape construction and ecological water environment management process, some scholars raised fuzzy comprehensive evaluation criteria and objectives to evaluate the urban landscape construction and ecological water environment management process, while conducting tests. In conclusion, this evaluation system helps to improve urban landscape construction and ecological water environment management. Meanwhile, under this evaluation system, the satisfaction of urban residents with urban landscape increased by 47 %. The effectiveness of water treatment was also improved, with an enhancement effect of 31 %.

Establishing a relevant assessment index system

To investigate the situation of physical education in schools under smog environment, a research used qualitative methods, such as literature and questionnaires, examining the

spatial clustering characteristics of smog pollution in using the spatial autocorrelation index. It shows that in the smog environment, students would be uncomfortable accompanied by slight psychological stress. In this case, students would be more active in physical activity. In addition, the research found high perceptions of smog risks and weak coping behaviours among school physical activity participants. Lack of experience with smog perceptions and weak policy regulation in turn led to low communication about smog risk in schools. The final conclusion is that human body will not be affected by outdoor air and that students should engage in outdoor activities during physical education classes. In order to construct a reasonable evaluation model of green industrial economy development and use the model results to explore the sustainable development of green industrial economy, another research referred to a large amount of literature, conducted field surveys, and selected 30 suitable evaluation indicators. After designing the model and applying it to the green industrial economy of Sichuan Province, the experimental results showed that the comprehensive evaluation indexes of green economic development steadily improved. It shows that this study can provide guidance for the economic development model and methods of green industries.

Improving practical technology

In the rural, land is the basis for crop growth, and in order to promote crop growth, a study investigated soil data in the region to explore the physical factors that the propagation technology system of green willow cuttings and discuss its internal physiological changes in the process of cutting rooting. There is also a study based on survey data of 509 farmers in Liaoning Province and probit and logit models to empirically analyse farmers' green prevention and control technology adoption behaviour and analyse the variability of farmers' green prevention and control technology adoption. The study showed that farmers' different information abilities and different stages of life cycle of generations affect their adoption of green prevention and control technologies.

In summary, people are paying more attention to the ecological environment. Scholars in various countries and fields are contributing to sustainable operation and environmental management in terms of politics, economy, ecological civilisation, and technology. In the future, research on sustainable operation and environmental management will also focus more on green operation, cleaner production, environmental innovation, and transformation of rural economic.