

Sustainable Urbanization: Challenges and Strategies for Effective Urban Planning in Pakistan

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Abstract

This study investigates the critical issues and challenges surrounding effective urban governance in Pakistan, focusing on sustainable urban development as a central concern. Employing a systematic review of scholarly literature published after 2010, the analysis highlights the pivotal role of cities in driving Pakistan's economic growth and development. However, the rapid pace of urbanisation, coupled with inadequate attention to sustainability, poses serious challenges for urban planning and management. Findings underscore the urgent need to integrate sustainable development principles into all dimensions of urban growth, particularly the socioeconomic and environmental domains. Addressing these challenges is essential to enhance urban productivity, mitigate the adverse effects of pollution and climate change, and ensure the long-term resilience of urban ecosystems. The study calls for evidence-based policy measures and strategic planning to promote sustainable urbanisation, enabling balanced economic growth and environmental conservation for future generations.

Keywords: Sustainable Development, Urban Planning, Governance Challenges.

Introduction

Rapid urbanisation, driven by globalisation, industrialisation, and population expansion, has emerged as one of the most pressing challenges of the 21st century. Governments worldwide are increasingly concerned about the unprecedented pace at which cities are growing, as it has profound implications for economic stability, environmental sustainability, and social equity (Haque, 2014). This urgency has prompted several international initiatives and summits, including the Millennium Development Goals, the 2002 World Summit on Sustainable Development in Johannesburg, and the 2005 UN Sustainable Cities Initiative in Havana. These platforms have consistently emphasised the need for effective urban governance and sustainable development strategies to manage the rapid transformation of urban landscapes (Lynch, 2012; Jiboye, 2011).

Urbanisation is often associated with economic progress, technological advancement, and increased opportunities for employment and income generation. However, its rapid and often unplanned nature in developing countries has introduced complex social, economic, and environmental challenges (Nilsson, 2003; Bai et al., 2017). On one hand, urbanisation drives economic development, creates millions of jobs, and reduces poverty; on the other hand, it intensifies urban poverty, environmental degradation, and strains on basic services and infrastructure (Rithe-Gonçalves, 2019; Klopp & Petretta, 2017). Poorly managed urban growth

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results in traffic congestion, housing shortages, loss of agricultural land, increased pollution, and a decline in overall quality of life (Cai et al., 2017).

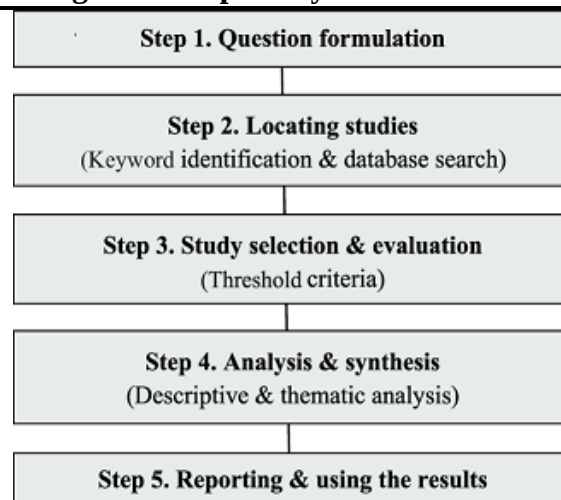
Global projections suggest that by 2050, approximately 6.5 billion people—nearly 70% of the world's population—will live in urban areas (United Nations, 2019). This demographic shift presents significant challenges for developing nations, which are already struggling to meet the demands for housing, transportation, education, healthcare, and employment. Sustainable Development Goal (SDG) 11, which calls for inclusive, safe, resilient, and sustainable cities, highlights the urgent need for effective urban planning and management (Chan & Chan, 2022). In Pakistan, urbanisation has accelerated sharply in recent decades. With an annual urban growth rate of approximately 2.7% (Hasan, 2021), the share of the population living in urban areas reached around 37.2% in 2022 (Statista, 2022). Projections from the United Nations suggest that nearly half of the country's population will reside in cities by 2025. The drivers of this rapid urbanisation include rural-to-urban migration, economic centralisation, political instability, and environmental challenges (Qasim et al., 2014). However, this growth has mainly been unplanned, resulting in significant challenges such as urban flooding, insufficient waste management, a lack of clean water supply, inadequate healthcare and education facilities, and the proliferation of informal settlements (Hasan, 2021).

Despite contributing more than 55% to the national GDP and generating the majority of federal tax revenues, major cities in Pakistan, such as Karachi and Lahore, continue to grapple with inadequate infrastructure and inefficient municipal services (UNDP, 2019). The absence of comprehensive urban policies and over-reliance on public funding have further hindered sustainable urban development. Consequently, urban centres face growing socioeconomic disparities, deteriorating living conditions, and environmental stress, underscoring the critical need for evidence-based planning and policy interventions.

Research Methodology

This section outlines the research methodology employed to address the study's research questions. Systematic review has been identified as a practical approach for synthesising existing research evidence. Aromataris and Pearson (2014) define a systematic review as a method to identify, evaluate, and integrate research findings of sufficient quality related to specific research questions, providing evidence-based insights. Similarly, Popay et al. (2006) emphasise that a systematic review organises extensive information in a structured manner, allowing for a comprehensive understanding of a given subject. This approach also enables the identification of gaps in the current literature, highlighting areas that warrant further investigation.

The present study adopted a systematic literature-based methodology following the five-stage framework proposed by Denyer and Tranfield (2009), which addresses the limitations commonly associated with scoping reviews. This process was supplemented with a quality assessment criterion outlined by Denyer and Tranfield (2009), ensuring that the selection of studies was thorough, transparent, and consistent. The five stages of conducting a systematic literature review are illustrated in Figure 1.

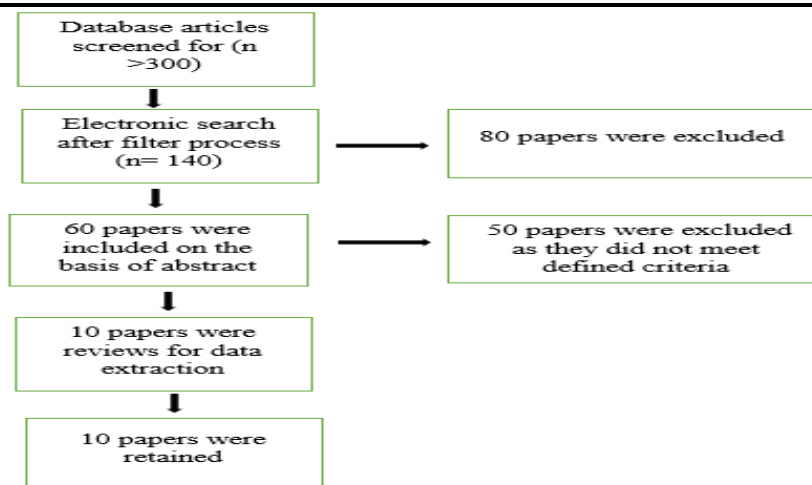
Figure 1: Steps of Systematic Review

Source: (Denyer & Tranfield, 2009).

Given the fragmented nature of urban planning in the context of sustainable urbanisation, this study aims to identify the major challenges faced by Pakistan in implementing sustainable urban planning. Additionally, the study seeks to propose effective strategies to address these challenges. Accordingly, the review questions guiding this study are:

1. What are the critical issues and challenges of urban planning that hinder Pakistan's progress toward sustainable urbanisation?
2. What strategies should authorities consider to implement sustainable urban planning effectively?

To address these questions, relevant studies were identified through electronic databases, including ResearchGate, Google Scholar, Emerald, Wiley Online, and Web of Science. Keywords and search terms included “sustainable urban planning,” “urbanisation,” “challenges of sustainability,” “sustainable urbanisation,” “sustainable urban development,” and “sustainability challenges in developing countries or Pakistan.” These terms were selected based on their relevance to the study objectives and the researchers' domain expertise. Despite the growing importance of sustainable urbanisation, research in this area within the national context remains limited.

Figure 2: Screening Process for Selection of Studies

The initial search using multiple terms yielded over 300 research articles. Following title and abstract screening, 140 articles were retained while 160 were excluded. Duplicate removal and further abstract-based screening excluded an additional 80 papers, leaving 60 for detailed review. Application of inclusion and exclusion criteria resulted in the elimination of 50 papers, ultimately yielding a final sample of 10 studies most pertinent to the research objectives.

Inclusion criteria were developed to ensure the relevance and quality of the selected literature, including:

- Studies focused on sustainable urban planning and sustainable urbanisation.
- Research addressing challenges of sustainable urban planning in developing countries, particularly Pakistan.
- Full-text availability.
- Publications dated after 2010.
- Articles published in peer-reviewed, high-impact journals.
- Studies published in English.

Exclusion criteria encompassed informal literature, books, conference papers, and studies addressing urbanisation aspects such as urban growth and urban sprawl, which were not directly linked to sustainability.

Data from the selected studies were analyzed using descriptive and thematic content analysis. Two reviewers independently examined a substantial portion of the studies to ensure reliability and consistency in outcomes. Descriptive analysis categorized studies based on publication year, journal, research methodology, instruments, and key findings. Thematic analysis was employed to identify and interpret recurrent patterns and themes related to the challenges and strategies of implementing sustainable urbanisation in Pakistan, following the approach outlined by Braun and Clarke (2006). This method allowed for both a detailed description of the data and interpretative insights essential for developing evidence-based recommendations. All selected studies were critically reviewed in alignment with the study’s objectives. This process provided comprehensive insights into the challenges of sustainable urban planning in Pakistan and informed the formulation of strategic recommendations.

Results

Descriptive Analysis

This section presents a descriptive overview of the selected studies, including publication year, journal, and research approach. Among the ten selected studies, publication years ranged from 2011 to 2021. Specifically, one study was published in 2011, 2015, and 2017; two studies were published in 2016, 2019, and 2021; and one in 2020. These studies reflect the limited but growing body of literature on sustainable urbanisation in Pakistan, highlighting the scope for further research.

Table 1: Distribution of Publications by Year

Year of Publication	Number of Articles
2011	1
2015	1
2016	2
2017	1
2019	2
2020	1
2021	2
Total	10

In terms of publication outlets, two articles appeared in sustainability, while six were published across journals including wit transactions on ecology and the environment, sustainable development, resources, conservation and recycling, land use policy, urban science, and journal of sustainable development. One paper was presented at the international conference on sustainable infrastructure, and another as a background paper at the Asia-Europe foundation (asef).

Table 2: Overview of Selected Studies

Author(s)	Objective	Research Method	Data Collection & Analysis
Hasan (2021)	Examine challenges of sustainable urbanisation in Lahore, Pakistan	Qualitative	Secondary data review
Abdul & Yu (2020)	Evaluate urbanisation trends and resilience challenges in Pakistan	Qualitative	Secondary data & systematic review
Slave & Nedovic-Budic (2016)	Explore urban growth patterns via master planning process	Quantitative	Secondary data analysis ("monocentric rate," perimeter-to-area ratio)
Jiboye (2011)	Identify challenges of sustainable urbanisation and importance of planning	Qualitative	Secondary data & literature review
Tafazzoli et al. (2019)	Identify factors hindering sustainable urban planning	Qualitative	Secondary data & literature review
Cobbinah et al. (2015)	Examine urbanisation, poverty, and sustainable development	Qualitative	Secondary data & literature review
Roslan et al. (2021)	Investigate trade-offs in risk-sensitive urban development	Qualitative	Secondary data & systematic review
Mohsin, Beach & Kwan (2017)	Assess public perspectives on urbanisation challenges	Quantitative	Primary survey (750 respondents); frequency distribution
El Sakka (2016)	Identify challenges in implementing sustainable urban planning in developing countries	Mixed-method	Primary survey & secondary sources; mean, SD, correlation, regression
Abubakar & Aina (2019)	Explore sustainable development goals related to urban inclusivity in Nigeria	Qualitative	Secondary data (official reports)

Most studies focused on challenges related to sustainable urbanisation in developing countries. Seven studies used a qualitative approach, two quantitative, and one adopted a mixed-method approach. Data sources included primary surveys and secondary sources such as published literature, official reports, and statistical data. Analytical approaches ranged from statistical methods for quantitative studies to literature and content analysis for qualitative studies.

Thematic Analysis

A thematic analysis of the selected literature identified four central themes: (1) issues of sustainable urbanisation in Pakistan, (2) the need for sustainable urbanisation, (3) challenges for effective urban planning, and (4) strategies for achieving sustainable urban development.

Issues of Sustainable Urbanisation in Pakistan

Rapid urbanisation in Pakistan's megacities raises concerns about sustainability and inclusivity. Heavy dependence on state subsidies for public utilities (water, sanitation, and waste

management) limits service expansion and quality improvement, leaving peri-urban and rural areas underserved (Hasan, 2021). Urban growth has outpaced infrastructure development, resulting in housing shortages, traffic congestion, environmental degradation, and limited access to essential services.

Projections suggest that by 2030, approximately 60% of Pakistan's population will reside in urban areas, with major cities surpassing one million residents. Current urban governance issues—such as poor planning, inefficient resource allocation, and inadequate policy implementation—further exacerbate these problems (Abdul & Yu, 2020; Chan & Chan, 2022). Low-density development, encroachment on agricultural land, and inadequate green spaces have also emerged as critical challenges to sustainable urbanisation (Haque, 2014; Hasan, 2021).

Need for Sustainable Urbanisation

Rapid urbanisation exerts immense pressure on environmental and social systems, including land, water, and public infrastructure. This has amplified unemployment, crime, social inequality, urban sprawl, and environmental degradation (Abubakar & Aina, 2019). Effective urban planning must integrate economic, social, cultural, and environmental dimensions, following frameworks such as the United Nations Agenda 21.

Urban sustainability initiatives are essential to address the adverse consequences of uncontrolled urban growth, including pollution, slums, overcrowding, and inadequate access to basic services (Jiboye, 2011; enslaved person & Nedovic-Budic, 2016). Achieving sustainable development requires coordinated governance, informed policy-making, and inclusive planning that engages local communities (Abdul & Yu, 2020; Roslan et al., 2021).

Challenges for Effective Sustainable Urban Planning

Several barriers hinder the implementation of sustainable urban planning in Pakistan, including weak governance, limited institutional capacity, lack of technical expertise, fragmented data, and inadequate stakeholder engagement (El Sakka, 2016; Abubakar & Aina, 2019). Insufficient baseline data and outdated information impede evidence-based decision-making, while poor coordination between government levels leads to resource duplication and conflicting priorities (Hasan, 2021; Abdul & Yu, 2020).

Other challenges include inadequate infrastructure, environmental degradation, urban poverty, and social inequalities. Additionally, the predominance of top-down planning approaches limits public participation and fails to address community-specific needs (Roslan et al., 2021; Mohsin et al., 2017).

Strategies for Effective Urban Planning

Effective urban planning requires a shift toward participatory, multi-stakeholder approaches that integrate local input with national policies. Strategies include:

- *Inclusive governance*: Decentralised decision-making, cross-organisational collaboration, and public engagement in planning.
- *Data-driven policy*: Maintaining accurate and accessible urban data to support evidence-based decisions.
- *Integrated land use*: Promoting mixed-use development to balance residential, commercial, and public spaces.
- *Sustainability-focused regulations*: Incorporating environmental, social, and economic considerations in urban plans.
- *Capacity building*: Enhancing institutional skills, leadership, and public awareness regarding urban sustainability (Cobbinah et al., 2015; Tafazzoli et al., 2019; Roslan et al., 2021).

Decentralisation, transparency, participatory governance, and collaboration between stakeholders are central to fostering sustainable urban growth and improving living conditions in Pakistan's cities.

Discussion

The analysis reveals that sustainable urbanisation in Pakistan faces multi-dimensional challenges, including rapid population growth, inadequate infrastructure, environmental degradation, and weak governance. While the literature emphasises the importance of sustainable planning, most studies focus on identifying problems rather than evaluating practical interventions (Hasan, 2021).

The need for sustainable urbanisation is driven by increasing pressures on urban services, the environment, and socio-economic systems. Without effective governance, strategic planning, and public engagement, rapid urbanisation may exacerbate inequalities and environmental vulnerabilities (Cai et al., 2017). Lessons from international frameworks, such as the UN Agenda 21, highlight the importance of integrating social, economic, and environmental dimensions in urban development policies (Chan & Chan, 2022).

Challenges identified in the literature include data scarcity, limited technical expertise, fragmented policy-making, and top-down governance approaches. Addressing these barriers requires decentralised planning, multi-stakeholder collaboration, participatory governance, and evidence-based policy-making. Public awareness and engagement are also critical for long-term sustainability.

Strategic recommendations emerging from the literature stress adopting adaptive governance, promoting mixed land use, and integrating urban planning with climate change and environmental management strategies. Coordinated efforts between the government, the private sector, and civil society are essential to achieve inclusive, resilient, and sustainable urban development in Pakistan (Hasan, 2021).

Overall, this review demonstrates that while progress has been made, achieving sustainable urbanisation in Pakistan demands comprehensive planning, institutional reforms, and community-focused approaches. Future research should explore the implementation and evaluation of urban sustainability interventions to provide actionable insights for policymakers and urban planners.

Limitation: This desk-based study identifies urban sustainability challenges in Pakistan through a systematic literature review, but does not employ quantitative methods to measure the factors limiting sustainability integration. The findings are based on a limited selection of studies, which restricts their generalizability. Research on sustainable urbanisation and planning in Pakistan is scarce; thus, studies from other developing countries were included, assuming similar contexts. Key concepts such as environmental degradation, climate change, and urban sprawl were not explored in depth. Future research could incorporate broader datasets, quantitative approaches, and additional urbanisation concepts. Primary studies by urban planners and local authorities may also provide deeper insights into the challenges of rapid urbanisation and sustainable development.

Conclusion

This study highlights the key challenges and strategies for promoting sustainable urban development in Pakistan. Despite global commitments to sustainability, urbanisation faces significant barriers that must be addressed to prevent adverse social, economic, and environmental impacts. Effective sustainable urban planning can enhance citizens' quality of life, manage urban growth, support housing and infrastructure development, optimise natural resource use, and promote renewable energy adoption. National policymakers must prioritise sustainable urban planning to achieve long-term economic and environmental goals.

Key recommendations include:

- Develop a paradigm for urban sustainability integrating local input, institutionalising policies, and engaging stakeholders.
- Ensure inclusive infrastructure development, industrial incentives, and revised zoning, building, and land-use regulations.
- Maintain accurate data and records to inform policies and improve public sector Accountability.
- Adopt participatory, multi-stakeholder, and collaborative urban planning approaches.
- Synchronise urban sustainability with state legislation.
- Implement adaptive governance emphasising cross-organisational collaboration, power-sharing, public participation, transparency, and Accountability.
- Promote community involvement in planning, decentralise urban governance, and ensure transparency in implementation.
- Foster public awareness, commitment, and long-term dedication to sustainability.

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