



“Gheorghe Asachi” Technical University of Iasi, Romania



ECO-TRANSFORMATION STRATEGY FOR TRADITIONAL INDUSTRIAL PARKS IN CHINA: PERSPECTIVES FROM SYSTEM ENGINEERING THEORY

Jiang Wang^{1,2*}, Qing-kai Zeng³, Ji-long Zhao^{1,2}, Pei-xian Wang⁴

¹Shandong Co-Innovation Center of Green Building, Jinan 250101, China

²Shandong Jianzhu University, Jinan 250101, China

³Shandong Jiaotong University, Jinan 250000, China

⁴Ambrosius Messebau, Shanghai 200030, China

Abstract

The traditional industrial parks (TIPs) in China has been rapidly developed in the past 30 years, which have contributed to stable and continuing GDP growth, but also caused severe pollution. In order to solve the conflict between local economic development, environmental pollution and resource shortage, the TIPs in China should be transformed to eco-industrial parks (EIPs). However, the eco-transformation of China's TIPs is still at an exploratory stage. So, the paper studies eco-transformation strategies from TIPs to EIPs, not only involves how TIPs would carry out replanning and management, rebuild internal industrial features, but also involves how to maximize inter-company resource sharing and eco-transform individual enterprises. First, the key strategies applied by TIPs during eco-transformation are reviewed from two cases of Kalundborg EIP in Denmark and Guigang EIP in China. Then we use the theoretical model of System Engineering corresponding study three important aspects of optimized eco-transformation strategies for TIPs. The first aspect is that enterprise community reconstruction and keystone species selection focus on stages of planning, design and construction. Namely the restructure and planning of TIP enterprises would be around keystone species selection. The second aspect is that eco-industrial chain construction focuses on stages of integration and operation. The third aspect is that innovation of key eco-industrial technologies focuses on the stage of adjustment. Finally, the overall arrangement of these strategies in a system of policies is analyzed so as to better achieve the eco-transformation of China's TIPs.

Key words: eco-industrial parks, eco-transformation, optimization, strategy, traditional industrial parks

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* Author to whom all correspondence should be addressed: e-mail: wangjiang@sdjzu.edu.cn