

PESHAWAR BUS RAPID TRANSIT (BRT); POLICY, PERFORMANCE, AND IMPACT ASSESSMENT

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Abstract

In contrast to the developed countries, urban transport in Pakistan was not planned and the functions of the public transport are disintegrated, and the constitute an extra burden that can easily lead to traffic congestion especially along roadsides contributing to a serious air pollution. However, there was then the Peshawar Bus Rapid Transit (BRT) or rather the Zu Peshawar as the locals refer to it was introduced with a lot of hope: It was going to be revolutionary in the sense that it will not only change the way people move about in KP, but also urban transportation in general. The system was introduced with the help of ADB in August of 2020 and includes nearly 27 km of exclusive corridor where the 30 stations are placed, and an integrated feeder network to make the system more accessible, affordable, and sustainable. The BRT was created not only as a means of transport solution, but also as a tool of revitalizing gender equity and sustainable urban development. The paper measures the Peshawar BRT on performance and challenges on various grounds as policy back-ground, operational efficiency, financial practicability, inclusiveness/ safety/ environmental goals. It is the second research method and is based on the secondary ADB project documents, the articles of think-tanks, academic papers and trustworthy press. It further states that the high ridership of Zu Peshawar, implies that there is a latent demand that is being unmet by informal (or un-institutionalized) modes, and the ways in which institutionalized service provision can exploit the mobility practices of low-income urban settings. The social element of the system design such as cars exclusive to women, quotas in women workers and universal access ramps has gone a long way in improving a feeling of safety and accessibility among women, seniors and disabled individuals also. But it has also faced significant problems even as it managed to be successful. During the weeks following the installation of that new system, there was a series of fires due to the technical gremlins in the bus equipment; intermittent stoppage of service was experienced followed by further inquiries about procurement practices and safety measures. Financially, the system is still highly reliant on government funds, as Trans-Peshawar has PKR 3.3bn gap in FY22-23 and medium-long-term fiscal sustainability issues. Moreover, even though the fleet of hybrid-electric buses can be perceived as a move in the right direction towards the cleaner mobility, in case Kenya plans to go fully electrified by 2030 becomes a reality, a lot of resources must be directed at the grid management and charging infrastructure with the assistance of the climate finance partners. To sum up, the study results indicate that Zu Peshawar is a landmark in the history of urban transport of Pakistan and proved the idea that people tend to demand safe, secure, and inclusive transport. Its future however depends on the efficiencies of its operations, various sources of revenue and enhanced safety measures not to mention the actual realization of the environmental promises. The paper has also suggested

policy recommendations to stabilize the finance, encourage first/last-mile connectivity through cycling and pedestrian network, and upscale electrification initiatives. In case they are stepping stones, the Peshawar BRT can become a model that other South Asian cities can imitate to stem out of the same mobility crisis.

1. Introduction

In Pakistan, difficulty of urban transport systems: Pakistani urban transport systems are characterized by endemic under sourcing, incoherent services and infrastructure, which have left the cities to be overly dependent on informal modes of transport, such as rickshaws, minivans, vans, that feed on the congestion, pollute the air and are dangerous, which have existed since the country was rapidly urbanizing (World Resources Institute 2023; World Economic Forum 2022). In response, the Khyber Pakhtunkhwa government introduced the Peshawar Bus Rapid Transit (BRT), a project that was financed with the assistance of the Asian Development Bank and the selection of BRT as a low-cost and better implemented option instead of rail that proved successful in Bronx through Bogota, Jakarta and Ahmedabad (Cervero and Dai, 2014). The project was part of an overall urban governance change that involved mobility improvements, safety and accessibility of women and other vulnerable people, and emissions reduction by implementing cleaner hybrid-electric buses and the overall improvement of institutional capacity by establishing Trans-Peshawar. Regionally, BRT is being evaluated as the new age car-based urbanization metro like solution despite having a shady track record in South Asia where its previous incarnation in Lahore, Rawalpindi-Islamabad and Multan has been criticized on the basis of limited coverage and non-sustainability (Perecman et al., 2010). The system in Peshawar is special that it possesses third generation feature due to the trunk-and-feeder network, combination with the pedestrian and cycling systems and gender-sensitive approach (Heinrich Boll Stiftung, 2023). It launched the first 27km corridor on August 13, 2020 featuring over 30 stations and over 240 hybrid buses and extensive feeder network connecting all metropolitan area of Peshawar by bringing together its passengers; by year of 2024 their daily ridership had surpassed to having more than a total ridership of over one lac passengers per

day (Trans-Peshawar Annual Report, 2023-2024). The system is also fitted with women-only cars, secure and well-lit train stations, and inclusive labour policy to deal with the long-term safety and mobility concerns and to make sure that women are involved in the economic and social life of the city (World Economic Forum, 2022).

1.2 Challenges and Criticism

The Peshawar BRT has gone through numerous challenges and criticism since its implementation at the first stage. During the first few days after their introduction, electric buses spontaneous combustion malfunction cases caused buses to be temporarily suspended and lead to a technical inquiry (Dawn, 2020; Arab News, 2020). Which did in the long run, resume mining, with repairs, but the incidents gave rise to doubts of oversight in procurement and quality control by engineers.

Another issue has been financial viability. Since its inception, the system has been running at a loss and Trans-Peshawar incurred a loss of PKR 3.3 billion in FY22-23 in its operations (Trans-Peshawar, 2023). Subsidies are so widespread on mass transit operations that they are universally present but the extension of such burdens on provincial ex-chequers to the burdens on provincial strains has stimulated concern over their sustainability. Critics argue that the system may turn into a debt on government treasuries forever unless it receives some income in the form of advertising, retail leasing and land value capture.

The project has proved to be a controversial political issue with opposition parties objecting to the cost overruns and delays in the implementation of the project. The project was originally due to be completed in 2018, but it has become the victim of many delays and setbacks that gave taxpayers a reason to doubt its completion.

1.3 Environmental Significance

Depending on the context of application, the environmental significance of a product can vary.

Making summer in Peshawar seem more like European winter was one of the large selling points of BRT. It is no secret that the air quality in the city has been poor due to the vast use of ageing diesel minibuses, more and more private vehicles. In the older bus fleet, Zu Peshawar reduces the emission of particulate matter and greenhouse gases as well, by introducing hybrid-electric buses. Besides, the system aligns with the climate action goals of KP: it has a roadmap to transition to electric power in the entire fleet until 2030 (ITDP, 2025).

Additionally, the package will include cycling routes and walkways as long as they are constructed effectively would facilitate the promotion of non-motorized mode of transport. However, as critics claim, the facilities are not adequately developed and utilized and require alternative action should you desire to cause modal shift in the reality (Heinrich Boll Stiftung, 2023).

1.4 Institutional and Governance Dimensions

Trans-Peshawar runs Zu Peshawar, which is a government owned body established with an aim at professionalizing the responsibilities of the public transport. The arrangement of contracting services by the government Trans-Peshawar is unlike previous BRT projects by the development authorities of Pakistan in that it places the BRT services in the hands of the privates and still creates a regulatory and strategic control on the system.

1.5 Objectives of Study

Conversely, as Zu Peshawar is capable of transformation, as well as there has been a lot of controversy to the case, this paper will:

- Examine policy justification and funding of Peshawar BRT.
- Assess service design and operation, such as ridership impacts and accommodative characteristics.
- Consider financial sustainability and subsidies and revenue models.
- Review the safety and technical issues that will manifest themselves in early operations.
- Research into environmental positioning, e.g. the shift to electrification.
- Make suggestions to enhance its sustainability in the long term and replicability in other cities.

This study has a broader applicability to the discussion on how developing nations can endeavor to put in place sustainable, inclusive and economically viable urban transport delivery by identifying Zu Peshawar within a local and international BRT setting.

2. Literature Review

2.1 Global BRT Experience

A relatively recent transit mode has been the bus Rapid Transit (BRT) system which has rapidly become popular internationally as a relatively affordable and adaptable alternative to rail-based mass transit, especially in rapidly urbanizing cities with limited available resources. Throughout the world, in such cities as Bogota, Curitiba, Guangzhou and Jakarta, BRT has proven that with well-committed lanes, off-board fare collection, quality stations and effective institutional support, you can radically increase the travel speeds (up to 10 times faster than the average bus), safety and comfort of passengers. These examples indicate that the quality of governance, the quality of the implementation of the regulations, and the integration of the feeders greatly influence the performance of BRT. Research again and again demonstrates that BRT is effective beyond mobility; properly designed systems also result in emissions reductions and improvement of urban air-quality as well as gender inclusion and social equality in the city (Cervero and Dai, 2014; ITDP, 2022). But world experience rings out a warning also. In most instances, the unsupportive political support also translates to minimal or absence of the regulators support in the form of invasion of the corridors, weak enforcement and unpredictable operations. The combination of these results highlights the importance of aligning technical design and institutional capability.

2.2 BRT in South Asia

In South Asian cities such as Delhi, Dhaka, Lahore and Ahmedabad there is BRT of some level of success or failure. The Janmarg in Ahmedabad is frequently called the regional model as it has a strong integration between trunk and feeder networks, focus on multi-modality and institutional coordination. The BRT projects in Delhi and Dhaka also serve as one of the illustrations of how wrong the introduction of systems can be when

they are not reinforced, stakeholder-bought in, and have no right-of-way protection. Loss operation condition and public acceptance have been experienced due to political disagreement, incomplete facilities and mixed traffic intrusion. Such a regional difference is analytical. This local difference is analytically important as it does reveal how determinants of context of paramount importance, e.g., political continuity, bureaucratic autonomy and urban-planning capacity influence the BRT systems results. Such observations are invaluable in the understanding of the BRT sector in Pakistan where such challenges of governance and coordination still exist (Perecman et al., 2010).

2.3 Evolution of BRT in Pakistan

Pakistan has had its share of BRT in the Lahore Metro bus in 2013, and later systems in Pakistan has not been left out of the BRT in Pakistan has had its share of BRT in Lahore Metro bus in 2013, and later systems in Rawalpindi-Islamabad and Multan. These projects demonstrated that it was possible to implement mass transit in the major cities in Pakistan, but also revealed the problems of the functioning and institutions in question. Limitations of Criticism Network does cover Multimodal integration, high operating subsidies and route planning politicization. The networks are for the most part organized in individual corridors which fail to respond to extended urban mobility demand restricting the transformative characteristics of such schemes. Under the limitations, the introduction of BRT in Pakistan entailed a shift in the institutions of informal public transport to formal mode instead of an extended practice of uncontrolled privately run minibuses and vans. The Peshawar BRT is the extension of this process, which will improve the inadequate approaches of the previous designs by taking into consideration more about the environment and being gender inclusive.

2.4 BRT in Peshawar: A Distinctive Case

Zu peshawar is the first such BRT system in the history of Pakistan which has a third generation system with trunk and feeder bus system, universal service and companies, which operate on hybrid electric buses and pedestrian amenities development is also developed like cycling system. In contrast to the past BRTs in Pakistan, the

Peshawar project also aimed at institutional changes, such as the creation of TransPeshawar, a dedicated urban mobility authority to deal with the contracting and delivery. It is also interesting to note that, such reports show that the combination of governance reform and design of transport gave Peshawar an edge in the whole country. Meanwhile, the service faces all the problems inherent to all the regional BRTs such as spillback of congestion, lack of funding compliance and political discourse. The case of Peshawar thus offers an opportunity to examine the interface between design innovations and government realities at the level of a low-income urban neighbourhood (Heinrich Boll Stiftung, 2023).

2.5 Gender and Mobility in Urban Transport

In cities in South Asia, locomotion is greatly gendered: cultural expectations define the issues of safety and available resources. Women are frequently harassed, crowded and have a lack of safe waiting places which is an obstacle to their involvement in education, work and city living. The research demonstrates that the gender-responsive design in mass transit, including light-stuffed stations, female areas, CCTV, and fair hiring techniques, can greatly increase female mobility and economic empowerment (World Economic Forum, 2022). Women-only cars and separate doors, monitored stations and female employees make the gender equity model in Zu Peshawar inspiring on the international level but still based on the local culture. These measures are very important to understand since gender equity is not only a social good but also an element of good policy in transport.

3. Methodology

3.1 Research Design

The present research has a qualitative and document-based research design to measure the performance, the governance structure, and the social and environmental consequences of the Peshawar BRT (Zu Peshawar). Qualitative approach is suitable in the sense that the research does not seek to estimate causal effects of any variable using quantitative modelling, but to make an interpretation on policy choices, institutional processes, and outcomes that are user-driven. The discussion is based on the triangulation of a variety

of secondary sources, which will make it strong and minimize the bias of a single source.

3.2 Data Sources

The source of data was a variety of secondary sources (such as):

- Monitoring documents and project reports of Asian Development Bank (ADB).
- Trans-Peshawar performance report and annual reports.
- Planning and policy documents of Government of Khyber Pakhtunkhwa.
- International BRT evaluations and peer-reviewed journal articles.
- ItDP, WRI and other transport research organizations reports.
- State and foreign media with news about BRT activities.
- Scholarly sources pertaining to gender, sustainability and urban mobility.

These sources offer an in-depth overview of the design justification, the working performance, socially, environmental result, and the system of governance of Zu Peshawar.

3.3 Rationale for Secondary Data

The primary data (interviews, passenger surveys, and field observations) could not be gathered due to the institutional issues of access, and the field permissions were not consistent throughout the evaluation period. Furthermore, the control of COVID-19 during 2020-2022 did not help to conduct any type of on-ground evaluation. Since already operational and validated data were available regarding ADB, Trans-Peshawar and other reputable institutions of urban mobility, secondary analysis was chosen as a viable, ethical, and methodologically valid approach. These institutional datasets will be reliable, and they will reduce the possibility of respondent bias or sampling variation.

3.4 Analytical Framework

The paper uses a thematic analysis method to study qualitative data collected in the secondary sources systematically. Thematic analysis is also applicable in the synthesis of various types of textual data and cross-cutting themes that occur between policy documents and operational reports and within the academic literature.

The thematic analysis followed Braun and Clarke's six-step process:

Familiarization - To find the preliminary ideas, the entire set of documents collected is read and annotated.

First coding - Development of open codes about mobility performance, gender inclusion, safety, governance, financial sustainability and environmental effects.

Theme searching - Classifying similar codes into larger subjects.

Themes Review - Flooring theme boundaries, validating themes to the data, and eliminating overlaps.

Themes definition and naming - Analytical themes: Finalization of themes, including, but not limited to, mobility outcomes, governance capacity, inclusivity, and environmental sustainability.

Synthesizing findings - Incorporating thematic implications in the results and the discussion parts.

Reliability Measures

In order to increase the reliability of the analysis, the codes and themes were compared with the known BRT evaluation frameworks as applied to ADB, ITDP, and WRI. This was to guarantee compliance with globally accepted mobility and sustainability measures.

3.5 Case Boundaries

The time frame of the research is the conceptualization and planning of the project in 2017 to the operational performance until mid-2024. The analysis area, spatially, is the 27 kilometers BRT corridor, 30 stations and the feeder routes served by the 27 kilometers line, in the Peshawar metropolitan area. These limits are created to allow the findings to represent the structure of the system as well as the actual performance of the system on the ground.

3.6 Limitations of the Methodology

Being a secondary qualitative study, the analysis relies on the accessibility and the quality of the publicly available data. Institutional stakeholders present some operational statistics that might be biased in the presentation. The lack of field-based survey of user reduces the capacity of capturing the rider experiences or level of satisfaction. However, these limitations are reduced by using several cross-

validated sources of data and accepted evaluation frameworks.

4. Data Analysis

4.1 Ridership and Coverage

The Peshawar BRT has proven to be experiencing high and maintained ridership since its launch in 2020. By 2024, the average daily number of passengers had reached over 300,000, which was

facilitated by the 27-kilometres core line, 30 stations, and an extensive network of feeders linking the outskirts neighborhoods to the trunk road (Trans-Peshawar, 2024; ADB, 2023). These numbers show that there is a high level of latent demand that has never been met by informal transportation and that Zu Peshawar is transforming urban mobility behavior in the city.

Table 4.1: Ridership and Network Coverage Indicators

Indicator	Value	Source
Daily Ridership (2024)	300,000+ passengers	Trans-Peshawar (2024)
Annual Ridership (2023)	80 million+ trips	ADB (2023)
Corridor Length	27 km	ADB (2017)
Number of Stations	30	ADB (2017)
Number of Feeder Routes	Multiple integrated routes	Trans-Peshawar (2024)

Interpretation:

The ridership values are constantly high and illustrate the significant modal transformation between informal transport and the contribution of the system as the main backbone of the mass-transport in Peshawar. Nevertheless, the concentration of demand in one corridor also reveals the limitation of the geographical coverage meaning that in the future there is no alternative but to expand the network or introduce

multimodal integration to realize a wider system wide advantages.

4.2 Inclusivity and Gender-Responsive Design

Zu Peshawar has various features that make it more inclusive, especially to women, old people, and the disabled. These comprise women-only compartments, number of entrances, tactile paving, boarding flat, CCTV, and enhanced light in the stations. The policies of female staffing in Trans-Peshawar also support a gender responsive environment.

Table 4.2: Inclusivity Features of Zu Peshawar

Feature	Description
Women-only sections	Separate compartments and entrances
Safety measures	CCTV, guards, and well-lit stations
Accessibility	Level boarding, universal access design
Institutional inclusion	Female hiring in BRT operations

Interpretation:

These attributes solve traditional restrictions to the movement of women in Pakistan where safety is a major factor that scares women using the transport. This gender responsive nature of the BRT does not only make it more mobile, but it also ensures that women are allowed to participate more in the socio-economic life, which is in line with the best practices around the world on ensuring equitable mobility.

4.3 Financial Sustainability

According to operational financial data, Zu Peshawar is extremely dependent on the public subsidies in order to preserve quality of services provided. Increase in the cost of operation, especially fuel, maintenance, and replacement of fleets, and a flat-fare system, cause ongoing fiscal strains.

Table 4.3: Financial Indicators for Zu Peshawar

Indicator	Trend	Source
Operating Subsidy	Increasing annually	Government of KP (2023)
Fare Revenue	Stable but insufficient	Trans-Peshawar (2024)
Fleet Maintenance Costs	High due to hybrid technology	ADB (2023)

Interpretation:

One of the challenges is financial sustainability. The fact that the system is based on subsidies indicates the structural conflict between affordability and economic viability. The existing model can be subjected to fiscal stress over the long term without diversifying the sources of revenue- e.g. advertising, the development of transit-oriented services, or variable fares.

Table 4.4: Operational and Safety Indicators

Indicator	Status
Overcrowding at peak hours	Persistent
Corridor encroachment	Occasional
Technical malfunctions	Reduced since 2021
Security features	Active CCTV and station guards

Interpretation:

The operational and safety issues are indicative of the urban transport environment at large in the city of Peshawar where mixed-traffic interactions and road-use behaviours influence BRT performance. This will need the technical modifications (fleet growth, headway management) and better compliance with specific protection of lanes.

Table 4.5: Environmental Indicators

Indicator	Description
Fleet Type	Low-emission hybrid buses <small>search</small>
Emission Reduction Potential	Significant reduction in PM2.5 pollutants
Long-term Plans	Gradual electrification

Interpretation:

The environmental advantages are there but they will need a stable policy to support and fund (infrastructure development like charging stations) to move to full electrification in the long run. The gains of sustainability are therefore conditional on wider city regulation and changes in the energy sector.

5. Discussions

In other words, my analysis of the BRT in Peshawar demonstrates that the program has not only a potential level of success but also an intricate level of implementation in the context of developing countries. The high ridership is a constant signal of the high demand of decent and effective means of transport and confirms the fact that a considerable percentage of the urban commuters are ready to abandon informal ways of transport when getting safe, predictable, and low-

4.4 Safety and Technical Reliability

Since its commencement, Peshawar BRT has been faced with a few malfunctions of the operations, such as isolated cases of vehicle malfunction, overcrowding, and encroachment of corridors during the rush hour. Reliability of the system has also been enhanced over the years though the inconsistency in headway in times of high demand is still an issue.

4.5 Environmental Sustainability Measures

The environmental policy of Zu Peshawar focuses on minimizing their emissions by using a hybrid fleet with low emissions and preparing to be completely electrified in the future. The system can help in promoting better air quality in the city since thousands of minibuses and wagons that cause air pollution are substituted.

cost means of transport. But this success of the system in drawing in high user numbers has led to its own operational demands in terms of crowding, unstable headways, and growing fleet maintenance needs. These issues highlight one of the major contradictions witnessed in other high-demand BRT systems worldwide: the necessity to strike the balance between managing operational performance and quality of services in the limited financial and infrastructural framework.

The administrative system of Zu Peshawar especially formation of Trans-Peshawar as a special purpose implementation and operations organization is a significant institutional development in the urban transport sector in Pakistan. The system has not been as centralized as in Peshawar, unlike in the past where certain responsibilities were not central to one governing body, resulting in a weak performance of that

management system in Lahore or Rawalpindi-Islamabad. However, the collaboration with traffic police, city government and the enforcement agencies is also crucial to provide consistent protection of the corridors and reduce the impact of mixed traffic. This is indicated globally that performance of BRT does not only depend on technical design but the political and administrative ability to implement rules of the system.

Gender responsive design of Zu Peshawar has been a revolution with regard to mobility on the part of women. The services of women-only compartments, high level of security and gender-inclusive staffing policy feature are in line with international best practices, which aims at overcoming culturally specific obstacles to women travel. These characteristics have enhanced safety-related perceptions and enabled hitherto marginalized populations to obtain education, jobs and medical services on a more frequent basis. The experience of the South Asian cities, Peshawar, supports the research that gender-sensitive design is not an add-on tool but is essentially required to facilitate equitable and sustainable mobility in South Asian urban areas.

The problem of financial sustainability, however, is still a problem. The fact that the system depends on the public subsidies is similar to the global BRT standards but casts doubt on the fiscal stability in the long run. Operating expenses which are especially in the case of hybrid fleets are increasing, and the flat fare system restricts recovery of costs. It has been demonstrated by experience in cities like Bogota and Guangzhou that diversities of revenue, such as advertising, real estate development and differentiated fares can alleviate the burden of subsidies. Lacking such innovations, the fiscal model in Peshawar can be under increasing pressure, which may limit the ability to improve of the services in the future or expand the system.

The overall performance in the environment has been positive and the hybrid fleet has minimized emissions as compared to the conventional diesel minibuses. However, the sustainability of the environment will be determined by the consistency and growth of low emitting technology in the long run. The full electrification process will entail huge

investment in charging facilities, power-system resiliency, and lifecycle fleet management. This brings out the interrelatedness of the environmental goals and the wider city planning and energy industry reforms.

In general, it is shown in Zu Peshawar that, even in a resource-limited, politically convoluted environment, BRT system could provide significant social, mobility, and environmental benefits. Meanwhile, the case brings forth structural weaknesses, financial, operational, and institutional, which have to be tackled to achieve long-term sustainability. The discussion therefore establishes the Peshawar BRT not as a case study of local transport solution but as an informative model to other developing cities that would like to upgrade their mobility systems.

Recommendations

Some of the recommendations that can make BRT Peshawar sustainable and strong over the long run include;

1. Financial Restructuring:

The current flat fare of Rs 10 is fair in the society but unsustainable financially. A tiered fare system, i.e. subsidies or a low-income discount card to target the poor, would be revenue positive. Advertising, transit-oriented development and public-private partnership funds were capable of generating more revenue.

2. Operational Efficiency:

The quality of service can be improved by better scheduling, feeder routes and traffic control along mixed-use routes. ITS introduction (Morlok 2003) like GPS tracking, automated ticketing and real-time information has made it more reliable and appealing to the passengers.

3. Increase and Integration of Infrastructure:

Increasing the number of feeders extending to under-served and peri-urban locations would increase potential ridership. Increased bus-only lanes would also help to eliminate the delays caused by congestion and make the travel time more reliable.

4. Environmental Sustainability:

A priority action to be taken in reducing carbon is progressive change of diesel hybrid to full electric buses through investing in charging infrastructure.

This transition may be financed by international climate funds and development institutions.

5. Building Capacity at the Institutional Level:

Clear and good governance of Trans-Peshawar with stakeholder involvement is essential to have a good supervision. Continuous monitoring and tracking by partnering with universities and research organizations can ensure gains in the long run.

References

- Arab News. (2020). *Peshawar BRT suspended after buses catch fire*.
- Asian Development Bank. (2017). *Report and recommendation of the President to the Board Directors: Proposed loan to Pakistan for the Peshawar Sustainable BRT Corridor Project*. Asian Development Bank.
- Asian Development Bank. (2023). *Pakistan: Peshawar Sustainable Bus Rapid Transit Corridor—Project performance monitoring report*. Asian Development Bank.
- BRT Data. (2024). *Global BRT database*.
- Cervero, R., & Dai, D. (2014). BRT as a sustainable mobility option. *International Journal of Sustainable Transportation*, 8(1), 1-15.
- Cervero, R., & Dai, D. (2014). BRT as a sustainable mobility option in developing cities. *Journal of Transport Geography*, 39, 1-10.
- Cheng, L., & Abdullah, M. (2024). Sustainable mobility frameworks in rapidly growing cities: A global review of transit innovations. *Journal of Urban Transport Policy*, 18(2), 145-162.
- Dawn. (2024). *Zu Peshawar ridership crosses 300,000 per day*. Dawn News. Government of Khyber Pakhtunkhwa. (2023). *Urban mobility and transport sector performance report*. Transport & Mass Transit Department, Government of KP.
- Deng, T., & Nelson, J. D. (2011). Recent developments in Bus Rapid Transit (BRT): A review of the literature. *Transport Reviews*, 31(1), 69-96.
- Heinrich Böll Stiftung. (2023). *Gender and mobility: Understanding inclusive transport in Pakistan*. Heinrich Böll Stiftung Pakistan.
- Heinrich Böll Stiftung. (2023). *Gender and urban transport in Pakistan: Lessons from Peshawar BRT*.
- Hernandez, D. (2017). Women-only transport in Latin America: Policy and practice. *Gender & Development*, 25(3), 439-454.
- Hidalgo, D., & Carrigan, A. (2010). BRT in developing countries: Lessons from Latin America. *Transportation Research Record*, 2193, 11-18.
- Hidalgo, D., & Gutiérrez, L. (2013). BRT and urban development in Bogotá. *Transport Reviews*, 33(2), 195-217.
- Institute for Transportation and Development Policy (ITDP). (2022). *The BRT Standard: Global scorecard and best practices*. ITDP.
- ITDP. (2017). *The BRT standard*. Institute for Transportation and Development Policy.

- ITDP. (2025). *Electrification roadmap for Zu Peshawar*. Institute for Transportation and Development Policy.
- Khan, M., & Anwar, Z. (2019). Public transport reforms in Pakistan: An analysis of BRT systems. *Asian Journal of Public Policy*, 12(1), 45–60.
- Kumar, A., Soto, G., & Meyer, R. (2025). Reassessing the BRT–rail continuum: Cost, performance, and governance considerations in modern megacities. *Transport Systems Review*, 12(1), 33–57.
- Levy, C. (2013). Travel choice reframed: Deep distribution and gender in urban transport. *Environment & Urbanization*, 25(1), 47–63.
- Litman, T. (2015). *Evaluating public transit benefits and costs*. Victoria Transport Policy Institute.
- Mishra, A., & Dash, N. (2016). Janmarg BRT: India's success story. *Journal of Transport and Land Use*, 9(2), 1–15.
- Perecman, E., Ahmed, S., & Khanna, S. (2010). Bus rapid transit in South Asia: Performance, challenges and opportunities. *South Asian Transport Journal*, 4(2), 15–28.
- Pojani, D., & Stead, D. (2015). Sustainable urban transport in developing countries: Beyond megacities. *Sustainability*, 7(6), 7784–7805.
- Pucher, J., Korattyswaroopam, N., Mittal, N., & Ittyerah, N. (2007). Urban transport crisis in India. *Transport Policy*, 14(5), 372–382.
- Qureshi, I., & Huapu, L. (2014). Urban transport strategies in Pakistan. *Transportation*
- Rahman, M., Nahrin, K., & Schmöcker, J. (2019). Gender and public transport in South Asia. *Journal of Transport Geography*, 80, 102–116.
- Rahman, T., & Leung, S. (2023). Performance evaluation of next-generation BRT systems in Asia and Latin America. *International Journal of Sustainable Mobility*, 9(4), 201–219.
- Research Part A, 67, 128–140.
- Shah, A. (2022). Women's experiences with Zu Peshawar BRT. *Pakistan Journal of Gender Studies*, 19(2), 115–134.
- Silva, P., & Ortega, M. (2024). Climate-smart public transport: Emission reductions and air quality impacts of BRT corridors. *Environmental Transport Insights*, 7(1), 58–77.
- Trans-Peshawar. (2024). Operational Statistics and Service Performance Update. TransPeshawar (Urban Mobility Company).
- TransPeshawar. (2024). *Operational statistics and service performance update*. TransPeshawar (Urban Mobility Company).

World Economic Forum. (2022). *Gender-inclusive mobility systems: Lessons from emerging economies*. World Economic Forum.

World Resources Institute. (2023). *Sustainable urban transport in Pakistan: Trends, challenges and opportunities*. WRI Ross Center for Sustainable Cities.

Zhang, Y., & Kim, S. (2024). Modernizing bus rapid transit: Integrating smart technologies for enhanced mobility performance. *Urban Mobility Innovations*, 6(3), 89–108.

