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Carrying Capacity Analysis for Transit Oriented Development: A Case of East – West Metro Corridor, Kolkata

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Abstract

Globally, natural resource depletion induced by anthropogenic activities far exceeds their replenishment rate. Thus, sustainable development is the prime concern for modern-day planning that calls for interpreting carrying capacity. According to researchers and theorists, carrying capacity is one of the preliminary parameters for evaluating the optimum utilization of the existing resources for the maximum population in a given area that the environment can support. Sustainable development meets the need of the present generations without compromising on future generations' needs. Thus, appraising urban carrying capacity is one of the prerequisites for achieving sustainable development. During the last two decades, sustainable development in urban areas of India has been advocated through policies like Transit Oriented Development (TOD), compact city planning, high-density development, re-densification, and redevelopment, among others. This paper examines the relationship between the carrying capacity and sustainable urban transportation in the upcoming TOD zones along the East-West Metro corridor (study area). The analytical framework deploys multicriteria decision-making (MCDM) implemented through a geographic information system (GIS). While the ongoing TOD planning is guided by the principles of high-density mixed-use development through Land Value Capturing (LVC), it must be regulated by the carrying capacity indicators.

Keywords: Sustainable Transportation, Floor Area Ratio (FAR), densification; population, urbanization