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Urban Public Transport Challenges of Supporting Infrastructure Planning : A Case Study of Kabul City, Afghanistan

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Abstract - *Kabul City's transportation infrastructure has been severely strained by decades of conflict, rapid population growth, and unplanned urban expansion, particularly in the domain of public bus transit. This study examines the urban transportation challenges arising from Kabul's near-total absence of formal bus terminal infrastructure. This study uses a mixed-methods research methodology based on secondary data and thorough literature analysis, which includes a review of previous studies, policy papers, and transport records in addition to a spatial analysis of 47 informal transit nodes. The results show that the lack of designated bus terminals has cascading systemic effects in five interconnected domains: traffic congestion (average commute times have increased by about 68% over the past ten years); road safety risks resulting from unregulated on-street loading and unloading practices; environmental degradation caused by uncontrolled vehicle emissions at informal transit nodes; spatial disparities in mobility access across socioeconomic groups; and governance issues in transportation planning and regulation.Drawing on urban mobility theory, transport justice frameworks, and comparative analysis with cities in analogous development contexts Dhaka, Nairobi, Kathmandu, and Addis Ababa the paper argues that bus terminal infrastructure constitutes an essential organizational component of functional urban transport systems rather than a supplementary amenity. In response to Kabul's financial, institutional, and post-conflict constraints, the study proposes a phased Hierarchical Bus Terminal Development Framework (HBTDF), recommending an integrated three-tier network comprising seven major intermodal terminals, twenty-four secondary distribution hubs, and 112 community-level transit stops. The findings offer both theoretical contributions and policy-relevant recommendations for Kabul's transportation sector, while advancing broader scholarly debates on infrastructure governance in fragile and conflict-affected urban environments.*

Keywords: **Urban transport; Bus terminal infrastructure; Kabul City; Traffic congestion; Afghanistan; Public transit; Urban mobility; Transport governance; Informal transit; Sustainable transport**

1. Introduction

In any large metropolis, urban transportation plays a crucial role in determining social justice, economic productivity, and quality of life. One of the most urgent governance issues facing Kabul, a metropolis of more than 4.5 million people that has experienced decades of conflict and reconstruction, is the lack of a working public transportation infrastructure. Private taxis and minivans dominate Kabul's fragmented, mostly informal transportation system, in contrast to many international cities where bus terminals act as organizational hubs for route planning, fare enforcement, and passenger safety (Noori, Walid Ahmad 2010) In cities all over the world, urban transport infrastructure is universally acknowledged as being essential to social justice, economic productivity, and environmental sustainability (Cervero & Kockelman, 1997; Rodrigue, Comtois, & Slack, 2016). Bus terminals play a crucial role among the many elements of urban transportation systems; they are the functional hubs that plan, coordinate, and manage the flow of people and cars throughout cities (Vuchic, 2005; Wright & Hook, 2007). The lack of such infrastructure indicates a systemic failure with repercussions that affect traffic management, environmental quality, public safety, economic activity, and social cohesion. It is not just a gap in physical amenities (Paget-Seekins, 2015; Salon & Aligula, 2012).Among Asian capitals, Kabul City exhibits one of the most severe examples of this issue. Due to rural-to-urban migration, post-conflict displacement, and natural population growth, Kabul's population has increased from about 1.5 million in 2001 to an estimated 6–7 million in 2023. This urbanization has occurred at a rate that significantly outpaces the development of its supporting infrastructure (Barakat & Chard, 2006; UNHABITAT, 2015; World Bank, 2016).An estimated 800,000 registered cars and an unknown number of unregistered motorcycles and rickshaws currently strain the city's road system, which was initially built for a small portion of its present population (Afghanistan Ministry of Urban Development and Land, 2022; JICA, 2011). There isn't a single official bus terminal in the entire metropolitan area, despite the fact that public bus service is available in dispersed and unofficial forms (Kabul Municipality, 2021). Two connected findings

serve as the inspiration for this investigation. First, despite the magnitude and prominence of Kabul's transportation crisis, there is still a dearth of scholarly research on urban mobility in Afghanistan, especially with relation to the public transportation infrastructure deficit (Pain & Sutton, 2007; Suhrke, 2011).

Due to the past devastation of transportation infrastructure throughout civil wars, there is a greater demand for public transportation in Kabul than there is supply, necessitating a rise in buses and a change from fixed to distance-based charges (Mirzada, R., & Maruyama, T. 2016).The urban transportation system in Kabul, Afghanistan, is the subject of this study. Rapid urbanization, growing private car ownership (63% of the fleet), and a dearth of public transportation all contribute to Kabul's extreme traffic congestion, air pollution, and inefficient mobility. After evaluating the current road networks, policies, and transportation system, the authors come to the conclusion that the current paradigm is unsustainable. They suggest eight options, including transportation-land use integration, transit-oriented development, non-motorized networks, economic tools (congestion pricing), low-cost transportation for the poor, and a number of alternatives (walking, cycling, electric buses, bicycle taxis). By putting these tactics into practice, Kabul's urban transportation system may become more ecologically friendly and sustainable (Regina Maihan and Ebru Vesile Ocalir 2023) In order to solve Kabul's urban transportation issues, rehabilitating current facilities is given first priority, with an emphasis on enhancing public transportation and traffic control. To guide these advancements, the study examines policies from significant Chinese and Indian cities. (Danesh, A., Ma, W., & Wang, L. 2019). This research examines the serious traffic problem in Kabul. The only capital city in the world without a public transit system is Kabul. The absence of traffic signals or multi-level intersections, street vendors obstructing traffic, unlawful speed breakers, corruption, security roadblocks, and packed government buildings in the city center are some of the main issues facing the city's more than 5 million residents and one million automobiles. Building a bypass route, shifting government buildings and marketplaces, eliminating speed bumps and street sellers, setting up parking and bus stops, putting traffic signals, enforcing the law, and constructing a metro or tram system are some of the suggested remedies based on field surveys conducted in 2016. Strong political will and investment are necessary, the author says (Amirzada Ahmadzai 2019) The operational level of public transportation, and particularly terminal infrastructure, is understudied because the majority of current research concentrates on macro-level economic reconstruction or road network repair (Barfield, 2010; Jones, 2020). Second, when it comes to Afghanistan's urban sector, policymakers and foreign development partners have continuously placed a higher priority on hardware investments (roads, bridges) than on the organizational infrastructure (terminals, depots, regulations) that makes transit systems work (USAID, 2018; World Bank, 2016).

2. Literature Review

2.1 Urban Transport Infrastructure and Bus Terminal Systems

The Economics, geography, urban planning, and engineering are all covered in the vast body of academic research on urban transportation infrastructure. Transportation infrastructure impacts urban form, economic efficiency, and quality of life, according to basic frameworks created by classic work (Downs 2004) on traffic congestion (Meyer and Miller 2001) on urban transportation planning. The particular function of transit infrastructure nodesstations, terminals, and hubsin organizing urban mobility systems has been the subject of more recent contributions (Bertolini, 2017; Curtis, Renne, & Bertolini, 2009).Bus terminals serve as what Bertolini and Spit (1998) referred to as "station areas"places where urban land uses and transportation networks converge, creating highly accessible and economically active environments. In addition to being a physical building, the terminal is an institutional tool that arranges the intricate coordination issues that arise in public transportation, such as coordinating schedules, matching vehicle supply with passenger demand, offering waiting areas, controlling driver behavior, and facilitating route transfers (Vuchic, 2005). According to Black (1995), in the absence of such organizational nodes, public transportation falls back on unofficial, self-organized arrangements, which are usually less effective, secure, and fair.The literature on bus terminals in the Global South has shown that a number of transportation diseases are correlated with their absence. Cities with clearly defined terminal hierarchies earned 40–60% higher transit modal shares than comparable cities relying on dispersed on-street operations, according to Cervero's (2000) comparative analysis of developing-country transit systems. According to Salon and Aligula (2012), Nairobi's matatu (minibus) system caused persistent traffic jams, a high accident rate, and the transport network's spatial fragmentation because it lacked authorized terminals. Studies conducted in Dhaka (Hoque & Hasan, 2017), Lagos (Oduola, 2016), and Dar es Salaam (Kiunsi, 2013) produced similar results.

2.3 Theoretical Frameworks for Urban Mobility

This research makes use of three complementary theoretical frameworks. First, the Mobility Paradigm proposed by Urry (2007) and Sheller and Urry (2006) rethinks transportation as a social activity entrenched in systems of infrastructure, culture, and power rather than as simple movement between fixed sources and destinations. This perspective is helpful in comprehending how larger societal injustices, especially those based on gender, class, and ethnicity, are reflected in and perpetuated by Kabul's unofficial transportation arrangements. Second, the co-evolutionary interaction between transport infrastructure and urban spatial organization is emphasized by the Transport and Land Use Interaction (TLUI) model, which was developed by Wegener and Münst (1999) and more recently by Ewing and Cervero (2010). According to the model, suboptimal land use patterns, such as sprawl, traffic, and the concentration of economic activity in vehicle-accessible areas at the expense of pedestrian and transit-dependent populations, will result from deficiencies in transport infrastructure, including the lack of bus terminals. Third, Martens (2016) introduced the idea of "Transport Justice," which is based on Rawlsian distributive principles and offers a normative foundation for determining who pays for infrastructure deficiencies and who gains from their correction. According to Pereira, Schwanen, and Banister (2017), transport justice is a tangible indicator of whether the urban poor, who disproportionately depend on public transportation, can access jobs, services, and education in areas of extreme poverty like Kabul.

2.4 Informality in Urban Transit Systems

In cities with no or insufficient formal public transportation infrastructure, informal transit—also known as paratransit, jitney services, or informal public transportis the preferred mode of transportation, according to a large body of research (Cervero, 2000; Behrens, McCormick, & Mfinanga, 2016; Pojani & Stead, 2015). Despite offering vital mobility services, informal transit systems have structural drawbacks, including erratic routes, lax safety regulations, unstable fares, and a lack of coordinating infrastructure like terminals and depots (Klopp & Cavoli, 2019; Paget-Seekins, 2015). Crucially, the absence of infrastructure and informality have a reciprocal relationship. According to Klopp and Cavoli (2019), informal transportation does more than just bridge the gap left by inadequate infrastructure; it also establishes institutional path dependencies that make formalization more difficult. Around particular street corners, unofficial stops, and uncontrolled depots, drivers and operators establish spatial routines, economic niches, and political connections. According to Cervero and Golub's (2007) comparative assessment of formalization projects in Johannesburg, Istanbul, and Bogotá, these interests might become roadblocks to infrastructure development.

2.5 Urban Transport in Post-Conflict and Fragile Contexts

After experiences in Kabul, Baghdad, Mogadishu, Monrovia, and other conflict-affected cities, the relationship between urban transportation and post-conflict reconstruction has drawn increasing scholarly attention (Barakat, 2016; Colenbrander, Dodman, & Mitlin, 2018; Graham, 2010). The literature highlights a number of unique aspects of post-conflict urban transportation, including the need to rebuild physical infrastructure, institutional capacity deficiencies in transportation planning and regulation, sudden demand spikes caused by displaced populations, security constraints on planning and fieldwork, and the predominance of humanitarian and emergency imperatives over longer-term transportation system development (Barakat & Chard, 2006; Jones, 2020).The term "networked urbanism" was first used by Graham (2010) to characterize how infrastructure systems in cities devastated by conflict become sites of both political contestation and devastation, with infrastructure restoration acting as a signal of governmental legitimacy and regeneration. Similar logic was used to transportation infrastructure by Colenbrander et al. (2018), who contended that bus terminals in post-conflict environments had symbolic meaning beyond their practical use, signifying the state's ability and desire to structure urban life.

3. Study Area

Kabul the capital of Afghanistan is situated in a mountainous basin and is the main administrative and economic hub of the nation. From over 1.5 million in 2001 to over 6 million in recent years, the city's population has grown quickly. Unplanned urban growth has resulted in a considerable number of informal communities. The road network is under a lot of strain since the transportation infrastructure has not kept up with this increase. With neither a subway nor a rail system, Kabul's

transportation system is mostly road-based. The lack of organized public transportation, especially bus terminals, is a defining feature of the city's mobility issues.

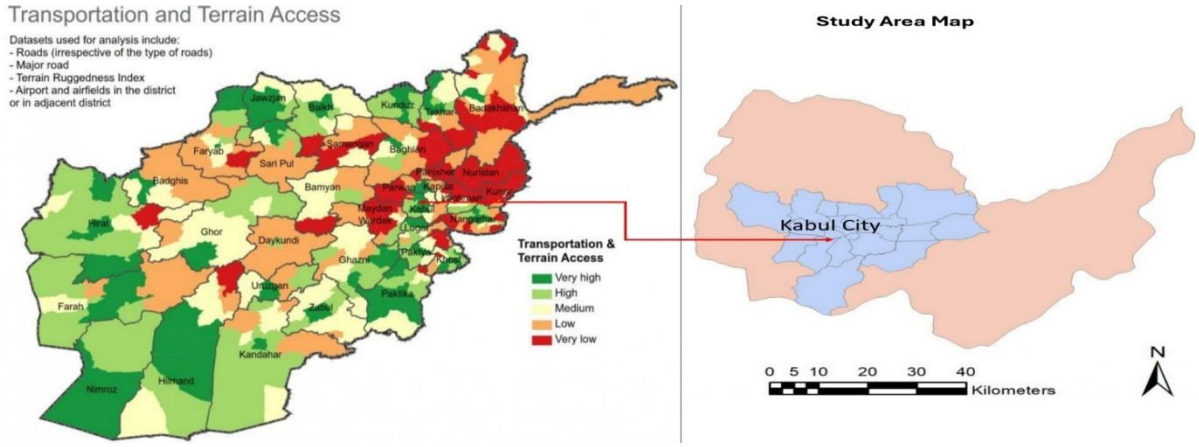

Figure 1: Study Area Map

Source: Compiled by the authors

4. Kabul City Transportation

4.1 Existing Transport Infrastructure

The Road-based mobility is the main component of Kabul's transportation system, with a small amount of air support. There are roughly 141 km of local roads and 215 km of arterial highways in the city's radial road network, which is centered on the metropolitan core. A large portion of the infrastructure is still limited despite post-2001 improvements because of previous conflicts, poor maintenance, and fast urban growth.

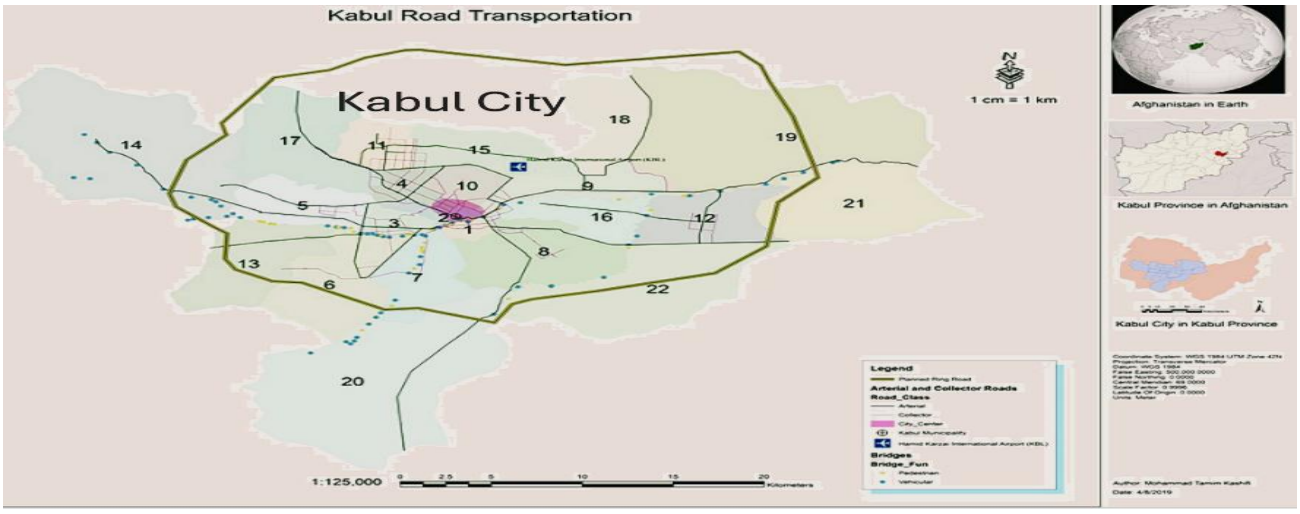

Figure 2: Road Network Structure of Kabul City Source: Compiled by the authors

4.2 Absence of Bus Terminal Infrastructure

Kabul's mobility system is dominated by unofficial transportation options like minibuses and shared taxis, which don't have set schedules or designated stops. Vehicles rely on unregulated roadside pick-up and drop-off locations in the lack of official bus terminals, which worsens traffic, raises safety concerns, and decreases operational effectiveness. These difficulties are made worse by the frequent requirement that passengers board and disembark in busy traffic lanes. As a result, a network of unofficial transit hubs has developed around the city. These usually occur in three main places: (i) at the intersection of planned and unplanned residential areas, where formal routes end and informal services start; (ii) in the city center, where high demand and poor connectivity require intermediate stopping points; and (iii) close to important activity hubs, like markets and educational institutions, where passenger volumes surpass the capacity of formal transportation. These places are mostly unregulated and sometimes run by unofficial organizations that charge transportation companies for their services. They thus contribute to unsafe boarding circumstances, ineffective traffic flow, and general system dysfunction. Although informal transportation offers necessary mobility, its lack of infrastructure, coordination, and control emphasizes the critical need for integrated transport planning and an organized bus terminal system.

4.3 Modes of Transport and Trips Distribution

Sustainable ways of transportation are greatly favored in Kabul because to the city's high population density and economic conditions. A 2009 survey by the Japan International Cooperation Agency found that just 4.5% of travel is done in private vehicles, which is rather decent. According to the following figure (JICA, 2009), walking and bicycling are the next most common modes, after public transportation.

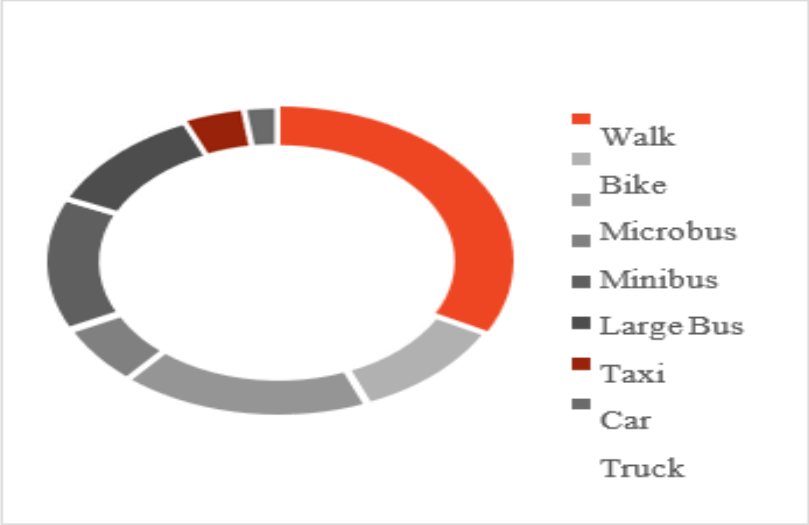

Figure 3: Transport Mode Share in Kabul Source: (JICA, 2009).

5. METHODOLOGY

In order to capture both the quantifiable aspects of transportation issues and the lived experiences of urban mobility in Kabul, this study uses a mixed-methods research methodology that combines quantitative spatial analysis with qualitative inquiry (Creswell & Clark, 2017; Tashakkori & Teddlie, 2010). For complicated urban issues, where quantitative data alone may mask the social, institutional, and experiential aspects that are crucial for developing contextually relevant policy solutions, the mixed-methods approach is especially suitable (Yin, 2018). According to Flyvbjerg's (2006) reasoning, a case study is suitable

when research aims to produce context-rich understanding of phenomena that cannot be reduced to variables and statistical relationships. This is why the study is organized as a case study of Kabul City. The transportation situation in Kabul is a crucial example where the severe lack of bus terminal infrastructure makes it possible to clearly identify the effects of this lack, offering insights with wider theoretical significance (Flyvbjerg, 2006; Stake, 2005).

6. RESULTS

The analysis reveals that the absence of formal bus terminal infrastructure in Kabul has led to the dominance of informal transport systems, significantly affecting the efficiency, safety, and equity of the urban transport network.

6 .1 Congestion Patterns and Their Causes

In Kabul's central and commercial districts, traffic count surveys showed widespread and severe congestion, with average volume-to-capacity (V/C) ratios exceeding 1.5 at 8 of the 12 surveyed intersections during peak hourswell above the 0.85 threshold typically linked to system failure (Transportation Research Board, 2010). Two approaches were used to identify the lack of bus terminals as a major contributing factor: terminal function displacement onto arterial routes and indiscriminate on-street halting. Informal minibuses and shared taxis stop at self-selected roadside places, usually at crossroads or next to commercial frontages, to maximize passenger access when there are no recognized bus terminals. On the five most congested arterialsPashtunistan Road, Jade Maiwand, Jade Noor, Kabul–Jalalabad Highway approaches, and Darul Aman Roadan average of 4.2 vehicles per 100 meters were simultaneously halted for passenger loading or unloading during peak hours, according to field observations. On roadways that are already running close to capacity, this essentially reduces usable road width by 2040%.According to statistics from a household study, 74% of participants said that the uncontrolled halting of public transportation vehicles was the main or significant cause of traffic congestion. The lack of bus pull-out spaces and terminals was regularly cited by traffic police officers in key informant interviews as their main operational challenge: "We attempt to move them [minibus drivers] along, but where would you have them go? There isn't a recognized area. As a result, they always stop in the center of the road where people are. (Traffic Police Officer, Interview 12, 2023).

8.2 Quantifying Time Losses

This study calculated that congestion caused by informal transit operations (on-street stopping and related downstream queuing) adds an average of 18 minutes per trip to peak-hour journeys in central Kabulequivalent to a 32% increase over congestion-free travel timesusing origin-destination data from the travel survey cross-referenced with GPS tracking of 12 study vehicles over a two-week period. For Kabul's estimated 2.8 million working-age people, assuming an average of two round-trip trips per working day, this equates to almost 201 million person-hours wasted to traffic per year. The economic impact of this time loss surpasses USD 125 million per year at Afghanistan's average daily pay of about USD 5 (World Bank, 2023).

6.3 Road Safety and Pedestrian Hazards Accident Patterns at Informal Transit Nodes

Cross-referenced field observations and traffic accident data from the Kabul Traffic Police (2022) demonstrated that pedestrian-vehicle encounters occurred disproportionately at informal transit nodes. 38% (n=702) of the 1,847 pedestrian injuries that were reported in Kabul in 2022 occurred within 50 meters of illegal transit halting areas, despite comprising up an estimated 8% of the road network. The relative risk of pedestrian injury at informal transit nodes was found to be 4.75 (95% CI: 3.89–5.82) in contrast to other road segments, indicating a nearly five-fold greater risk.
The behavioral characteristics producing these risks were noted by direct observation, and operator questionnaires confirmed this. Fast, erratic stops and accelerations are made by minibus drivers vying for passengers, which can cause collisions with oncoming cars and pedestrians. In order to board and exit transit vehicles in active traffic lanes, passengers must maneuver through flowing traffic in the absence of sheltered waiting zones, raised kerbs, or protected crossing sections. Community leaders recognized those with impairments, elderly passengers, and school-age children as especially vulnerable groups.

6.4 Gendered Dimensions of Safety

Significant gender variations in perceived and actual safety at informal transportation nodes were found in disaggregated household survey data. Compared to 23% of male respondents, 61% of female respondents said they avoided specific transit routes or travel times because of safety concerns at unofficial transit stops. Three aspects of women's safety concerns were identified through focus group discussions as part of KII preparation: physical safety from moving vehicles (reported by 78% of female focus group participants); harassment by male passengers and bystanders at crowded informal stops (71%); and the inability to observe or monitor transit vehicle routes prior to boarding (54%). These results align with the global body of research on gender and transit safety (Gekoski et al., 2017; Loukaitou-Sideris & Bornstein, 2008).

6.5 Air Pollution

With PM2.5 levels often surpassing WHO standards by factors of 10–20 throughout the winter months, Kabul already ranks among the world's most severely air-polluted cities (WHO, 2022; NEPA, 2022). PM2.5 levels at informal transit nodes averaged 287 $\mu g/m^3$ during peak traffic periods, according to this study's portable sensor measurements. This is in contrast to 184 $\mu g/m^3$ at similar non-transit roadside areas and 95 $\mu g/m^3$ at off-street residential locations in the same districts. The mix of idle vehicle emissions (while drivers wait for passengers), acceleration emissions (after vehicle departure), and brake and tire particles from frequent stopping is reflected in the increased concentrations at informal transit nodes. Vehicles—many of which are old diesel minibuses with inadequate pollution controls—idle for long periods of time in populous areas due to the lack of bus terminals with off-street idling places. According to operator surveys, minibuses wait for full passenger loads for an average of 2.3 hours every day while either motionless or driving slowly at unofficial stopping sites. Without any ventilation system, this "dwell time" produces concentrated emissions.

6.6 Noise Pollution

The WHO's recommended daytime outdoor limit of 55 dB(A) and the nighttime limit of 45 dB(A) were exceeded by the average noise level readings at informal transit hubs during peak hours, which were 82 dB(A) (WHO, 2018). Chronic exposure to noise levels higher than 70 dB(A) has been linked to psychological stress, sleep disturbance, increased cardiovascular risk, and cognitive impairment in children (Basner et al., 2014; WHO, 2018). During fieldwork, residents of nearby buildings—many of whom own street-level stores or reside in ground-floor apartments—reported these effects in unstructured conversations.

6.7 Social Equity and Mobility Access

Distributional Effects of Absent Infrastructure

According to Martens (2016) and Pereira et al. (2017), the effects of inadequate transportation infrastructure are dispersed along pre-existing lines of social stratification, meaning that not every urban inhabitant is equally affected. The poorest households bear a disproportionate amount of the time and transportation costs associated with Kabul's lack of bus terminal infrastructure, according to an analysis of household survey data by income quintile. Compared to households in the highest income quintile (who are more likely to possess private vehicles), households in the lowest income quintile spent an average of 22% of household income on transportation, mostly informal minibus fares. These results are consistent with global research on transport poverty (Titheridge et al., 2014).

Severe spatial inequality was found in the GIS analysis of transit accessibility, which is defined as the proportion of job hubs that can be reached within 60 minutes by public transport. Transit accessibility scores ranged from 72–84% in central districts (Districts 1–3) to 18–34% in outlying districts (Districts 10, 16, 17, 18, and 20). Low-income and internally displaced households are concentrated in these periphery locations, which correlate to informal settlements. This creates a spatial poverty trap where the urban poor confront the most transportation obstacles to taking advantage of economic opportunities (Lucas, 2012).

6.8 Differential Impacts on Vulnerable Groups

The lack of bus terminal infrastructure has varying effects on several dimensions of vulnerability in addition to income. Due to the lack of accessible boarding infrastructure (raised platforms, kerbside stops) and the erratic conduct of vehicles at informal stops, people with disabilities are almost completely excluded from informal transportation. According to the poll, 89% of participants with mobility limitations said they were unable to use public transportation on the majority of days. An estimated 5% of Kabul's population is elderly, and they cited comparable access issues. According to 63% of the families surveyed, schoolchildren who depend on transit for regular journeys are at increased risk because of unsafe boarding circumstances at unofficial stops close to school grounds.

7. Institutional and Governance Challenges

7.1 Regulatory Vacuum

In Kabul's urban transportation system, the lack of bus terminal infrastructure both reflects and perpetuates a regulatory gap. Kabul Municipality lacks a dedicated transport planning division with technical capacity for terminal development, according to key informant interviews with municipal officials. Transport functions are dispersed among at least six agencies (Municipality, Ministry of Urban Development and Land, Ministry of Public Works, Ministry of Interior/Traffic Police, Ministry of Finance, and provincial administration), resulting in coordination issues and accountability gaps (Kabul Municipality, 2021). The post-2001 reconstruction emphasis on road infrastructure unintentionally crowded out investment in institutional development for transport governance, according to international development partner representatives: "We could show a road built. The value of a passed legislation or a staffed planning office was difficult to demonstrate (International Development Partner, Interview 24, 2023). This finding is consistent with academic criticisms of post-conflict reconstruction strategies that prioritize infrastructure (Barakat, 2016; Jones, 2020).

7.2 Revenue and Financing Gaps

Kabul Municipality is not in a position to independently fund the capital investment needed for the construction of bus terminal infrastructure. Afghanistan's municipal revenues are severely limited: user fees for urban services are low, property tax collection is expected to be between 5 and 10% of possible yield, and political shifts since 2021 have interrupted intergovernmental fiscal transfers (World Bank, 2016). According to key informant interviews with municipal finance officials, the 2023 municipal capital budget did not include any funding for the development of transportation infrastructure beyond standard road maintenance. The possible role of the private sector in terminal finance was shown by operator surveys. Seventy-one percent of operators said they would be ready to pay a daily or monthly terminal access charge if formal terminal facilities offered advantages including weather-protected waiting rooms, well-organized queue management, less police harassment, and access to fuel and maintenance services. If applied to all of Kabul's estimated 15,000 informal transit vehicles, the median acceptable daily terminal cost of USD 1.50–2.00 per vehicle would earn about USD 8.2–10.9 million yearly, enough to cover finance for a modest terminal development program.

8. DISCUSSION: POLICY FRAMEWORK AND COMPARATIVE LESSONS

Theoretical Implications

The results of this study add to a variety of scholarly discussions. The concept of transport infrastructure as an organizing mechanism in urban mobility networks is first extended and supported empirically (Bertolini, 2017; Vuchic, 2005). The Kabul case shows that in the absence of this organizing function, urban transportation reorganizes around informal spatial practices that create their own path dependencies and political economies, making formalization more difficult. Second, by describing the distributional effects of a lack of infrastructure in an extreme poverty setting, the results add to the body of knowledge on transportation justice. According to Martens's (2016) theoretical predictions, the concentration of transportation costs and dangers among the poorest and most vulnerable urban people supports the claim that investing in transport infrastructure is a social justice obligation rather than just an economic efficiency measure. Third, by describing how institutional fragmentation, financial limitations, and the legacy of reconstruction priorities impact municipal governments' ability to build fundamental urban infrastructure, the study adds to the body of knowledge on urban governance on fragile and post-conflict cities

(Colenbrander et al., 2018; Graham, 2010). The Kabul case shows that in order for technical planning solutions to be effective, they must be combined with sustainable financial sources and governance improvements.

8.1 Comparative Lessons from Analogous City Cases

A comparison of formalization experiences in Nairobi and Dhaka offers important insights for Kabul's terminal growth. Despite implementation difficulties, the Gabtoli and Mohakhali bus terminals built in Dhaka throughout the 1980s and 1990s clearly reduced traffic on approach corridors and enhanced pedestrian safety (Hoque & Hasan, 2017; Rahman & Islam, 2017). The lesson from Dhaka is that simple infrastructuresuch as an off-street waiting space, structured loading zones, and covered passenger shelterproduces major operational benefits, thus terminals do not necessarily need to be architecturally complex to operate.While offering cautionary lessons about too ambitious system design in resource-constrained situations, Nairobi's experience with the Bus Rapid Transit (BRT) effort showed the importance of community stakeholder engagement in terminal placement decisions (Klopp & Cavoli, 2019). The failure to include operators in design and governance decisions was a contributing factor in Nairobi's matatu operators' resistance to formalization measures; this lesson is directly applicable to Kabul, where operator buy-in would be crucial.

9. Proposed Policy Framework: Hierarchical Bus Terminal Development for Kabul

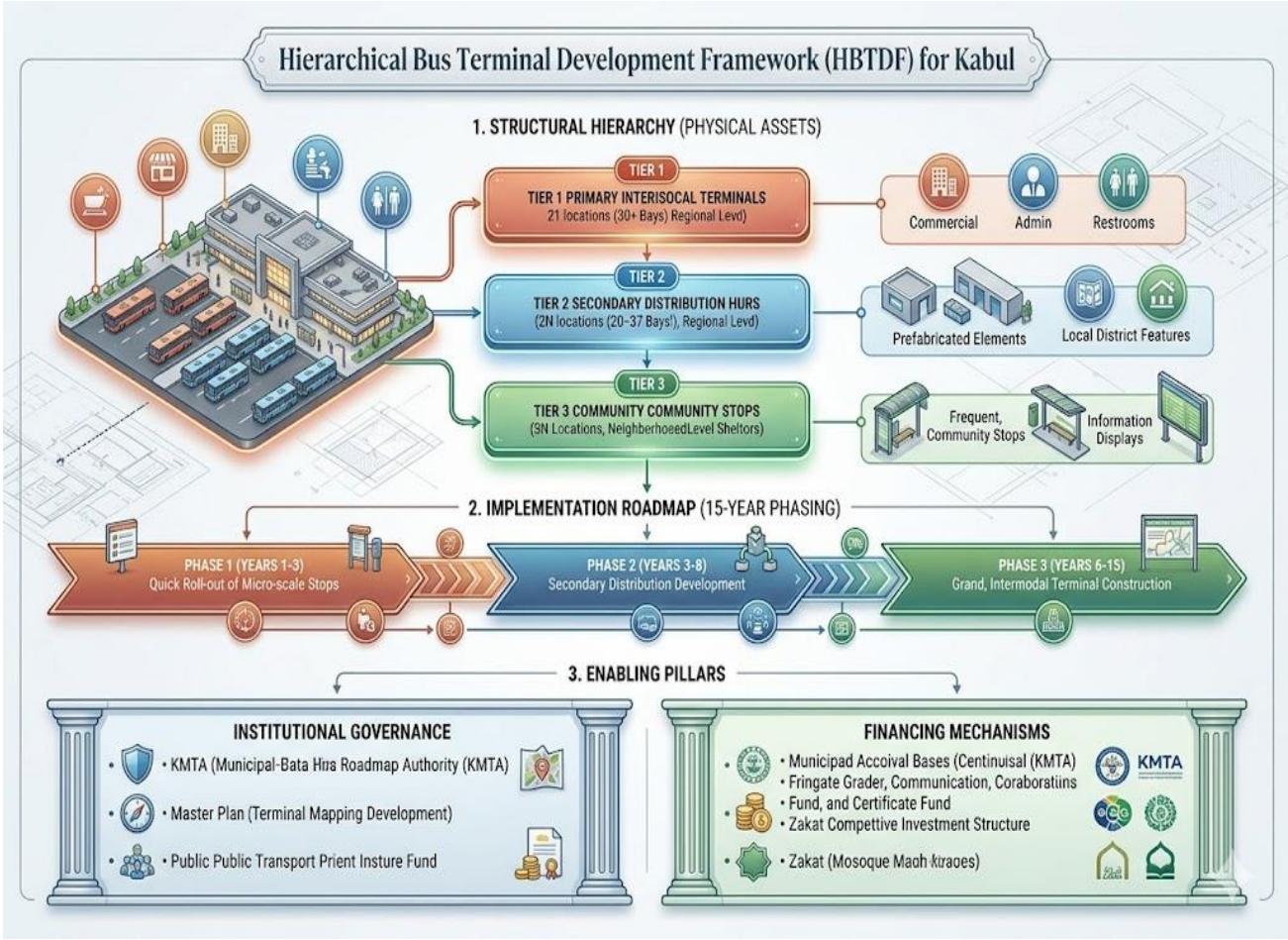

Figure 4. Hierarchical Bus Terminal Development Framework (HBTDF) for Kabul.

Source: Compiled by the authors

The Hierarchical Bus Terminal Development Framework (HBTDF) diagram illustrates how geographical hierarchy, phased implementation, and supporting institutional and financial mechanisms interact to organize Kabul's urban Public transport infrastructure in an integrated, systems-based manner. A three-tier functional hierarchy that organizes passenger mobility across scales is at the heart of it. The fundamental layer is made up of Tier 3 community transport stops, which capture scattered neighbourhood-level demand and guarantee first- and last-mile connectivity through regular, easily accessible facilities. These flows are combined at Tier 2 secondary distribution hubs, which function as organized transfer points at the district level, enhancing service coordination and decreasing route fragmentation. At the top, Tier 1 major intermodal terminals serve as high-capacity regional hubs that house cross-city and long-distance services in structured, integrated facilities. A time-based implementation strategy is also included in the flowchart. It takes a bottom-up, phased approach over ten to fifteen years, starting with the quick deployment of Tier 3 stops, moving on to Tier 2 hubs, and ending with the construction of Tier 1 terminals. The necessity for early service enhancements, institutional viability, and cost effectiveness are all reflected in this sequencing. Enabling pillars, such as institutional governance (such as the creation of a metropolitan transport authority, regulatory frameworks, and strategic planning) and diverse financing mechanisms (from private sector involvement and municipal revenue instruments to international development funding and context-specific investment models) support the entire framework. When taken as a whole, these elements show a coordinated and scalable paradigm that transforms Kabul's transportation system from a disjointed structure into an effective, hierarchical, and long-lasting network.
Based on the theoretical frameworks, empirical results, and comparative lessons discussed above, this study suggests a three-tiered, phased Hierarchical Bus Terminal Development Framework (HBTDF) for Kabul City.

Tier 1: Seven primary intermodal terminals. The main hubs for long-distance and cross-district services would be these terminals, which would be built at Kabul's main inter-district and inter-city transit lines. Kot-e-Sangi (western gateway), the Police Headquarters area (central hub), Microrayon (northeastern hub), Khairkhana (northern hub), Deh Sabz (eastern development corridor), Char Rahi Qambar (southern hub), and Pul-e-Charkhi (eastern gateway) are among the suggested locations. At least 80 bus bays, a passenger arrival and departure hall, commercial facilities that generate cross-subsidy money, administrative offices for transportation control, and public restrooms with accessible amenities should all be present in every Tier 1 terminal.

Tier 2: Hubs for Secondary Distribution (24 locations). These smaller facilities would link neighborhood-level transportation with Tier 1 terminals by acting as distribution hubs within districts. Each hub would have basic covered waiting areas, well-organized queue management, and public restrooms to handle 20–30 vehicles. To cut costs and construction time, Tier 2 facilities should be built quickly using modular prefabricated components.

Tier 3: Community Transportation Stops (112 locations). Frequent, sheltered bus stops on specified transit routes that, at the at least, include a covered waiting area for 20 people, a display of route information, lighting, and an emergency call facility. While larger terminal facilities are being planned, these stops should be given priority for early deployment since they represent the most readily attainable component of the architecture and will produce noticeable improvements in the transit user experience.

9.1 Implementation Pathways

The HBTDF should be implemented gradually over ten to fifteen years, with Tier 3 stations in Years 1–3, Tier 2 hubs in Years 3–8, and Tier 1 terminals in Years 6–15, in light of Kabul's institutional and financial limitations. Municipal revenue bonds backed by terminal access fees, private sector concessions for commercial development within terminal facilities, international development financing (ADB, World Bank, Islamic Development Bank), and zakat-compatible investment structures that could encourage domestic religious philanthropy are some examples of financing mechanisms. Physical growth must be accompanied by governance improvements. Establishing a specific Kabul Metropolitan Transport Authority (KMTA) with legal authority over terminal development and regulation, developing a Kabul Urban Mobility Master Plan with terminal hierarchy as a fundamental component, putting in place a vehicle operator licensing system connected to terminal access, and establishing a public-private Transport Infrastructure Fund are some of the suggested institutional measures.

9.2 Limitations and Future Research

The results of this study should be evaluated in the context of a number of limitations. Data collection took place during a time of major political change in Afghanistan, which would have affected important informants' responses and limited access to some government data sources. Data from traffic counts and geographical analyses may not accurately reflect seasonal or inter-annual variations in traffic patterns because they were gathered across predetermined observation periods. Since many instances are settled amicably without official documentation, the accident data obtained from the Kabul Traffic Police probably understates the true incidence of pedestrian injuries. There should be multiple avenues for further investigation. Rigorous before-and-after assessment of infrastructure impacts would be made possible by longitudinal studies of Kabul's transportation system evolution, especially if terminal development continues. The empirical foundation for planning in fragile situations would be expanded by comparative case studies of terminal development processes in other post-conflict towns (Monrovia, Mogadishu, Juba). Most importantly, if the proposed HBTDF is to meet both its operational and social justice goals, participatory design research that centers the voices and experiences of mobility-marginalized communitiesparticularly women, people with disabilities, and the urban poorin shaping infrastructure solutions is crucial.

10. CONCLUSION

The multifaceted transportation issues caused by Kabul City's nearly complete lack of bus terminal facilities have been thoroughly documented in this paper using rigorous mixed-methods research. The results show that the lack of infrastructure is a primary cause of urban transport dysfunction in five interrelated domains: traffic congestion and time loss; road safety and pedestrian hazards; environmental degradation; social inequality and mobility poverty; and institutional governance failures. The study has claimed that rather than treating bus terminal infrastructure as a secondary concern behind road building or vehicle regulation, understanding Kabul's transportation crisis necessitates placing it at the centre of analysis. The organizational framework of urban transportation systems is provided by terminal infrastructure; its absence necessitates unofficial, self-organized arrangements that are less effective, secure, fair, and environmentally sustainable. Kabul is a prime example of the cascading effects of this absence in a post-conflict metropolis that is quickly urbanizing and has significant institutional and financial restrictions. The suggested Hierarchical Bus Terminal construction Framework provides a methodical, systematic, and contextually relevant approach to the construction of transportation infrastructure in Kabul. The framework should be viewed as a medium-to-long-term strategic vision rather than an immediate operational plan because its realization would need not only physically building but also fundamental institutional reform and creative finance. This study's contribution to the academic community is to anchor abstract theoretical frameworks—such as networked urbanism, transport justice, and urban mobility theory—in the tangible empirical reality of one of the most transportation-challenged cities in the world. Longitudinal studies of Kabul's transportation system's evolution, comparative case studies of terminal development in similar post-conflict cities, and participatory design research that centres the voices of transportation-marginalized communities—especially women, people with disabilities, and the urban poor—in shaping infrastructure solutions are all ways that future research should expand this analysis. Residents of Kabul perceive the transportation issues they face as everyday reality rather than abstract concepts: hazardous commutes, missed employment, contaminated neighbourhoods, and the harsh injustice of mobility poor. It is both a social justice duty and a governance necessity to address these issues through evidence-based, ethical infrastructure investment.

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