Chapter 14
Integrating BGI Into Urban Development:
A Case of Indian Cities

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ABSTRACT

This study examines the function of BGI in urban development, emphasizing its importance for Indian cities dealing with environmental challenges made worse by dense, rapidly growing urbanization. The study focuses on effective BGI programs that promote sustainable development, urban resilience, and public health using case studies from Bengaluru, Mumbai, London, and Copenhagen. According to the findings, implementing BGI solutions requires flexibility with regard to local context, sustainability outcomes, and stakeholder participation. Encourage BGI in Indian cities by creating thorough regulations, raising public awareness, fostering stakeholder collaborations, putting creative design principles into practice, and putting in place monitoring measures. Indian cities can create a vibrant urban environment where development and conservation can coexist because of BGI.

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INTRODUCTION

India's rapid urbanization has bequeathed a legacy of ecological destruction. These patterns are observed in the staggering declines in green and blue areas (Brown & Mijic, 2019). India, which is among the fastest urbanizing nations globally, is expected to host approximately 814 million urban residents by 2050, posing huge challenges to sustainable urbanization (Bansal & Haridasan, 2024). This heterogeneity is followed by increasing air and water pollution, loss of biodiversity, and increased vulnerability to climate change impact, such as heatwaves and floods (Ahmad & Hassan, 2022). These need instant, innovative solutions that would improve the living standards and urban resilience of Indian cities (Chaurasia et al., 2024; Patel et al., 2024; Dhanya, Ramananda, & Dhyani, 2022). Blue-Green Infrastructure (BGI) has to be one of them. BGI is the integration of green and blue networks composed of natural elements such as parks, green roofs, urban forests and wetlands, and water bodies like lakes, rivers, and ponds (Ahmed, Meenar, & Alam, 2019; Brown & Mijic, 2019). This type of dual approach provides ecological services while playing a very critical role in climate adaptation and mitigation (Chien, Saito, & Fukushi, 2022). For instance, the green spaces purify air by filtering out pollutants, and the water bodies reduce stormwater runoff hence ensuring protection of urban places from floods (Ahmad & Hassan, 2022).

Thirdly, BGI could be aggressively promoting biodiversity in cities given that it constructs habitats for several species. This would ease a balance between nature and the huge concrete-dominated landscapes (Gupta & De, 2024). The classical approach towards grey infrastructure—relying on concrete and steel solutions—has proved to be inadequate in solving the complex issues brought about by rapid urbanization and variability within climates (Bansal & Haridasan, 2024). In comparison, BGI offers nature-based solutions that would address these issues while advancing social equity (Ahmed, Meenar, & Alam, 2019). Typical green and blue areas in cities are allocated with bias towards disadvantageous outcomes for the major sections, especially the marginalized groups (Dhyani, Majumdar, & Santhanam, 2021). By integrating BGI into the urban planning processes, such inequalities can be rectified so that the greater access to nature will benefit all users. Socio-economic inequality is large-scale throughout the country of India, but BGI can cultivate social cohesion by providing public spaces, provoking the involvement of the community (Chaurasia et al., 2024; Patel et al., 2024). In addition, BGI is in harmony with the set international goals and frameworks for sustainability by the United Nations Sustainable Development Goals (SDGs) (Ahmed, Meenar, & Alam, 2019). Indeed, these are particularly related to such issues like SDG 11-sustainable cities and communities and SDG 13-climate action (Puchol-Salort et al., 2021). Following BGI can be very instrumental for Indian cities in engaging both globally and locally in taking the

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