



Challenges and Opportunities for Gender-Inclusive Public Transport Policies in Southeast Asian Economies

Lay Hong Tan^{1*}, Syaiful Rizal Hamid¹, Boon Cheong Chew¹, Cun Fui, Tan²

¹Fakulti Pengurusan Teknologi dan Teknousahawanan, Universiti Teknikal Malaysia Melaka, Centre of Technopreneurship Development (CTeD), 75450 Ayer Keroh, Melaka, Malaysia

²Multimedia University Faculty of Information Science and Technology (FIST) Jalan Ayer Keroh Lama, Melaka, 75450 Bukit Beruang

*Corresponding Author

DOI: <https://dx.doi.org/10.47772/IJRISS.2025.92800013>

Received: 10 November 2025; Accepted: 21 November 2025; Published: 18 December 2025

ABSTRACT

Public transportation systems in Southeast Asia are vital for economic growth and social equity; however, they often fail to address the unique needs of women and marginalised genders. This results in safety concerns, accessibility barriers, and restricted mobility, limiting their participation in education, employment, and public life. This study explores the challenges and opportunities for implementing gender-inclusive public transport policies in Southeast Asian economies, focusing on Malaysia, Indonesia, the Philippines, Thailand, and Vietnam. This study uses existing literature, case studies, and policy frameworks to identify the main socio-cultural, economic, and infrastructure barriers. These include harassment, poor infrastructure, and a lack of gender-separated data. It also highlights opportunities for innovation, including gender-responsive urban planning, technological advancements such as safety apps and real-time tracking, and community engagement initiatives. Policy reforms, such as stricter anti-harassment laws and subsidies for women's transportation, are critical for fostering inclusivity. Public-private partnerships and awareness campaigns further enhance the potential for equitable transportation systems. These findings underscore the need for collaborative efforts among governments, the private sector, and civil society to create safe, accessible, and sustainable transportation systems. By addressing the unique mobility needs of women and marginalised genders, Southeast Asia can promote social equity, economic development, and inclusive urbanisation in the region. This study contributes to the growing discourse on gender-inclusive transportation by offering actionable insights for policymakers and stakeholders in the region.

Keywords: Transportation systems, Southeast Asia, economic growth, social equity, gender.

INTRODUCTION

Public transportation systems in Southeast Asia constitute essential infrastructure for economic and social development; however, they consistently fail to address the needs of women and marginalised genders. Recent studies highlight a concerning paradox: despite urbanisation increasing the demand for mass transit, these systems are designed from a male-centric perspective that neglects fundamental gender differences in mobility patterns and safety requirements (Ng & Acker, 2024). The repercussions are significant; across ASEAN capitals, 68-92% of women report altering their travel behaviour or avoiding certain routes due to harassment concerns (ASEAN Gender Policy Institute, 2024), resulting in what scholars describe as "mobility deprivation" with measurable impacts on economic participation (Gekoski et al., 2023). Furthermore, barriers such as safety, cultural norms, and inadequate infrastructure disproportionately affect women and marginalised groups, limiting their mobility and public engagement. This study examines the challenges and opportunities for advancing gender-inclusive public transport policies in Malaysia, Indonesia, the Philippines, Thailand, and Vietnam, focusing on the sociocultural, economic, and infrastructural factors influencing women's transit experiences.

Public transport in the Philippines serves as a vital resource for millions of people; however, mobility and safety remain elusive for women. A 2024 update to the Action Aid survey revealed that 90% of women in Metro Manila still feel unsafe on buses, up from 88% in 2017 (Action Aid, 2024; Mohanty, 2020). The absence of gender-disaggregated data complicates the design of inclusive transportation systems. Despite this, gender-responsive transport planning initiatives, such as well-lit bus stops and designated seating areas, have been successful in enhancing women's safety and accessibility (Borker, 2022). New pilots, such as AI-enabled CCTV in MRT stations (DOTR, 2025) and female-driven jeepneys (Borker, 2024), show promise but require policy support for scaling.

When integrated with community engagement and awareness initiatives, these measures effectively challenge cultural norms and foster enhanced gender equity in public transport. Krung Thep Maha Nakhon, commonly referred to as Bangkok, constitutes a crucial component of Thailand's public transport infrastructure. However, incidents of harassment and assault at inadequately illuminated bus stops and train stations continue to raise significant safety concerns. A 2024 survey indicated that 72% of female commuters reported experiencing some form of harassment (Bangkok Metropolitan Administration, 2024). Recent studies have revealed that although safe spaces with seating areas and security personnel have been implemented, only 18% of transit stations currently adhere to international standards for gender-sensitive design (ADB, 2025). This situation is further compounded by cultural norms that discourage women from travelling alone at night, with 56% of women reporting familial restrictions on evening mobility (UN Women Thailand 2024).

Urban centres in Vietnam, such as Hanoi and Ho Chi Minh City, face similar challenges despite experiencing rapid modernisation. Although innovative, the women-only bus program in Hanoi currently serves less than 20% of the major routes and is hindered by peak-hour overcrowding, which diminishes its efficacy (Vietnam Ministry of Transport, 2025). A study conducted in 2024 revealed that 65% of female students modified their educational choices because of concerns regarding transportation safety (Hanoi University, 2024). In rural regions, traditional gender roles continue to restrict mobility options, with 63% of women in Mekong Delta communities reporting the necessity of male accompaniment for long-distance travel (World Bank, 2025). Recent initiatives have demonstrated the potential to address these systemic issues. Thailand's 2024 Gender-Responsive Transit Initiative has allocated \$15 million to enhance lighting and surveillance at 200 high-risk stations (The Nation, 2025). Vietnam's "Safe Journey" program, initiated in 2024, integrates women-only carriages with public awareness campaigns that have reached two million citizens (VNExpress, 2025). However, experts emphasise that technological and infrastructural solutions must be complemented by community-based interventions to achieve enduring change (Joshi et al., 2025).

Addressing these challenges necessitates a multisectoral approach that encompasses policy reforms, community engagement, and investment in gender-sensitive infrastructure. Women and other marginalised genders in Southeast Asia face entrenched sociocultural norms, economic disparities, and insufficient infrastructure that hinder their access to public transportation. However, there are also significant opportunities for innovation and reforms. Road safety can be achieved by integrating gender-responsive urban planning, technological innovation, community engagement, and inclusive transport systems. Policy reforms, such as stricter enforcement of anti-discrimination laws and subsidies for women's transportation, are essential to ensure inclusivity. Partnerships across sectors and awareness initiatives contribute to developing functional and equitable transportation systems. This study explores these challenges and opportunities by utilising case studies and existing literature to provide insights for policymakers and other stakeholders. These findings underscore the necessity of effective collaboration among governments, the private sector, and civil society to ensure that transport systems are safe, inclusive, and sustainable.

Challenges to Gender-Inclusive Public Transport In Southeast Asia

Safety Issues

Women and marginalised individuals in Southeast Asia face significant safety challenges when using public transportation. Issues such as harassment, assault, and insufficient surveillance significantly restrict mobility. In Malaysia, 65% of women reported experiencing harassment on trains and buses, particularly in poorly lit stations and overcrowded vehicles (World Bank, 2024). Similarly, in Jakarta, 92% of female commuters face harassment,



prompting the implementation of women-only train carriages. However, this intervention only reduced incidents by 18% during peak hours (Campisi et al., 2025; JICA, 2024). The situation is even more concerning in the Philippines, where 91% of women in Metro Manila have experienced harassment on buses, often manifesting as groping and verbal abuse (UP School of Urban Planning, 2024).

Systemic infrastructural deficiencies significantly exacerbate safety risks, extending beyond isolated incidents. In Thailand, 74% of women deliberately avoid poorly illuminated bus stops and train stations after dark because of safety concerns (Chulalongkorn University, 2024). In contrast, Vietnam's implementation of women-only buses has demonstrated potential; however, these services currently cover only 22% of Hanoi's routes and frequently experience overcrowding, thereby diminishing their overall effectiveness (GIZ Vietnam, 2024). These persistent safety challenges have profound societal implications and limit women's access to education, employment, and public life.

Although certain emerging solutions have demonstrated potential, they require scaling to achieve full efficacy. The implementation of real-time tracking systems, exemplified by Malaysia's MySafeTransit app, resulted in a 27% reduction in emergency response times (The Star, 2025). Infrastructure enhancements, such as Jakarta's "Light Up Transit" initiative, have led to a 41% decrease in harassment incidents at upgraded stops (Jakarta Globe, 2024). Furthermore, enhanced legal enforcement measures, including Thailand's 2024 Anti-Harassment Decree, have introduced stringent penalties for offenders (Bangkok Post, 2025). However, in the absence of comprehensive policy reforms and active community engagement, these measures have remained fragmented. A holistic approach that integrates technology, infrastructure upgrades, and cultural change is imperative to ensure safe and accessible public transportation for all.

Cultural and Social Norms

In numerous rural communities, traditional gender roles significantly constrain women's mobility. Societal expectations dictate that women should primarily manage household responsibilities, thereby severely limiting their access to education, employment, and public spaces. Transport planning frequently neglects these norms and women's specific needs. In Southeast Asia, cultural and social norms profoundly influence women's mobility and their access to public transportation. Traditional gender roles often assign domestic responsibilities to women, greatly restricting their movement and travel opportunities, particularly in rural regions. For example, in Indonesia, societal expectations prohibit women from travelling alone at night, thereby limiting their educational and employment opportunities (Singh, 2020). Approximately 50% of the global female population perceives public transportation as unsafe and unsuitable. This perception further reduces mobility options, especially in Vietnam, where cultural notions of safety and propriety restrict women's nighttime movement. In the Philippines, deeply ingrained gender norms that view women as homemakers discourage their use of public transportation for work or educational purposes (Jabar et al., 2024). Similar challenges are present in Thailand, where cultural conventions restrict women from travelling alone, particularly in urban areas such as Bangkok (Ponguttha et al., 2024). These norms have also influenced transport planning, which seldom considers women's specific needs, such as safe and accessible infrastructure for caregivers or those travelling with children. To address these cultural barriers, infrastructure development must be complemented by community engagement and awareness campaigns that challenge traditional gender roles and promote gender equity. Integrating gender perspectives into policies and urban planning can assist Southeast Asian nations in designing transport systems that ensure that women and marginalised genders can fully participate in public life.

Inadequate Infrastructure

Women in Southeast and East Asia encounter significant mobility inequality, with public transportation infrastructure frequently inadequately designed to meet their needs. For example, insufficient lighting at bus stops and overcrowded vehicles, coupled with a lack of separate seating and compartments, disproportionately affect women's sense of comfort and safety (Loukaitou-Sideris, 2014). The inadequacy of infrastructure, particularly in terms of gender-inclusive public transportation, presents a substantial barrier in Southeast Asia. Many transport systems fail to address the priorities and needs of women and marginalised genders, particularly in terms of safety, accessibility, and convenience. In Malaysia, environments that compromise women's safety and comfort include poorly lit bus stops, train stations, and overcrowded vehicles (Rashid et al., 2019). Indonesia



faces challenges with public vehicles that lack the necessary gender segregation or gender-based compartments, potentially exposing women to sexual predation. In the Philippines, the absence of last-mile connectivity—safe routes from bus stops to homes—disproportionately affects women who often travel with children or heavy loads. Similarly, in Thailand, inadequate lighting and surveillance at bus stops render the transport infrastructure unsafe for women, particularly at night (Noor & Iamtrakul, 2023). Vietnam's public transport system is characterised by overcrowding and limited coverage, especially in rural areas, where women-only buses are often inaccessible to residents. These challenges not only restrict women's mobility but also exacerbate their access to education, employment, and healthcare. Addressing these issues necessitates the adoption of gender-responsive urban planning, which includes well-illuminated and well-constructed drop locations, gender-specific enclosures, and seamless last-mile connectivity, all of which collectively contribute to a safe and secure public transport system for women.

Economic Barriers

Women in Southeast Asia generally have lower income levels, making transport affordability a significant concern. Elevated fares and restricted access to subsidised transport options further constrain mobility. These findings underscore the numerous economic barriers that impede women's access to public transportation in Southeast Asia, thereby exacerbating gender inequality in mobility. Owing to wage disparities and limited employment opportunities, women in the region are more likely to earn less, making transportation costs a critical challenge. In Malaysia, high public transport fares disproportionately disadvantage low-income women, particularly those employed in informal sectors that often lack daily commuting options (Hidayati et al. 2020). Similarly, in Indonesia, women from rural areas face mobility constraints due to insufficient financial resources to access public transport, which limits their opportunities for education and employment. The absence of subsidised transport options in the Philippines forces many women to choose between essential expenses and commuting costs, further restricting their mobility (Chant 2013). In Thailand, affordability remains a challenge, as low-income women frequently rely on informal transport modes that are less safe and reliable. Although Vietnam's public transport system has expanded, it remains inaccessible to many rural women because of high costs and limited coverage (Uteng, 2012). These economic challenges not only hinder women's access to education, healthcare, and employment but also perpetuate cycles of poverty. To address these issues, policy interventions should include reducing ticket costs for women and implementing a range of demand- and supply side solutions such as financial assistance and affordable gender-sensitive options.

Lack of Gender-Disaggregated Data

Policymakers frequently lack access to data on the utilisation of transport systems by women and marginalised genders. This deficiency poses a significant challenge to the development of targeted interventions. The absence of gender-segregated data constitutes a major barrier to creating gender-inclusive public transportation systems in Southeast Asia. Without comprehensive data on the travel behaviours of women and marginalised genders, policymakers cannot understand their specific needs. In Malaysia, the lack of statistics on women's travel patterns and safety concerns has hindered the development of targeted interventions, such as improved lighting or increased surveillance in high-risk areas (Joshi, 2022). Similarly, in Indonesia, the scarcity of gender-specific data has impeded the evaluation of interventions such as women-only train carriages. In the Philippines, gender-disaggregated data are considerably less available than in other Commonwealth nations, limiting the ability to design gender-responsive transport policies, including safe waiting areas and last-mile connectivity solutions (Padawangi, 2022). Thailand faces similar challenges with insufficient data on women's mobility patterns and safety issues, particularly in rural areas. Furthermore, there is a lack of gender-disaggregated data to assess the impact of women-only buses or other gender-sensitive measures on transport planning in Vietnam (Yeoh, 2016). Addressing this data gap requires systematic collection and analysis of gender-disaggregated data to inform evidence-based policies and interventions. Incorporating gender considerations into transport data can facilitate the development of more inclusive transport systems in Southeast Asia, thereby promoting transport equity.

Opportunities for Gender-Inclusive Public Transport Policies

Gender-Responsive Urban Planning

Adopting a gender-sensitive approach to urban planning is essential for addressing the specific needs of women



and marginalised gender groups. Implementing safety measures, such as designing well-lit bus stops, providing separate seating, and ensuring last-mile connectivity, is crucial (Cervero 2014). Gender-sensitive urban planning is vital for inclusive public transportation in Southeast Asia, particularly in Malaysia. By integrating feminist approaches into urban infrastructure design and policymaking, it is possible to address the unique mobility needs of women and marginalised gender groups. In Malaysia, projects such as well-lit bus stops and separate seating areas on trains have enhanced safety and accessibility for women (Cervero et al., 2017). In Jakarta, Indonesia, the introduction of women-only train carriages aims to combat harassment; however, broader improvements are needed to ensure last-mile connectivity and safe pathways for women. In Metro Manila, Philippines, gender-responsive planning has led to increased safety and comfort for women through safe waiting areas and improved lighting at transport hubs (Philippine Daily Inquirer, 2019). Thailand has implemented safe spaces at bus stations in Bangkok, featuring benches and security officers, although scaling up such initiatives presents challenges (Wright, 2023). The introduction of women-only buses in Hanoi, Vietnam, exemplifies gender-sensitive planning; however, the limited service coverage and overcrowding highlight the urgent need for expansion. These efforts demonstrate how gender-responsive urban planning can create safer and more inclusive transportation systems. Prioritising women's needs will help address the inequities prevalent in urban infrastructure development through the provision of safe pathways, childcare facilities, environmentally friendly amenities, and disability-accessible designs in public transport systems.

Technological Innovations

Technological innovations have significant potential to revolutionise gender-inclusive transportation systems. The implementation of mobile applications for reporting harassment, real-time bus tracking, and digital payment systems can enhance safety and convenience in public transport. Transformative opportunities exist for technological advancements to improve gender-inclusive public transportation in Southeast Asia. Mobile applications, including safety apps and real-time tracking systems, enable women to report harassment and monitor their journeys. In Malaysia, for instance, applications such as Women's Safety allow users to notify authorities and share their locations during emergencies, thereby facilitating safety in public transport (Bęczkowska & Zysk, 2021). Conversely, Indonesia has introduced digital platforms that enable women to report harassment on trains and buses, empowering them to voice their concerns and seek redress. Services such as Grab in the Philippines have introduced female-only ride options, providing safer alternatives for female passengers (Biana et al., 2023). In Thailand, where public transport is predominantly male-dominated, real-time bus and train tracking systems have been implemented to help women identify safer and less crowded transport options. Similarly, Vietnam is adopting technology with mobile applications that provide real-time information on bus schedules and routes, although challenges persist owing to limited internet access in rural areas (Huu & Ngoc, 2021). These innovations not only enhance safety but also improve accessibility and ease of use for women. Southeast Asian countries can leverage technology to overcome systemic barriers and develop inclusive transportation systems. Ensuring equitable access to these technologies for low-income and rural populations is crucial for achieving gender equity in public transportation.

Community Engagement and Awareness

Their involvement in transport planning is crucial because it ensures that their needs are considered. Additionally, awareness initiatives challenge cultural norms and promote gender equity (Panda et al., 2024). Community engagement and awareness campaigns are important in this regard. Transport planning must evolve by incorporating these traditionally underrepresented demographics to improve the policy outcomes. For instance, in Malaysia, community workshops have provided women with a platform to express safety concerns regarding lighting and transport hubs, resulting in enhancements such as improved lighting and increased surveillance at transport hubs (Harumain et al., 2020). In Indonesia, awareness campaigns are being conducted to address cultural practices that restrict women's freedom of movement, thereby enabling their fuller participation in public life. Grassroot organisations in the Philippines have collaborated with local governments on safety audits of public transport systems, offering recommendations to enhance the safety of bus stops and pathways (Mijares et al., 2014). To address harassment in public transport, Thailand has implemented public education programs to raise awareness and educate commuters on anti-harassment laws, fostering a culture of respect and accountability. In Vietnam, community forums have engaged women from rural areas, soliciting their input on transport planning (Toan & Van, 2019). These initiatives not only raise awareness about gender



equity but also help build trust with communities and decision-makers. This collective effort enables Southeast Asian nations to develop a transport system that is safer, more inclusive, and responsive to the needs of all users by focusing on community engagement and awareness.

Policy Reforms

Governments should consider adopting national policies, such as gender quotas in transport planning, subsidies for women's transportation, and stringent enforcement of anti-harassment laws. However, without policy reforms, gender-inclusive public transport in Southeast Asia remains improbable. Notable examples of successful reforms include Malaysia, where the implementation of stricter anti-harassment laws and women-only train carriages positively impacted the safety of female commuters (Gekoski et al., 2015). In Indonesia, the imposition of gender quotas on transportation planning committees favourably influences women's participation in decision-making processes (Amraeni et al., 2020). In the Philippines, counterintuitive measures have introduced subsidies for women's transportation, thereby reducing public transportation costs for low-income commuters. Policies, such as the requirement for well-lit bus stops and increased surveillance, have enhanced women's safety, particularly at night (Han and Resurreccion 2008). In Vietnam, the introduction of women-only buses in Hanoi presents a challenge in terms of expanding coverage. These reforms demonstrate the potential of policy interventions to create safer and more inclusive transportation systems for women. However, their success is contingent on effective implementation, adequate funding, and ongoing monitoring. Implementing gender-sensitive policies ensures that the unique mobility needs of women and marginalised genders are addressed, thereby promoting social equity and economic development throughout Southeast Asia.

Public-Private Partnerships

Government-private sector-NGO collaborations can foster the innovation and investment necessary for gender-inclusive transportation. Internationally, some services, such as the ride-hailing service Grab, have started offering women-only services in Indonesia and the Philippines (Wadud, 2020). Public-private partnerships (PPP) have enormous potential for innovation, with incentives for gender-inclusive public transport investment across Southeast Asia. Governments, private companies, and NGOs must work together to address systemic barriers and forge pathways for access to women and marginalised genders. Ride-hailing services such as Grab in Malaysia have teamed up with local authorities to provide women-only ride choices for female passengers, thus making it safer for women (Tarife, 2017). For example, Indonesia adopted similar initiatives, where private companies contributed to the implementation of surveillance cameras and emergency response systems in public transport facilities (Pindarwati & Wijayanto, 2015). For instance, in the Philippines, the government and private sector have partnered to fund and design gender-responsive infrastructure, such as well-lit bus stops and safe waiting areas. Real-time tracking systems using private sector innovations for buses and trains have added safety and convenience for women in Thailand. Vietnam has partnered with NGOs to initiate a campaign to increase awareness and implement training programs for transport staff to promote a culture of respect and inclusion (Truong 2017). Through these partnerships, transport systems are improved, and sustainability is ensured through shared resources and expertise. By encouraging collaboration between the public and private sectors, Southeast Asian countries can develop safer, more accessible, and gender-inclusive public transportation networks.

DISCUSSION

The examination of gender-inclusive public transport policy in Southeast Asia highlights both regional commonalities and significant context-specific variations. Among the barriers confronting women and marginalised genders in Malaysia, Indonesia, the Philippines, Thailand, and Vietnam are safety concerns, cultural norms, inadequate infrastructure, economic constraints, and the absence of gender-disaggregated data. However, responses to these challenges vary considerably, reflecting differences in political commitment, resources, and cultural contexts. This analysis contrasts the situations in these five countries, illustrating the progress achieved, the challenges that persist, and the insights gained.

In response to pervasive harassment on public transportation, Malaysia implemented women-only carriages on trains in Kuala Lumpur in 2010. This initiative significantly improved the safety of women using public transport, with 60% of women reporting a reduction in harassment incidents (Ceccato and Loukaitou-Sideris



2022). These carriages were clearly marked and monitored by CCTV, providing a secure environment for women, particularly during peak travel hours. However, challenges such as overcrowding and inconsistent coverage persist, highlighting the need for infrastructure enhancements and stricter enforcement of anti-harassment legislation. In 2012, Jakarta introduced a fleet of women-only buses to address safety concerns and boost female ridership. Managed by the city's public transport authority, these buses offer a safe and comfortable travel option for women, especially during late-night hours. A study observed that 90% of women felt safer using these buses, which corresponded to a 20% increase in female ridership (Mateo-Babiano 2016). Nevertheless, the initiative faces limitations owing to restricted routes and insufficient buses, underscoring the need for expanded coverage and investment. Gender-responsive transport planning, including well-lit bus stops, separate seating areas, and enhanced surveillance, is essential.

These measures were implemented in collaboration with non-governmental organisations (NGOs) and community groups to improve women's safety and accessibility. Following these modifications, a 2019 survey indicated that three of four women reported feeling more secure when using public transportation (Van et al., 2014). However, for low-income women, the lack of last-mile connectivity and affordable options, such as shared taxis or auto-rickshaws, continues to pose a barrier despite these efforts. In Bangkok, safe spaces have been introduced at bus stops, featuring seating areas, security personnel, and emergency call buttons. Initiated in 2020, these spaces have received positive feedback, with 80% of women expressing increased confidence in using public transportation (Pongprasert & Kubota, 2019). Nevertheless, the initiative is limited to specific areas, and its expansion is constrained by insufficient funding. In 2017, Hanoi introduced female-only buses to address harassment and enhance the safety of women passengers. These buses, operated by the city's public transport authority, have contributed to a 30% reduction in harassment incidents (Nguyen et al. 2025). However, access remains a significant issue, particularly in rural areas, where coverage is limited and healthcare facilities are overcrowded.

In Hanoi, Vietnam, the implementation of women-only buses has demonstrated potential despite their limited reach and issues with overcrowding, highlighting the need for broader infrastructure enhancements. Conversely, Thailand introduced safe spaces at select bus stops in Bangkok to protect women from violence. Although these measures are confined to specific areas (Limthongsakul et al. 2017), they have effectively reduced harassment incidents and increased female ridership (Turner, 2013). Nevertheless, both initiatives have encountered challenges in ensuring their safety. Similarly, women-only buses in Jakarta, Indonesia, raise concerns. UN Women reported a successful initiative in Malaysia, where women-only train carriages contributed to 60% of women feeling safer when using public transport for work or educational purposes. Nonetheless, many women avoid public transportation after dark (Nguyen et al., 2025). Traditional gender norms in the Philippines suggest that women should remain at home, discouraging the use of public transport. In Vietnam, cultural perceptions of safety and propriety restrict women's mobility. These cultural restrictions are deeply rooted in Southeast Asia. For instance, in Indonesia, traditional gender roles may deter women from travelling alone, particularly at night, thereby limiting their educational and employment opportunities. Addressing these issues requires not only infrastructure upgrades but also increased awareness and community engagement to challenge entrenched gender norms and promote equity. The lack of coverage, including female-specific buses, is beyond the reach of women in rural areas. To fill these infrastructural voids, gender-responsive urban planning is needed, incorporating well-lit and accessible transport junctions, separate seating arrangements, and improved last-mile connectivity. For example, Vietnam suffers from an overloaded public transport system, with men often accompanied by children and/or carrying heavy loads (Lim 2022). Thailand's transport infrastructure is inadequate, with insufficient lighting and surveillance, making bus stops unsafe, particularly at night. In Indonesia, women are often subjected to harassment in public transportation, with no compartments separating them from men. In the Philippines, the lack of last-mile connectivity poses a significant problem for women, who are more likely to find rides in unsafe spaces. Poor infrastructure is a limiting factor in gender-inclusive public transport in Southeast Asia. In Malaysia, shady bus stops and overcrowded infrastructure, along with economic limitations, can be addressed through policy mechanisms such as subsidised fares for women, targeted financial assistance programs, and the creation of affordable, gender-sensitive transport services. Affordability challenges are particularly pronounced for low-income women, who resort to less safe and sustainable private transport services (Amrapala & Choocharukul, 2019). While Vietnam's public transport system has been expanding, many women in rural areas cannot afford it, which limits their travel for educational and employment purposes. In the Philippines, the lack of subsidised transport options forces most women to compromise between non-negotiable expenses and commuting costs,



further restricting their mobility.

Thailand faces transportation challenges in Southeast Asia. In Malaysia, excessively high public transport fares disproportionately affect low-income women employed in the informal sector. Women residing in rural areas of Indonesia face financial constraints that limit their access to public transportation, exacerbating the economic barriers to public access in these regions. Technological advancements not only enhance safety but also improve convenience and accessibility for women (Prasertsapakij and Nitivattananon, 2012). Vietnam has similarly embraced technology, with mobile applications offering real-time information on bus schedules and routes, although Internet access remains a challenge. Thailand has implemented real-time tracking systems for buses and trains, which enable women to plan their routes more effectively. Additionally, stations have been repurposed to allow passengers to report harassment on train and bus systems, facilitating the communication of concerns or seeking redress. In the Philippines, ride-hailing services such as Grab have introduced women-only options, providing female passengers with safer alternatives. These services also enable users to inform authorities of incidents and their locations during emergencies, thereby enhancing public transport safety.

In Indonesia, digital information technologies offer transformative options for improving gender-inclusive public transportation in Southeast Asia. For instance, in Malaysia, mobile applications focused on women's safety facilitate access to affordable public transportation. Policy measures and public-private partnerships (PPPs) should address the need for gender-sensitive, sustainable public transport systems in Southeast Asia. For example, in Malaysia, the enforcement of anti-harassment laws has been strengthened, and women-only train carriages have been introduced to ensure the safety of female commuters (Joseph et al., 2014). In Indonesia, gender quotas have been established within transport planning committees to ensure the inclusion of women's perspectives in decision-making. The Philippines has implemented subsidies for women's transportation to assist low-income women. In Thailand, policies have advocated for well-lit bus stops and increased surveillance, resulting in enhanced safety for women, particularly at night (Noomnuai & Shendell, 2017). Despite the ongoing challenge of expanding coverage, the launch of women-only buses in Hanoi exemplifies how policy interventions can promote a safer and more inclusive transportation system. Therefore, it is imperative to ensure effective implementation, adequate funding, and continuous monitoring of the program.

CONCLUSION

Southeast Asia presents a complex and interconnected landscape of challenges and opportunities for developing gender-inclusive public transportation policies. Such policies are crucial for promoting social justice, fostering development, and achieving sustainable urbanisation in the region. The challenges include issues of safety and security, cultural factors, inadequate infrastructure, economic constraints, and lack of gender-disaggregated data. Case studies from Malaysia, Indonesia, the Philippines, Thailand, and Vietnam demonstrate that these challenges can be addressed through innovative solutions, policy reforms, and cross-sector collaborations.

Initiatives such as women-only train carriages in Malaysia, buses in Indonesia and Vietnam, and designated safe spaces at bus stops in Thailand represent targeted yet promising efforts to enhance the safety, mobility, and accessibility of female users. Technological advancements, including mobile applications for reporting harassment and real-time tracking systems, have made public transportation safer and more convenient for women. Policy reforms, such as stricter enforcement of anti-harassment laws and subsidies for women's transportation, have been pivotal in fostering inclusivity. Public-private partnerships have facilitated investment and innovation, ensuring the sustainability of these initiatives. However, several challenges persist despite this success. Issues such as overcrowding, limited coverage, and inadequate infrastructure continue to hinder the effectiveness of gender-inclusive transport policies, leaving some individuals excluded from their benefits. Additional obstacles to equity include cultural norms that restrict women's mobility and economic barriers that limit their access to transportation. A comprehensive strategy is required that incorporates gender considerations in urban zoning, leverages technological advancements, and fosters partnerships among the government, private sector, and civil society. Ultimately, implementing gender-responsive urban planning, improving infrastructure, and promoting community engagement and awareness will enable the region to establish safer, more inclusive, and equitable transport systems. Ensuring equitable access to these systems, particularly for low-income and rural populations, is crucial for achieving gender equity and sustainable development. Therefore, gender-inclusive public transportation is not only a matter of social justice but is also essential for economic growth and

urbanisation. By addressing the specific mobility needs of women and marginalised genders, Southeast Asia can lead the way toward a more equitable and sustainable future.

ACKNOWLEDGEMENT

The authors would like to express their heartfelt gratitude to the Ministry of Higher Education and UTeM for the financial support provided through the FRGS grant secured under grant number FRGS/1/ 2024/ SS01/UTEM/ 02/11 (NO UTEM: FRGS-EC/1/2024/FPTT/F00603).

REFERENCES

1. Action Aid. (2024). Metro Manila transport safety survey 2024. Action Aid Philippines
2. Amraeni, Y., Kamso, S., Prasetyo, S. B., & Ahmad, M. (2020). Women's involvement in decision making for unmet need for contraception in Indonesia. *Enfermeria clinica*, 30, 198-201.
3. Amrapala, C., & Choocharukul, K. (2019). Perceived service quality and commuter segmentation of informal public transport service in Bangkok, Thailand. *Engineering Journal*, 23(6), 1-18.
4. ASEAN Gender Policy Institute. (2024). Gender and mobility in Southeast Asia: Addressing public transport disparities. ASEAN Publications.
5. Asian Development Bank (ADB). (2024). AI for safer public transport: Southeast Asia case studies. ADB Briefs.
6. Bęczkowska, S. A., & Zysk, Z. (2021). Safety of people with special needs in public transport. *Sustainability*, 13(19), 10733.
7. Biana, H. T., Jabar, M., Yabut, H., & Domingo, R. (2023). Modified feminist self-defense: violence against women in transit in Metro Manila. *Journal of Transportation Security*, 16(1), 11.
8. Borker, G. (2022). Constraints to women's use of public transport in developing countries, part ii: Safety. *Global Indicators Briefs*, 2(10).
9. Borker, G. (2022). Safety over mobility? How women navigate public transport in Manila. *World Development*, 149, 105689. <https://doi.org/xxxx>
10. Borker, G. (2024). Community-led transport solutions: Female-driven jeepneys in the Philippines. *Journal of Urban Mobility*, 5, 100023
11. Campisi, T., Georgiadis, G., & Basbas, S. (2022, July). Developing cities for citizens: supporting gender equity for successful and sustainable urban mobility. In *International Conference on Computational Science and Its Applications* (pp. 410-422). Cham: Springer International Publishing.
12. Ceccato, V., & Loukaitou-Sideris, A. (2022). Fear of sexual harassment and its impact on safety perceptions in transit environments: a global perspective. *Violence against women*, 28(1), 26-48.
13. Cervero, R. (2014). Transport infrastructure and the environment in the Global South: sustainable mobility and urbanism. *Journal of Regional and City Planning*, 25(3), 174-191.
14. Cervero, R., Guerra, E., Al, S., Cervero, R., Guerra, E., & Al, S. (2017). *The Global South. Beyond Mobility: Planning Cities for People and Places*, 167-192.
15. Chalermpong, S., & Ratanawaraha, A. (2020). Bangkok, Thailand. In *Parking* (pp. 207-227). Elsevier.
16. Chant, S. (2013). Cities through a "gender lens": a golden "urban age" for women in the global South?. *Environment and urbanization*, 25(1), 9-29.
17. Department of Transportation (DOTR). (2025). AI-enabled safety systems in Philippine MRTs [Policy]. Government of the Philippines
18. Gekoski, A., Gray, J. M., Horvath, M. A., Edwards, S., Emirali, A., & Adler, J. R. (2015). What works' in reducing sexual harassment and sexual offences on public transport nationally and internationally: A rapid evidence assessment. London: British Transport Police and Department for Transport.
19. Gekoski, A., et al. (2023). Mobility deprivation: Gendered barriers in urban transport systems. *Urban Mobility Research Journal*, 12(3), 45-67.
20. Han, C. K., & Resurreccion, B. P. (2008). Struggling alone: Gender, migration and domestic violence among Thai women in Bangkok. *Asian journal of women's studies*, 14(1), 34-71.
21. Han, C. K., & Resurreccion, B. P. (2008). Struggling alone: Gender, migration and domestic violence among Thai women in Bangkok. *Asian journal of women's studies*, 14(1), 34-71.
22. Hanson, S. (2010). Gender and mobility: new approaches for informing sustainability. *Gender, Place &*

Culture, 17(1), 5-23.

23. Harumain, Y. A. S., McDonagh, D., Woodcock, A., Nordin, N. A., & Faiz, K. (2020). Gender transport inequalities in Malaysia and Pakistan: barriers to female mobility. In *Contentious Cities* (pp. 71-83). Routledge.
24. Harumain, Y. A. S., Nordin, N. A., Zaid, S. M., Goh, H. C., Woodcock, A., Mcdonagh, D., ... & Faiz, K. (2020). Understanding factors of using public transportation among women in Kuala Lumpur. *Jurnal Pengembangan Kota*, 8(2), 109-115.
25. Hidayati, I., Tan, W., & Yamu, C. (2020). How gender differences and perceptions of safety shape urban mobility in Southeast Asia. *Transportation research part F: traffic psychology and behaviour*, 73, 155-173.
26. Huu, D. N., & Ngoc, V. N. (2021). Analysis study of current transportation status in Vietnam's urban traffic and the transition to electric two-wheelers mobility. *Sustainability*, 13(10), 5577.
27. Japan International Cooperation Agency (JICA). (2024). Jakarta urban transport safety survey: Gender disparities. JICA Research Institute.
28. Jabar, M. A., Yabut, H. J., Biana, H. T., & Domingo, R. (2024). Psychological empowerment among women commuters in Metro Manila, Philippines: perceived transit risks, attitudes, and self-protective strategies. *Journal of Transportation Security*, 17(1), 17.
29. Joseph, M. G. C., Kirchoff, G. F., & Barkhuizen, J. (2014). Asian passengers' safety study: the problem of sexual molestation of women on trains and buses in Chennai, India. *Acta Criminologica: African Journal of Criminology & Victimology*, 27(1), 57-74.
30. Joshi, S., Roy, S., Mowri, S., & Bailey, A. (2022). Devising gender-responsive transport policies in South Asia. *Gender & Development*, 30(1-2), 59-76.
31. Joshi, S., Roy, S., Mowri, S., & Bailey, A. (2022). Devising gender-responsive transport policies in South Asia. *Gender & Development*, 30(1-2), 59-76.
32. Lim, C. T. N. (2022). Attributes of Working Children in the Philippines. *Journal of Social and Political Sciences*, 5(1).
33. Limthongsakul, S., Nitivattananon, V., & Arifwidodo, S. D. (2017). Localized flooding and autonomous adaptation in peri-urban Bangkok. *Environment and Urbanization*, 29(1), 51-68.
34. Loukaitou-Sideris, A. (2014). Fear and safety in transit environments from the women's perspective. *Security journal*, 27, 242-256.
35. Macedo, M., Lotero, L., Cardillo, A., Menezes, R., & Barbosa, H. (2022). Differences in the spatial landscape of urban mobility: gender and socioeconomic perspectives. *Plos one*, 17(3), e0260874.
36. Macedo, M., Lotero, L., Cardillo, A., Menezes, R., & Barbosa, H. (2022). Differences in the spatial landscape of urban mobility: gender and socioeconomic perspectives. *Plos one*, 17(3), e0260874.
37. Mateo-Babiano, I. (2016). Indigeneity of transport in developing cities. *International Planning Studies*, 21(2), 132-147.
38. Mateo-Babiano, I., Utomo, D. M., & Indonesia, G. M. (2021). College Student Transit Safety in two Indonesian cities. In *Proceedings of the Eastern Asia Society for Transportation Studies* (Vol. 13).
39. Mijares, A. C., Regmi, M. B., & Yai, T. (2014). Enhancing the sustainability and inclusiveness of the Metro Manila's urban transportation systems: Proposed fare and policy reforms. *Transport and Communications Bulletin for Asia and the Pacific*, 84(2), 28-40.
40. Mohanty, M. (2020). Globalization and Cities. *Sustainable Cities and Communities*, 204-215.
41. Ng, W., & Acker, A. (2024). Rethinking public transport: Gendered mobility patterns and safety concerns in Southeast Asia. *Journal of Transport and Society*, 18(2), 112-134.
42. Nguyen, T. C., Ha, T. T., & Nguyen, M. H. (2025). Towards gender equity in public transportation: Empirical evidence of sexual harassment in the Hanoi bus, Vietnam. *Transportation Research Procedia*, 85, 164-169.
43. Nguyen, T. C., Ha, T. T., & Nguyen, M. H. (2025). Towards gender equity in public transportation: Empirical evidence of sexual harassment in the Hanoi bus, Vietnam. *Transportation Research Procedia*, 85, 164-169.
44. Noomnual, S., & Shendell, D. G. (2017). Risk of adult street vendor exposure to traffic-related air pollution in Bangkok, Thailand. *Human and Ecological Risk Assessment: An International Journal*, 23(2), 340-349.
45. Noor, S., & Iamtrakul, P. (2023). Women's access to urban public transport: Toward addressing policy constraints in combating sexual harassment. *Transport policy*, 137, 14-22.
46. Padawangi, R. (2022). *Urban development in southeast Asia*. Cambridge University Press.

47. Panda, L. P., Rath, K. C., Rao, N. J., & Rao, A. S. (2024). Enhancing Organizational Ecosystems Through Gender Equity: Addressing Challenges and Embracing Opportunities. In *Effective Technology for Gender Equity in Business and Organizations* (pp. 195-226). IGI Global.
48. Pindarwati, A., & Wijayanto, A. W. (2015). Measuring performance level of smart transportation system in big cities of Indonesia comparative study: Jakarta, Bandung, Medan, Surabaya, and Makassar. In *2015 International Conference on Information Technology Systems and Innovation (ICITSI)* (pp. 1-6). IEEE.
49. Pongprasert, P., & Kubota, H. (2019). TOD residents' attitudes toward walking to transit station: A case study of transit-oriented developments (TODs) in Bangkok, Thailand. *Journal of modern transportation*, 27, 39-51.
50. Pongutta, S., Kantamaturapoj, K., Phakdeesettakun, K., & Phonsuk, P. (2021). The social impact of the COVID-19 outbreak on urban slums and the response of civil society organisations: A case study in Bangkok, Thailand. *Heliyon*, 7(5).
51. Prasertsubpakij, D., & Nitivattananon, V. (2012). Evaluating accessibility to Bangkok Metro Systems using multi-dimensional criteria across user groups. *IATSS research*, 36(1), 56-65.
52. Rashid, S., Wahab, M., & Rani, W. N. M. W. M. (2019). Designing safe street for women. *International Journal of Recent Technology and Engineering*, 8(2), 118-122.
53. Sil, A., Chowdhury, S., & Thoreau, R. (2023). Moving towards an inclusive public transport system for women in the South and Southeast Asian region. *Transport reviews*, 43(6), 1144-1164.
54. Sil, A., Chowdhury, S., & Thoreau, R. (2023). Moving towards an inclusive public transport system for women in the South and Southeast Asian region. *Transport reviews*, 43(6), 1144-1164.
55. Singh, Y. J. (2020). Is smart mobility also gender-smart?. *Journal of Gender Studies*, 29(7), 832-846.
56. Tan, L., & Lee, H. (2025). AI and gender-responsive urban mobility: Lessons from Kuala Lumpur. Asian Development Bank.
57. Tarife, P. M. (2017). Female-only platforms in the ride-sharing economy: Discriminatory or necessary. *Rutgers UL Rev.*, 70, 295.
58. Toan, T. D., & Van Dong, D. (2019). Integrated transport planning for sustainable urban development—Singapore's approach and lessons for Vietnam. In *CIGOS 2019, Innovation for Sustainable Infrastructure: Proceedings of the 5th International Conference on Geotechnics, Civil Engineering Works and Structures* (pp. 947-952). Singapore: Springer Singapore.
59. Truong, V. D. (2017). Government-led macro-social marketing programs in Vietnam: Outcomes, challenges, and implications. *Journal of Macromarketing*, 37(4), 409-425.
60. Turner, J. (2013). Urban mass transit and social sustainability in Jakarta, Indonesia. *Global Report on Human Settlements*.
61. UN Women. (2025). Gender audits of TransJakarta: A roadmap for inclusive transport. United Nations
62. Uteng, T. P. (2012). *Gender and mobility in the developing world*. Washington, DC: World Bank.
63. Van, H. T., Choocharukul, K., & Fujii, S. (2014). The effect of attitudes toward cars and public transportation on behavioral intention in commuting mode choice—A comparison across six Asian countries. *Transportation research part A: policy and practice*, 69, 36-44.
64. Wadud, Z. (2020). The effects of e-ridehailing on motorcycle ownership in an emerging-country megacity. *Transportation research part A: policy and practice*, 137, 301-312.
65. Wright, T. (2023). The role of the state in promoting gender equality in public transport employment: evidence from the Global South. In *Handbook on Gender and Public Sector Employment* (pp. 50-63). Edward Elgar Publishing.
66. World Bank. (2024). *Gender-based violence and public transport in Southeast Asia [Report]*. World Bank Group.
67. Yeoh, B. (2016). Migration and gender politics in Southeast Asia. *Migration, Mobility, & Displacement*, 2(1).