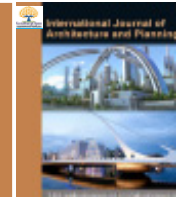




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## Regenerating Cities into Sustainable Cities: Implementing 15-Minute Strategies to Islamabad's City Planning

Ramsha Nazir Malik<sup>1\*</sup> 

<sup>1</sup>Shanghai Jiao Tong University, School of Design, Shanghai, China. E-mail: [Ramsmalik1997@gmail.com](mailto:Ramsmalik1997@gmail.com)

### Article Info

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### Abstract

The paper "Regenerating Cities into Sustainable Cities: Implementing 15-Minute Strategies to Islamabad's City Planning" explores the transformation of Islamabad into a sustainable urban environment through the adoption of the 15-minute city concept. The 15-minute city model emphasizes creating neighborhoods where essential services and amenities are accessible within a 15-minute walk or bike ride, promoting sustainability, reducing reliance on cars, and enhancing community well-being. The paper begins by discussing the origins of the 15-minute city concept, which aims to integrate all aspects of urban life—such as housing, workspaces, and recreational areas—within close proximity to reduce travel times and carbon emissions. The author highlights Islamabad's potential to implement this model, despite its existing challenges like inadequate public transit, pedestrian pathways, and cycling infrastructure. To achieve the 15-minute city model in Islamabad, the paper proposes several strategies, including decentralizing core services, enhancing public transit systems, creating green and public spaces within each neighborhood, and ensuring the proximity of essential services. These strategies aim to foster community engagement, reduce environmental impact, and create a more livable urban environment.

**Keywords:** *Carbon footprint reduction, Decentralized services, 15-minute city, Pedestrian-friendly infrastructure, Sustainable urban planning*

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### 1. Introduction

Islamabad, the capital city of Pakistan, presents a unique opportunity to be transformed into a 15-minute city, a modern urban concept that aims to create cities where all residents have access to their essential needs within a 15-minute walk or bike ride from their homes. This concept, first introduced by Professor Carlos Moreno in 2016, has gained considerable traction in urban planning discussions focused on sustainability, livability, and enhancing both the human and environmental well-being of cities. Over the years, the urban planning discourse has evolved to address pressing global challenges, leading to the development of various concepts such as sustainable cities, low-carbon cities, climate-resilient cities, green cities, and, more recently, the 15-minute city.

\* Corresponding author: Ramsha Nazir Malik, Shanghai Jiao Tong University, School of Design, Shanghai, China. E-mail: [Ramsmalik1997@gmail.com](mailto:Ramsmalik1997@gmail.com)

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The 15-minute city concept is an evolution of the ‘neighborhood unit’ model, originally developed by American planner Clarence Perry in the 1920s. This model was centered around creating self-sufficient communities within urban areas, where residents could access schools, parks, and shops without the need for long-distance travel. Over the past decade, similar ideas have emerged globally, including ‘urban cells’ and ‘30- or 20-minute neighborhoods’, each tailored to the specific needs and contexts of different cities. The 15-minute city is a flexible urban model that ensures residents have access to all essential daily needs within a 15-minute journey, whether by walking, cycling, or using public transit. This approach aligns with the broader objective of creating more sustainable, resilient, and human-centered urban environments.

At the heart of the 15-minute city concept is the idea of ‘hyper-localization’, a strategy that emphasizes the development of urban infrastructure to bring all necessary elements of living and working into local communities. By decentralizing the local economy, this model encourages neighborhoods to become self-sufficient, encompassing all aspects of urban life, including workspaces, businesses, recreation areas, green spaces, and housing. The key principles of this model involve designing multi-purpose spaces and creating multi-functional environments that minimize the need for commuting elsewhere for essential activities.

One of the most significant benefits of the 15-minute city is its potential to reduce reliance on cars and associated carbon emissions, integrating the qualities of historic urban centers with contemporary urban planning. In doing so, the 15-minute city incorporates the advantages of walkable, vibrant neighborhoods with the sustainability goals of modern urbanism. The primary elements that define the 15-minute city include:

**Complete Neighborhoods:** These are neighborhoods that provide for all the essential needs of daily life, including shops, schools, healthcare, and recreation, all within a short distance from home.

**Inclusive Spaces for all Residents:** The 15-minute city prioritizes the creation of spaces that are accessible and welcoming to everyone, regardless of age, ability, or socio-economic status.

**People-Oriented Streets and Mobility:** This concept shifts the focus from car-centric infrastructure to pedestrian and cyclist-friendly environments, encouraging active transportation and reducing the dominance of vehicles in urban areas.

**Connected and Proximate Places:** The 15-minute city emphasizes the importance of connectivity, ensuring that different neighborhoods and services are well-linked and easily accessible to all residents.

## 2. Relevance of 15-Minute Cities and Citizens

The concept of the 15-minute city is not just about urban planning; it is deeply intertwined with the broader goals of sustainability, social equity, and enhancing the quality of life for city residents. In this section, we explore the various ways in which the 15-minute city model can benefit both the environment and the people who live in these urban areas.

## 3. Sustainable and Cleaner Environment

One of the most compelling arguments for the 15-minute city is its potential to create a more sustainable and cleaner urban environment. The transit-oriented nature of this concept prioritizes pedestrian and cycling infrastructure while minimizing car usage. By promoting non-motorized modes of transportation, this approach significantly reduces carbon emissions, contributing to a healthier environment for residents. The design encourages a shift towards sustainable living, aligning urban mobility with environmental goals. This is particularly important in the context of global efforts to combat climate change, as cities are major contributors to greenhouse gas emissions.

The environmental benefits of the 15-minute city extend beyond just reducing carbon emissions. By creating more compact, walkable neighborhoods, the 15-minute city can help reduce urban sprawl, preserving natural landscapes and agricultural land that might otherwise be lost to development. This model also supports the integration of green spaces within urban areas, which not only enhance the aesthetic appeal of neighborhoods but also improve air quality, reduce the urban heat island effect, and provide valuable habitats for wildlife.

Moreover, the reduction in car dependency leads to lower levels of air pollution, which has significant public health benefits. Cleaner air can reduce the incidence of respiratory diseases, cardiovascular conditions, and other health

issues associated with pollution, leading to a healthier population overall. Additionally, by encouraging active transportation such as walking and cycling, the 15-minute city promotes physical activity, which can help combat the growing epidemic of sedentary lifestyles and related health problems.

#### **4. Enhanced Convenience**

The 15-minute city fosters vibrant, healthy communities by promoting social inclusion and strengthening social ties. Lively neighborhoods and well-designed public spaces serve as hubs for community interaction, facilitating deeper engagement among residents. By reducing travel times and eliminating the stresses associated with long commutes, this model enhances the quality of life, making daily needs more accessible and life less stressful. In a 15-minute city, residents can enjoy the convenience of having everything they need within a short distance from their homes, allowing them to spend more time on activities that matter most, such as spending time with family, pursuing hobbies, or engaging in community events.

The emphasis on local living also supports the development of strong, close-knit communities. When people live, work, and socialize within the same area, they are more likely to form connections with their neighbors and participate in local activities. This sense of community is further reinforced by the presence of shared public spaces, such as parks, plazas, and community centers, where residents can come together for social events, recreational activities, or simply to relax and enjoy their surroundings.

In addition to fostering social ties, the 15-minute city can also contribute to a more equitable urban environment. By ensuring that all residents have access to essential services and amenities within a short distance from their homes, the 15-minute city model can help reduce disparities in access to resources. This is particularly important for marginalized or vulnerable populations, who may face greater challenges in accessing healthcare, education, or employment opportunities in car-dependent cities.

#### **5. Affordable Housing**

Another key advantage of the 15-minute city model is its potential to contribute to more affordable and equitable housing. The close proximity of homes, workplaces, and essential services in a 15-minute city contributes to a more balanced housing market. This urban model has the potential to stabilize housing prices, making urban areas more affordable and accessible to a broader range of residents. The reduction in transportation costs also supports more equitable living conditions, as residents can save money on commuting expenses and invest more in their homes and communities.

Affordable housing is a critical issue in many cities around the world, where rising property prices and rents have made it increasingly difficult for low- and middle-income residents to find suitable accommodation. The 15-minute city model addresses this challenge by promoting the development of mixed-use neighborhoods, where residential, commercial, and recreational spaces are integrated. This approach can help create more diverse and inclusive communities, where people of different income levels and backgrounds can live and work together.

In addition to promoting affordability, the 15-minute city model can also support the creation of more sustainable housing. By encouraging the development of compact, energy-efficient homes within walkable neighborhoods, this model can help reduce the environmental impact of urban living. Moreover, by reducing the need for long commutes, the 15-minute city can help lower energy consumption and greenhouse gas emissions associated with transportation.

#### **6. Multicultural and Multi-Purpose Neighborhoods**

The 15-minute city concept encourages the development of multicultural and multi-purpose neighborhoods, where residents can live, work, and socialize in close proximity. By supporting local businesses and promoting diverse cultural engagement, this model facilitates acceptance and inclusion across different backgrounds. The design of these neighborhoods allows for multicultural integration through shared public spaces and community activities, enhancing social cohesion.

In a multicultural city like Islamabad, the 15-minute city model can play a crucial role in promoting social harmony and reducing tensions between different communities. By creating neighborhoods that are inclusive and welcoming to

people of all backgrounds, the 15-minute city can help build stronger, more resilient communities. This is particularly important in cities that have experienced rapid population growth and diversification, as the 15-minute city model can help manage these changes in a way that benefits all residents.

In addition to promoting social cohesion, the 15-minute city model can also support the development of local economies. By encouraging residents to shop, dine, and work within their neighborhoods, this model can help boost local businesses and create more employment opportunities. This, in turn, can contribute to a more vibrant and dynamic urban environment, where residents have access to a wide range of goods, services, and cultural experiences.

## **7. Ways to Achieve 15-Minute Cities**

Ensuring that essential amenities such as groceries, healthcare, and dining options are within easy reach in each neighborhood is fundamental to the 15-minute city model. This approach requires a thoughtful design that places these services within walking distance or a short bike ride from residential areas. Enhancing the quality of life involves not only making daily necessities accessible but also integrating recreational services and cultural amenities close to residents. This encourages a vibrant local culture and allows people to enjoy and utilize their surroundings more fully. For example, parks, community centers, and local event spaces can be strategically placed to foster social interactions and recreational activities.

To support local employment and reduce the need for long commutes, it is essential to invest in smaller-scale offices and co-working spaces within neighborhoods. These spaces enable more people to work closer to home or in virtual setups, reducing transportation needs and contributing to a more balanced work-life dynamic. By decentralizing workspaces, we can create more dynamic and economically resilient neighborhoods that support a range of local businesses and services.

## **8. Implement Sustainability Goals and Urban Planning Initiatives at All Scales**

Integrating sustainability into every aspect of urban planning is crucial for the long-term success of the 15-minute city model. This involves setting ambitious goals to address major environmental challenges, such as climate change and resource depletion. Establishing regulations that mandate the use of low-carbon emission construction materials is one way to ensure that new developments contribute to a greener urban environment. Additionally, promoting infrastructure that supports low- or zero-carbon transportation modes, such as walking and cycling, is essential for reducing the city's carbon footprint.

Developing dedicated walking and cycling corridors can facilitate 'soft' transportation and create a more pedestrian-friendly environment. These corridors should be designed with safety, accessibility, and aesthetic considerations in mind, including features like proper lighting, greenery, and signage. By reducing reliance on cars, these corridors not only help to lower emissions but also contribute to a healthier and more active lifestyle for residents.

## **9. Community Endorsement**

The transition to a 15-minute city requires significant changes and investments, making it crucial to involve the public and stakeholders throughout the planning and implementation process. Community endorsement is vital for achieving a compact city model that is both widely accepted and effectively implemented. Engaging residents, businesses, and policymakers in collaborative decision-making helps ensure that the strategies adopted are practical, beneficial, and aligned with the needs and preferences of the community.

Public consultations, workshops, and advisory panels can be used to gather input and feedback from various stakeholders. Transparent communication about the benefits and potential impacts of the 15-minute city model can help build trust and support for the initiative. By fostering a sense of ownership and participation, the city can create a more cohesive and supportive environment for the successful implementation of these strategies.

## **10. Decentralize Core Services**

Implementing decentralization strategies is key to creating smaller, self-sufficient communities within Islamabad. Each neighborhood should be equipped with its own essential services, such as healthcare facilities, local markets, and

educational institutions. This approach reduces the need for long-distance travel and helps avoid overcrowding in central areas, making services more accessible and convenient for residents.

Decentralizing core services also supports the development of local economies by encouraging spending within neighborhoods and reducing the strain on central facilities. For instance, local markets and healthcare clinics can be integrated into community hubs, providing essential services while supporting local businesses and creating job opportunities. This model fosters a more resilient and adaptable urban environment, where neighborhoods are better equipped to handle disruptions and meet the needs of their residents.

## **11. Open, Flexible, and Transformable Public Urban Spaces**

Designing public spaces such as parks, green areas, and piazzas that foster community engagement is essential for enhancing the quality of urban life. These spaces should be strategically located within neighborhoods to encourage social interactions, recreation, and cultural activities. By creating inviting and well-maintained public areas, the city can promote a sense of community and improve residents' overall well-being.

Flexibility and adaptability are key characteristics of successful public spaces. These areas should be designed to accommodate various uses and functions, allowing them to evolve in response to changing needs and circumstances. For instance, during pandemics or emergencies, public spaces could be repurposed as vaccination booths, awareness centers, or temporary shelters. Green and open spaces also contribute to better air quality, reduce the urban heat island effect, and provide opportunities for environmental education and engagement.

By incorporating these strategies, Islamabad can make significant progress toward becoming a 15-minute city, creating a more sustainable, livable, and inclusive urban environment for its residents.

## **12. Design Strategies**

The main idea for creating small-distance cities revolves around adopting more human-oriented approaches rather than motor-oriented ones. This vision focuses on designing urban environments where proximity and accessibility are prioritized, making it easier for residents to meet their daily needs within a short distance from their homes. The cornerstone of this approach is reducing travel distances and enhancing the accessibility of various essential services and amenities.

To achieve this, urban planning must integrate a range of infrastructure elements that support active and sustainable modes of transportation. This includes the development of cycling lanes, pedestrian pathways, and public bus systems. Cycling lanes are crucial for encouraging bicycle use as a viable mode of transport, offering a safe and dedicated space for cyclists while reducing dependence on cars. Similarly, pedestrian pathways provide safe and pleasant routes for walking, promoting physical activity and reducing traffic congestion. Public buses play an essential role in connecting different parts of the city, providing an efficient and eco-friendly transportation option that complements walking and cycling.

## **13. Shared Public Spaces and Community Engagement**

Residents naturally reside within their neighborhoods, but to foster a strong sense of community, it is essential to create shared public spaces that facilitate social interaction and engagement. Parks, courtyards, and plazas are vital components of this strategy. These spaces serve as gathering points where residents can meet, socialize, and participate in community activities. By designing these areas with a focus on accessibility and inclusivity, we can create vibrant neighborhoods where people feel connected and supported.

Public spaces should be thoughtfully designed to accommodate a variety of activities and uses. For example, parks can feature playgrounds, sports facilities, and picnic areas, while courtyards can host local events, markets, and cultural performances. Plazas can serve as central hubs for community gatherings and celebrations. The goal is to create environments where residents can engage with one another and build a sense of belonging and community cohesion.

## **14. Diverse Environments and Broader Community Connections**

When communities extend beyond their immediate neighborhoods, it is important to provide diverse environments that

continue to support public engagement and interaction. Recreational spaces, family parks, and piazzas should act as nodes for broader community engagement. These spaces should be strategically located to serve as focal points for social activities and public events, fostering connections between different neighborhoods and enhancing the overall sense of community.

Designing these spaces to be welcoming and versatile is key to their success. For example, family parks can offer a range of amenities for different age groups, including play areas for children, fitness equipment for adults, and picnic spots for families. Piazzas can be designed to host farmers’ markets, festivals, and other community events, providing a platform for cultural expression and local commerce. By creating diverse and engaging environments, we can ensure that residents have access to enriching experiences and opportunities for social interaction.

**15. Strategic Location of Offices and Workplaces**

The strategic placement of offices and workplaces is another crucial aspect of the small-distance city model. By locating key facilities, such as recreational centers, healthcare services, and offices, in close proximity to residential areas, we can significantly reduce commute times and improve overall convenience for residents. This urban configuration ensures that essential services are easily accessible, promoting a more efficient and balanced lifestyle.

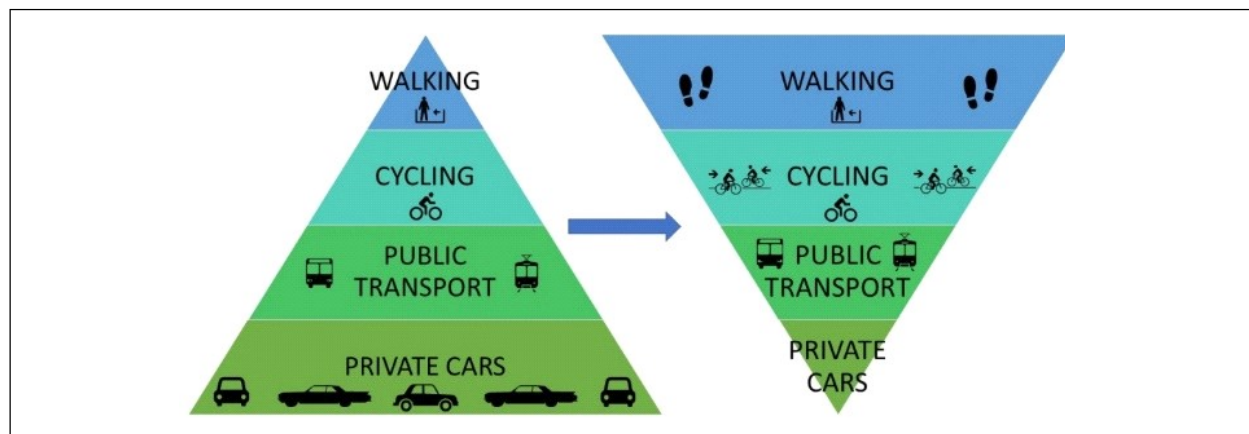
Residential units should be arranged around these key facilities, creating a compact and interconnected urban fabric. For example, mixed-use developments can incorporate residential, commercial, and recreational spaces within a single building or complex. This approach allows residents to access a range of services and amenities without the need for extensive travel. By placing important facilities at the heart of each neighborhood, we can create a more integrated and functional urban environment.

**16. Transforming Islamabad into a Connected and Sustainable Urban Environment**

By ensuring proximity between living, working, and recreational spaces, Islamabad can effectively embody the principles of the 15-minute city. This approach not only enhances connectivity and accessibility but also contributes to a more sustainable and livable urban environment. The implementation of these strategies can help transform Islamabad into a city where residents enjoy a higher quality of life, with easy access to essential services and opportunities for community engagement.

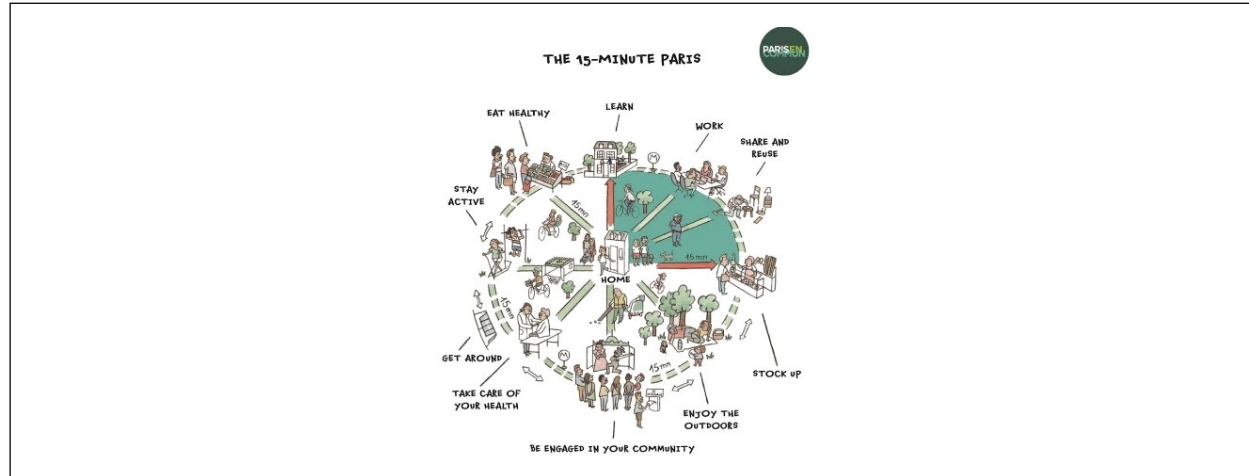
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**Figure 1: Hierarchy to Importance of Activities**

Source: Picture Credits: Arch Daily



**Figure 2: 15-Minute City Concept**

Source: Picture Credits: Bike Republic

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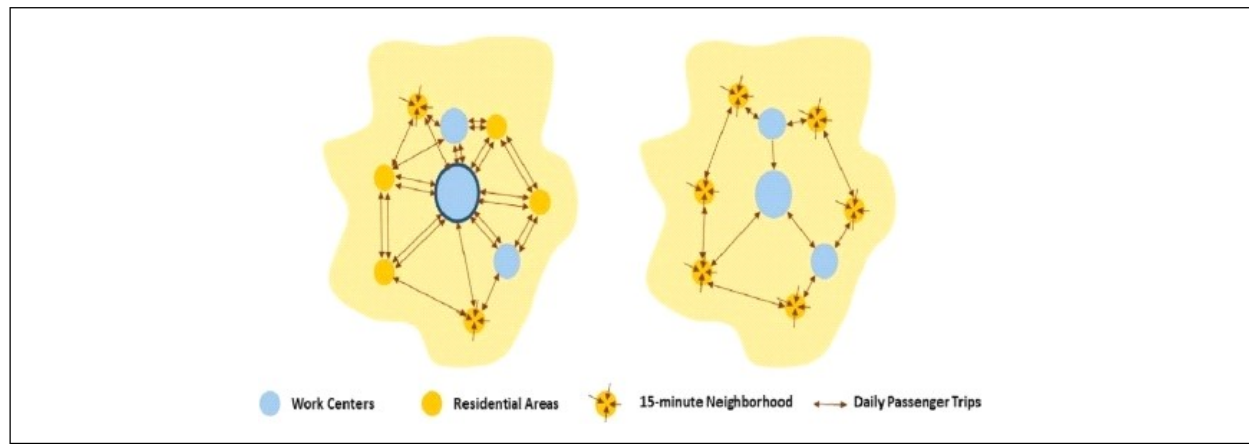
a city where residents enjoy a higher quality of life, with easy access to essential services and opportunities for community engagement. Following strategies offer a comprehensive framework for reimagining Islamabad’s urban landscape, making it more connected, sustainable, and responsive to the needs of its residents. By focusing on human-oriented design and reducing distances between essential services, we can create a more vibrant and resilient city that enhances the well-being of its inhabitants.

### 21. Pros of a 15-Minute City

**Local Economic Generation:** In 15-minute cities, the focus on neighborhood-centric living fosters increased foot traffic on streets, leading to more local and diverse employment opportunities. The active use of buildings and street spaces supports the growth of small businesses, stimulating economic activity within the community and enhancing the overall vitality of urban areas.

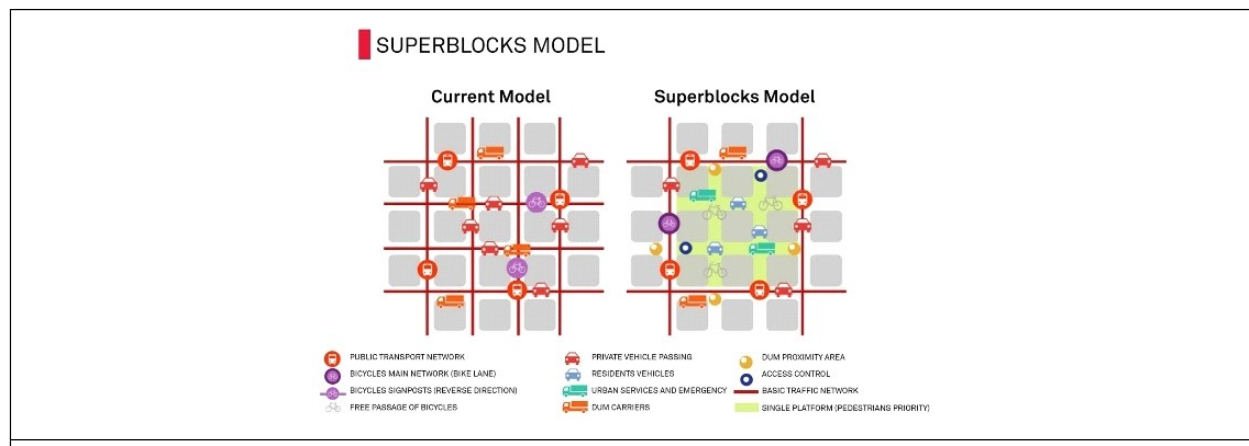
**An Equitable and Inclusive City with a Stronger Sense of Community:** These cities strategically redevelop underserved areas, designing streets and active travel schemes that are accessible to all. The 15-minute city model ensures that every resident has equal access to essential services and amenities. It also encourages social interaction and collaboration among locals, supporting neighborhood businesses, and allowing people to spend more time with friends, family, and the activities they enjoy. This approach fosters a stronger sense of community and inclusivity.

**Enhanced User Well-Being:** By reducing reliance on motor vehicles, 15-minute cities promote physical activity through walking and cycling, which helps address health issues related to inactivity and obesity. The reduction in carbon emissions from these sustainable transportation methods also contributes to cleaner air and a healthier



**Figure 3: Relationship between Public Spaces**

Source: Picture Credits Sarika (2021)



**Figure 4: 15-Minute City Example**

Source: City of Barcelona



environment. Increased community engagement and social cohesion help combat loneliness and other negative emotions, contributing to overall well-being. Additionally, the presence of green spaces and easy access to quality food have significant positive impacts on both mental and physical health. Green spaces, cleaner air, and reduced urban heat-island effects also lower flood risks and improve biodiversity, further enhancing health and economic benefits.

**Reduced Transport Times:** Proximity between residential areas, workplaces, and essential services significantly reduces travel times, making daily life more convenient and less stressful.

**Lower Pollution and Carbon Emissions, Cleaner Air:** The emphasis on sustainable transportation and reduced reliance on cars in 15-minute cities leads to lower pollution levels, reduced carbon emissions, and improved air quality, creating a healthier urban environment for all residents.

## 22. Making Islamabad a 15-Minute City

Islamabad, the capital of Pakistan, is unique as the only planned city in the country, designed with a rectilinear grid layout, in contrast to the organically developed cities elsewhere in Pakistan. However, despite its planned nature, Islamabad faces significant challenges, including a lack of public transit systems, pedestrian-friendly paths, and cycling lanes. The city is characterized by large distances between residential areas and essential infrastructure such as schools, markets, public parks, and other daily necessities.

For a metropolitan city like Islamabad, it is crucial to implement strategies that bring resources closer to residents, reducing travel distances and promoting a healthier, more sustainable urban environment. Implementing the 15-minute city concept in Islamabad would focus on the following key guidelines:

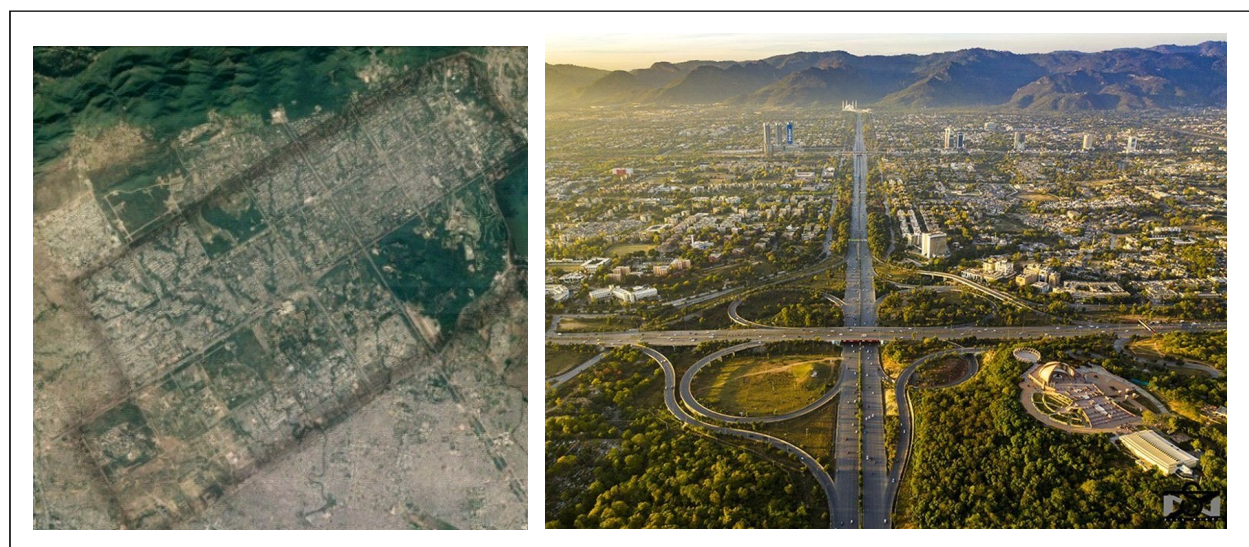
**Green and Public Spaces:** Expand and enhance green areas and public spaces to ensure they are within easy reach of all residents.

**Accessible Public Places:** Develop accessible locations for public use, ensuring that essential services and amenities are evenly distributed across the city.

**Subdivision of Communities:** Create smaller, self-sufficient communities within the city, each equipped with spaces for community engagement and interaction.

**Cohesion Through Extended Public Spaces:** Connect these sub-communities through shared, extended public spaces that promote social cohesion and a unified urban experience.

**Active Transportation Infrastructure:** Establish public bus routes, cycling paths, and pedestrian walkways to encourage active transportation, reduce reliance on cars, and lessen the city’s carbon footprint.



**Figure 5: City of Islamabad**

Source: Picture Credits: Zamulk

To implement an effective public transit system in Islamabad, the following steps should be undertaken:

**Grid Analysis and Route Planning:** Begin by studying the city’s existing grid layout to identify and mark potential bus routes. Utilize the highway (depicted in orange) and secondary roads (depicted in blue) as primary corridors for bus transit. This approach ensures that the bus network integrates seamlessly with the city’s existing road infrastructure.

**Route Optimization:** According to the proposal, the maximum travel time for a bus from the city’s northernmost to southernmost points should be capped at 14 minutes. By optimizing these routes, the transit system will efficiently connect the city’s extremities, allowing users to traverse between distant points within a minimal timeframe.

**Comprehensive Connectivity:** The proposed bus routes should be designed to connect all major areas of the city, ensuring comprehensive coverage. This network will facilitate quick and convenient travel across the city, enhancing accessibility and reducing overall commute times.

By implementing these strategies, Islamabad can develop a more efficient public transit system that supports the 15-minute city concept, improving connectivity and reducing travel times across the metropolitan area.

Once the bus routes are established, the next step is to develop cycling and pedestrian pathways. To achieve efficient management and accessibility across the city, the urban grid should be overlaid with evenly spaced cells. This grid-based approach allows for systematic planning and ensures equitable access to amenities.

**Grid-Based Planning:** By marking the city on a grid with equal-sized cells, each cell can be optimized to provide equal access to essential services. The center of each cell, highlighted in pink, represents a focal point where residents are equidistant from any edge, ensuring balanced accessibility.

**Cycling and Pedestrian Routes:** Designate the pink-marked routes within these cells to facilitate non-motorized travel. These routes will provide safe and convenient paths for cycling and walking, connecting residents to local amenities and services.

**Integration with Bus Routes:** Ensure that the cycling and pedestrian pathways are strategically linked to the main bus routes. This integration allows residents to use non-motorized transport for short distances and conveniently access



**Figure 6: Making Islamabad a 15-Minute City**

Source: Picture Credits: Author



**Figure 7: Making Islamabad a 15-Minute City**

*Source: Picture Credits: Author*

bus stops for longer journeys. Additionally, provide designated areas for bicycle parking near bus stops to support multimodal travel.

By incorporating cycling and pedestrian routes into the grid-based planning, Islamabad can enhance mobility, support sustainable transportation options, and improve overall connectivity within the city. This approach aligns with the principles of the 15-minute city, promoting efficient and eco-friendly urban living.

Once the routes and pathways are established, Islamabad should develop central zones within each grid cell to provide residents with essential amenities. These central zones should ensure that basic services, such as grocery stores, are accessible within a short distance—ideally within 5 minutes.

**Central Amenities:** Design each cell to include a central zone where residents can easily access essential services and amenities. This proximity supports daily needs and enhances convenience, contributing to a higher quality of life.

**Green and Public Spaces:** Integrate green spaces and public areas into each cell to promote community engagement and well-being. These spaces should be designed to serve as communal hubs where residents can interact and socialize, fostering a strong sense of community within each neighborhood.

**Inclusive Communities:** The arrangement of central amenities and public spaces within each cell facilitates the development of inclusive, engaged communities. By providing accessible and welcoming areas for all residents, these zones encourage social interaction and integration, while also supporting broader community connections in main public areas.

This approach will help Islamabad create well-connected, vibrant neighborhoods that support both local interactions and larger community engagement, aligning with the principles of the 15-minute city model.

The inclusion of health, commercial, and office services at the center of each grid cell ensures easy access for residents. By concentrating these essential services at a central node, residents can conveniently reach healthcare facilities, retail outlets, and workplaces from their homes. This centralization not only streamlines access to everyday needs but also brings together various aspects of daily life in a single, accessible location. This arrangement promotes



**Figure 8: Making Islamabad a 15-Minute City**

Source: Picture Credits: Author



**Figure 9: Making Islamabad a 15-Minute City**

Source: Picture Credits: Author

efficiency and supports a cohesive community by placing common interests and services within close proximity, Enhancing overall convenience and quality of life.

The fundamental success of the 15-minute city concept lies in its ability to create a pedestrian-oriented urban environment through the strategic division of the city into distinct cells and zones. Each residential cell is meticulously designed to be self-sufficient, encompassing all essential amenities and services within close proximity to its residents. This deliberate zoning ensures that every individual has access to key resources such as grocery stores, healthcare facilities, educational institutions, and recreational areas without needing to travel long distances.

The design of these residential cells fosters inclusive communities by integrating various public spaces that encourage social interaction and engagement. Recreational zones, such as parks, playgrounds, and community centers, are strategically placed within each cell to promote active participation and strengthen community bonds. These shared spaces are crucial for facilitating social connections among residents, allowing them to engage in local activities, attend events, and build relationships with their neighbors.

By ensuring that essential services and amenities are within easy reach, the city not only enhances convenience but also promotes a sense of belonging and community. Residents are more likely to engage in local events and support neighborhood businesses, creating a vibrant and interconnected social fabric. This approach helps reduce social isolation and fosters a strong sense of community pride and cohesion.

The concentration of essential services within each cell empowers residents by promoting independence and convenience. The need for motorized transportation is significantly reduced, as residents can easily access daily necessities and services within their own neighborhood. This reduction in reliance on cars not only alleviates traffic congestion but also contributes to a more sustainable urban environment.

The ability to walk or cycle to nearby amenities enhances the overall quality of life, as residents experience greater ease in managing their daily activities and errands. The design of the city encourages active transportation, leading to healthier lifestyles and reduced environmental impact. By integrating essential services within each cell, the city supports a more resilient and adaptable urban infrastructure that can respond effectively to the needs of its residents.

The design principles of the 15-minute city model lead to increased community interaction and cohesion. With essential services and public spaces concentrated within each cell, residents find it easier to connect with their neighbors and participate in community-driven initiatives. This close-knit structure promotes a sense of belonging and encourages collective involvement in local decision-making and activities.

The integration of diverse public spaces within each cell further supports community engagement by providing opportunities for social interaction, cultural events, and recreational activities. These spaces act as gathering points where residents can come together, share experiences, and collaborate on community projects. The enhanced interaction and collaboration fostered by this design contribute to a more supportive and vibrant urban environment.

Ultimately, the 15-minute city concept creates a more integrated and accessible urban environment by organizing the city into self-sufficient cells. Each cell contributes to the overall vibrancy and functionality of the city, ensuring that residents have access to all necessary amenities and services within a short distance from their homes. This design approach not only enhances convenience and independence but also strengthens community bonds and promotes a more inclusive and engaging urban experience.

The result is a city where every cell is a vibrant and supportive community hub, contributing to a cohesive and well-connected urban landscape. By prioritizing pedestrian-oriented design and local engagement, the 15-minute city model offers a sustainable and livable urban solution that meets the diverse needs of its residents while fostering a strong sense of community.

## 23. Conclusion

The 15-minute city concept revolves around creating self-sufficient, neighborhood-centric communities where residents can access essential services and amenities within a short walking or cycling distance. This article explores its benefits and application to Islamabad.

**Local Economic Growth:** The increased foot traffic in 15-minute cities fosters local economic development. By supporting small businesses and enhancing street activity, the model drives local employment and boosts the vibrancy of urban spaces.

**Equitable and Inclusive Living:** This city model ensures equal access to essential services for all residents, fostering social cohesion and interaction. Inclusive planning in underserved areas promotes stronger community ties and support for local businesses.

**Improved Well-Being:** Reduced reliance on cars promotes physical activity through walking and cycling, addressing health issues like obesity. Cleaner air, lower pollution, and greater access to green spaces improve both mental and physical health.

**Convenient Commutes:** By shortening the distance between homes, workplaces, and services, 15-minute cities drastically reduce travel times, alleviating stress and enhancing quality of life.

**Environmental Sustainability:** Lowered carbon emissions, improved air quality, and expanded green spaces contribute to a healthier environment. Sustainable transportation and reduced urban heat-island effects promote biodiversity and flood protection.

**Application in Islamabad:** Islamabad, with its rectilinear grid, faces challenges like inadequate public transit and pedestrian paths. Transforming Islamabad into a 15-minute city involves:

- Expanding green and public spaces.
- Creating accessible public areas.
- Dividing the city into smaller, self-sufficient communities.
- Integrating active transportation infrastructure like buses, cycling paths, and pedestrian walkways.

Strategically designing the city through grid-based planning will ensure that each residential cell provides easy access to services and amenities, centralizing daily necessities and reducing reliance on motorized transport. This will enhance urban connectivity, community engagement, and overall livability.

By implementing these strategies, Islamabad can evolve into a sustainable, well-connected urban environment that enhances residents' quality of life while fostering community cohesion.

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