Coupling research on sustainable development of China's construction industry in the 21st century

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Abstract

Countries worldwide have launched the region's sustainable development design of the climate environment by the Paris Agreement on Climate Change. Government departments need accurate scientific data in the next 20 to 100 years to formulate environmental control goals and adopt policy standards and control regulations.

This research applies the multidisciplinary and systematic multivariate discrete topological coupling clustering research model and accurately analyses and calculates the sustainable development assessment data led by the construction industry in China in the next 100 years through the extensive primary database published by the Chinese government. The research data proves that China's carbon emissions will peak in 2030; the social impact data will reach a peak in 2048, and the sustainable impact data will have a negative peak in 2060. The total environmental impact in 100 years is 826.024 billion tons; the social impact data is 935.263 billion tons.

The research data and theoretical model system have significant guiding and practical value, which will break the confusion about the future predictions of governments, scientists, and researchers in this field. The research system guides governments to take appropriate policy measures based on the precise data obtained after scientific analysis to ensure effective control of sustainable development. Simultaneously, it provides measurement standards and systems for the United Nations and evaluation organizations at all levels around the world. It has opened a new chapter in the global future ecological sustainability research.

Recent Publications (minimum 5)

1. **Zhou Z**, Alcalá J, Yepes V.(2020). Environmental, Economic and Social Impact Assessment: Study of Bridges in China's Five Major Economic Regions. Int J Environ Res Public Health;18:122.
2. **Zhou, Z**., J. Alcalá, and V. Yepes. (2020)a. Bridge Carbon Emissions and Driving Factors Based on a Life-Cycle Assessment Case Study: Cable-Stayed Bridge over Hun He River in Liaoning, China. International Journal of Environmental Research and Public Health 17(16): 5953.
3. **Zhou, Z**., J. Alcalá, M. Kripka, and V. Yepes. (2021)a. Life Cycle Assessment of Bridges Using Bayesian Networks and Fuzzy Mathematics. Applied Sciences 11(11): 4916.
4. **Zhou, Z.**, J. Alcalá, and V. Yepes. 2021. "Optimized Application of Sustainable Development Strategy in International Engineering Project Management." Mathematics, 9 (14): 1633.
5. **Zhou, Z**. W., J. Alcalá, and V. Yepes. (2022). "Regional sustainable development impact through sustainable bridge optimization." Structures,41.1061–1076.



Biography

Zhiwu zhou Ph.D. from the Polytechnic University of Valencia, The senior engineer in China and a national railway test engineer in China. Professional civil engineering. He has been engaged in engineering construction and management in China for 15 years. There are 12 major construction projects involved. (Expressways (three projects), high-speed railways (three projects), housing construction projects (two projects), etc.). He has won four national awards in China and three provincial and ministerial awards in China, one of which is responsible for China's provincial science award. Research project, and a university-level teaching and research project. Published 5 scientific research papers. Reviewer for 11 types of journals (Q1-Q4).

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