

Developing Urban Design and Planning Approach to Enhance the Efficiency of Infrastructure and Public Transportation in Order to Reduce GHG Emissions

Authors : A. Rostampouryasouri, A. Maghoul, S. Tahersima

Abstract : The rapid growth of urbanization and the subsequent increase in population in cities have resulted in the destruction of the environment to cater to the needs of citizens. The industrialization of urban life has led to the production of pollutants, which has significantly contributed to the rise of air pollution. Infrastructure can have both positive and negative effects on air pollution. The effects of infrastructure on air pollution are complex and depend on various factors such as the type of infrastructure, location, and context. This study examines the effects of infrastructure on air pollution, drawing on a range of empirical evidence from Iran and China. Our paper focus for analyzing the data is on the following concepts: 1. Urban design and planning principles and practices 2. Infrastructure efficiency and optimization strategies 3. Public transportation systems and their environmental impact 4. GHG emissions reduction strategies in urban areas 5. Case studies and best practices in sustainable urban development This paper employs a mixed methodology approach with a focus on developmental and applicative purposes. The mixed methods approach combines both quantitative and qualitative research methods to provide a more comprehensive understanding of the research topic. A group of 20 architectural specialists and experts who are proficient in the field of research, design, and implementation of green architecture projects were interviewed in a systematic and purposeful manner. The research method was based on content analysis using MAXQDA2020 software. The findings suggest that policymakers and urban planners should consider the potential impacts of infrastructure on air pollution and take measures to mitigate negative effects while maximizing positive ones. This includes adopting a nature-based approach to urban planning and infrastructure development, investing in information infrastructure, and promoting modern logistic transport infrastructure.

Keywords : GHG emissions, infrastructure efficiency, urban development, urban design

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