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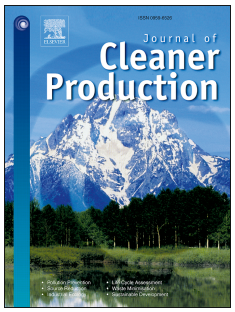

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Changes of human time and land use pattern in one mega city's urban metabolism: A multi-scale integrated analysis of Shanghai

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Abstract:

Human time and land use are important elements in terms of one mega city's urban metabolism, thus, it is critical to find an integrated approach to evaluate their contributions. In this paper a dual-fund analytical framework has been developed by employing the Multi-Scale Integrated Analysis of Societal and Ecosystem Metabolism (MuSIASEM) approach to analyze the metabolic pattern of one mega city from economic, social and ecological dimensions. A case study of Shanghai was undertaken to study its historical pattern changes and evaluate the possible results with the implementation of the 13th Five Year Plan. Research results show that shanghai relied on the extraneous labor force to fulfill the need of working hours and economic transition in Shanghai occurred with the booming development of tertiary sector. Shanghai's land resource is very scarce to meet its need of development, leading to a need of adopting integrated efforts to. In order to achieve the proposed targets, economic labor productivity and land use performance should be improved through the application of various measures, including industrial and energy structure optimization, energy saving, capacity building and circular economy.

Key words: urban metabolism, MuSIASEM, land use, mega city, human time