



## Devising gender-responsive transport policies in South Asia

Saakshi Joshi, Sanghamitra Roy, Seama Mowri & Ajay Bailey

To cite this article: Saakshi Joshi, Sanghamitra Roy, Seama Mowri & Ajay Bailey (2022) Devising gender-responsive transport policies in South Asia, *Gender & Development*, 30:1-2, 59-76, DOI: [10.1080/13552074.2022.2066266](https://doi.org/10.1080/13552074.2022.2066266)

To link to this article: <https://doi.org/10.1080/13552074.2022.2066266>



© 2022 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group



Published online: 31 Aug 2022.



Submit your article to this journal [↗](#)



Article views: 234




View related articles [↗](#)



View Crossmark data [↗](#)

## Devising gender-responsive transport policies in South Asia

Saakshi Joshi\*, Sanghamitra Roy\*, Seama Mowri\* and Ajay Bailey 

### ABSTRACT

Over time, the transport sector has grown more cognisant of gender differences in planning and policy. Yet, extant literature on transport shows that challenges, such as sexual harassment of women still prevail. The value of this study is its contribution towards gender-responsive transport policies with a focus on women by highlighting (1) the spectrum of barriers that prevent women's mobility across origin to destination journeys; and (2) construction of safety by using interventions and tools available to them, namely technology, women-only solutions, and infrastructural design. The findings are based on data from in-depth interviews with women participants in two Indian cities – Delhi and Kolkata. Drawing from our research, key policy suggestions include framing interventions in a rights-based manner, institutionalising gender-disaggregated data to inform interventions, and sensitising institutions such as the law enforcement on gender equity and women's rights to the city. This research would be especially beneficial for regions in and beyond South Asia sharing similar contexts.

Au fil du temps, le secteur du transport a mieux pris conscience des différences entre les genres dans la planification et les politiques. Or, les études existantes sur le transport indiquent que certains défis, comme le harcèlement sexuel des femmes, perdurent. La valeur de cette étude est sa contribution à des politiques de transport sensibles au genre centrées sur les femmes en mettant en relief (a) la gamme de barrières qui entravent la mobilité des femmes durant leurs déplacements de leur lieu d'origine à leur destination ; et (b) la construction de la sécurité à l'aide des interventions et outils à leur disposition, notamment les technologies, les solutions propres aux femmes et la conception des infrastructures. Les conclusions sont fondées sur des données tirées d'entretiens approfondis avec des participantes de deux villes indiennes – Delhi et Kolkata. Sur la base de nos recherches, les principales suggestions de politiques englobent le positionnement des interventions dans une approche basée sur les droits, l'institutionnalisation des données ventilées par genre pour éclairer les interventions, et la sensibilisation des institutions sur des aspects comme l'application des lois sur l'équité de genre et les droits à la ville des femmes. Ces recherches seraient particulièrement avantageuses pour les régions d'Asie du Sud et au-delà qui présentent des contextes similaires.

### KEYWORDS

Transport policies; global South; public transport; women's mobility; women's safety

**CONTACT** Seama Mowri  [s.s.mowri@uu.nl](mailto:s.s.mowri@uu.nl)

\*Saakshi Joshi, Sanghamitra Roy and Seama Mowri share equal first authorship rights.

© 2022 The Author(s). Published by Informa UK Limited, trading as Taylor & Francis Group  
This is an Open Access article distributed under the terms of the Creative Commons Attribution-NonCommercial-NoDerivatives License (<http://creativecommons.org/licenses/by-nc-nd/4.0/>), which permits non-commercial re-use, distribution, and reproduction in any medium, provided the original work is properly cited, and is not altered, transformed, or built upon in any way.

Con el paso del tiempo, el sector transporte se ha vuelto más consciente de las diferencias de género presentes en la planificación y la política. Sin embargo, la bibliografía existente sobre el transporte muestra que todavía prevalecen desafíos, como superar el acoso sexual de que son objeto las mujeres. El valor de este estudio radica en su contribución a las políticas de transporte con perspectiva de género centradas en las mujeres, al poner de relieve: (a) el espectro de barreras que impiden la movilidad de las mujeres en los trayectos de origen a destino; y (b) la construcción de la seguridad mediante intervenciones y el uso de herramientas a su alcance, a saber, la tecnología, las soluciones exclusivas para mujeres y el diseño de infraestructuras. Las conclusiones se fundamentan en datos obtenidos en entrevistas en profundidad realizadas con mujeres de dos ciudades indias: Delhi y Calcuta. Con base en nuestra investigación, las principales sugerencias en materia de políticas incluyen la formulación de intervenciones basadas en los derechos, la institucionalización de los datos desglosados por género para fundamentar las intervenciones y la sensibilización de las instituciones, en tanto encargadas de hacer cumplir la ley, sobre la equidad de género y los derechos de las mujeres en la ciudad. Esta investigación pretende ser especialmente beneficiosa para Asia Meridional y otras regiones que compartan contextos similares.

## 1. Introduction

In recent years, the transport sector has begun acknowledging the importance of gender differences in transport planning (Hidayati *et al.* 2020). This acknowledgement and simultaneous work to cater to these differences is necessary because gender has been shown to impact the type of travels individuals undertake. For instance, compared to men, women make more trips for care- and household-related responsibilities (Peters 2013). In a sourcebook aimed at policymakers in developing countries, Allen (2018) discusses how gender affects the ways users perceive and experience transport. She highlights that women prefer modes that are less crowded, affordable, flexible, and those that provide door-to-door services such as cycle rickshaws, auto rickshaws, and taxis. Anand and Tiwari's (2007) work in Delhi, India, discusses that women's greater domestic responsibilities, intense household chores, and weaker access to household resources compared to men impact their distance travelled and the transport mode used. This has direct bearings on the type of livelihood opportunities women can avail.

Being mobile is a way to interact with our surroundings and connect with different opportunities, economic and social; and transport is at the core of facilitating mobility. It is not only about the provision of physical infrastructure but also about enabling the everyday safe mobility needs of commuters. Literature around mobility and transport shows that for certain population groups such as women, access to and use of transport is limited due to multiple factors including poor transport infrastructure, limited financial resources, fear for one's safety during travels, and cultural norms or practices (Duchène 2011). From their literature review on gender and transport in low- and middle-income countries, Uteng and Turner (2019) highlight that factors including affordability,

fear of sexual harassment on public transport, and cultural restrictions on mobility negatively impact women's access to health, education, and employment opportunities. Similarly, Peters *et al.* (2019) show, in a systematic review, that transportation features prominently as a source of bias against women, creating barriers to accessing the economy.

Currently, transport policies and interventions follow mostly a top-down approach, and seldom a bottom-up approach to be gender-sensitive or to have gender perspectives (Das 2020). Additionally, under-representation of women in the transport sector are causes for concerns (Shah *et al.* 2017). For instance, a report by the Mineta Transportation Institute highlights the under-representation of women in the transportation sector of industrialised countries. Women account for less than 15 per cent of the total transportation occupation workforce in the USA, and only 17.5 per cent of the workforce in the European Union's urban public transport (Godfrey and Bertini 2019). A transport policy brief by the International Labour Office points out that workplace violence is a key barrier to a career in transport for women. It highlights that transport is regarded as 'no place for women' in several countries, causing low(er) paid jobs and few chances for career development (Turnbull *et al.* 2013).

The examples stated here point to existing gender inequalities in transport. Recognising that targeting gender-based inequalities is critical for achieving inclusive communities and cities, the Sustainable Development Goals (SDGs) highlight the need for gendered access to urban services with the emphasis on safe, inclusive, and accessible transport systems and public spaces (SDG 11), and ending all forms of discrimination and violence against women and girls (SDG 5). The freedom to move as an outcome of inclusive and safe public spaces and transport will promote equitable quality education (SDG 4) and productive employment and decent work for all (SDG 8). These are linked with reducing inequalities (SDG 10), and thus with the well-being of all (SDG 3).

This paper focuses on transport-related mobility of women through their urban public transport use. It draws upon qualitative data through in-depth interviews with women participants in two Indian cities, Delhi and Kolkata. Research around women's mobility in South Asian countries is critical since here gender-based inequalities are pronounced (UNICEF n.d.). For instance, a study in Pakistan found that social and cultural aspects influence women's mobility. It limits their geographical coverage, increasing a burden on walking, and limiting access to social and economic opportunities (Adeel *et al.* 2017). A UNICEF report on gender inequality in South Asia highlights that seven in ten girls cannot make an independent decision about visiting family or friends because they are perceived as more vulnerable (United Nations Children's Fund 2019). In their study to understand who benefits from the Metro Bus System (MBS) in Lahore, Pakistan, Zolnik *et al.* (2018) highlight that women residing in the MBS area are less likely to travel alone but more likely to be daily users. They travel with children, with men, or with other women for potential safety concerns (Zolnik *et al.* 2018, 147). An increase in fares can adversely impact women's travels because they are more prone to travelling in company. Borker (2020) has discussed the link

between travel safety and choice of college for students at the University of Delhi, India. She shows that women might choose lower-ranked colleges to avoid travel by unsafe routes (depending on crowdedness, time of day, group travel, etc.), thereby having implications of lower human capital attainment and participation in the labour force. Borker writes that women are willing to incur an additional expense of INR 17,500 (US\$250) per year for a safer route. This is a significant sum which is 7 per cent of the average annual per capita income in Delhi (2020, 4). Also important to mention is that recent studies using innovative methodologies such as ecological momentary assessments have shown different triggers of discomfort and fear for women while travelling on public transport (such as the presence of beggars, loud music) (Irvin-Erickson *et al.* 2020). These examples show that travel experiences can significantly impact one's quality of life (Thynell 2016).

Our paper aims to contribute to gender-responsive transport policies with a focus on women by highlighting (1) the spectrum of barriers that prevent women's mobility across origin to destination journeys; and (2) construction of safety by using interventions and tools available to them, namely technology, women-only solutions, and infrastructural design. In the following sections, we discuss data and methods for the paper, results based on the in-depth interviews, discussion, and conclusion.

## 2. Methods

Traditionally, transport research has been largely positivist in nature without taking into account the existing social cultural contexts in South Asia. By focusing only on transport data, we tend to overlook journeys that never manifested or travels that never took place due to unmet, intangible mobility needs (Uteng 2012). The importance of studying complexities of travel and behaviour attitudes of under-represented population groups has been long argued (Clifton and Handy 2003). Thus, in this paper, we use a qualitative approach to data collection, drawing on 48 in-depth interviews and field observations conducted in different cities of Delhi and Kolkata. In addition to this, findings were presented to diverse stakeholders to initiate a discussion on possible interventions.

This research is part of a broader ongoing project exploring equitable access to urban mobilities in selected cities of India and Bangladesh with a user-centred focus. Participant recruitment for the in-depth interviews in both the cities was curated for diversity in terms of education, marital status, and employment status. The focus of the interviews differed in the two locations, prioritising the topic of 'constructing safety' in Kolkata and 'barriers to mobility' in Delhi. In addition to collecting demographic information, the interview guides were designed to cover topics such as: travel routines, commute experiences, travel behaviours, usage of public spaces, behaviour of people and activities therein, and how these elements shaped women's perceptions of safety. The topics also covered how women negotiated public spaces and their everyday mobility. The objective was to understand the individual in-depth issues in terms of lived experiences and the meanings derived by them.

## 2.1. Delhi

Delhi has held the unenviable position of being the site of high crime rates against women. For instance, it had one of the highest total crime rates against women per hundred thousand in India at 144.0 (NCRB 2020). In 2017–18, the National Commission for Women received the second highest number of complaints from Delhi among all the states (NCW 2019). This has included sexual violence when using or waiting for public transport. For instance, studies conducted by the organisation Jagori for the ‘Safe Delhi Campaign’ between 2005 and 2010 have highlighted that the entire public transport system is unsafe for women; 51.4 per cent women reported that they faced harassment when using public transport; and 49 per cent men and 41 per cent of common witnesses reported that they had witnessed women being harassed (Jagori and UN Women 2011). Women’s travel experiences in Delhi require attention because their mobility is impacted by how safely they are able to move around. In addition to issues related to safety, infrastructural inequalities such as uneven distribution of services in the city can also mar travel experiences. For instance, Tiwari (2002) has highlighted that public transport and private vehicles provide easier access from planned or gated residential neighbourhoods to places of key activities such as work and leisure compared to informal settlements. Thus, the intent in this research has been to explore how the participants’ location in the city and as women result in specific travels.

Data from Delhi used in this paper are based upon in-depth interviews conducted by the Delhi-based researcher SJ between February and March 2020. These interviews focused on everyday travels of women participants who were residents of an informal settlement near the south-eastern borders of Delhi. From a network of unpaved and paved by-lanes, two roads connected the settlement to a main road through which they could then access the city. The interview questions were designed to explore the travel behaviours and patterns across origin to destination trips using different modes. This included travel within the different areas (blocks) of the settlement, and travels from the settlement to other parts of the city.

Informal settlements are one out of seven different types of unplanned settlements in Delhi. One of their key features is low access to and provision of services including roads and transport (DDA 1990, 2010). The field site was chosen for being reflective of the uneven distribution of services in the city. Being an informal settlement meant making do with rudimentary civic amenities. This included road and transport infrastructure. The 22 participants (19–60 years of age) were selected via purposive sampling followed by snowballing. A local NGO and an acquaintance of SJ helped in the initial recruitment.

## 2.2. Kolkata

Kolkata is the third most populous city in India, with a meagre 6 per cent road space, which in some areas is further reduced due to encroachments (Chakrabarty and Gupta 2015). Many people do not have access to private motorised vehicles; and so, for them public transport, intermediate para-transits, and walking are the major modes of

**Table 1.** Socio-demographics of participants

Socio-demographics	Delhi ( <i>n</i> = 22)	Kolkata ( <i>n</i> = 26)
Age		
18–29	11	14
30–39	3	7
40–49	5	5
50 and above	2	0
Unknown	1	0
Occupational status		
Student	4	8
Employed	14	18
Unemployed	7	0

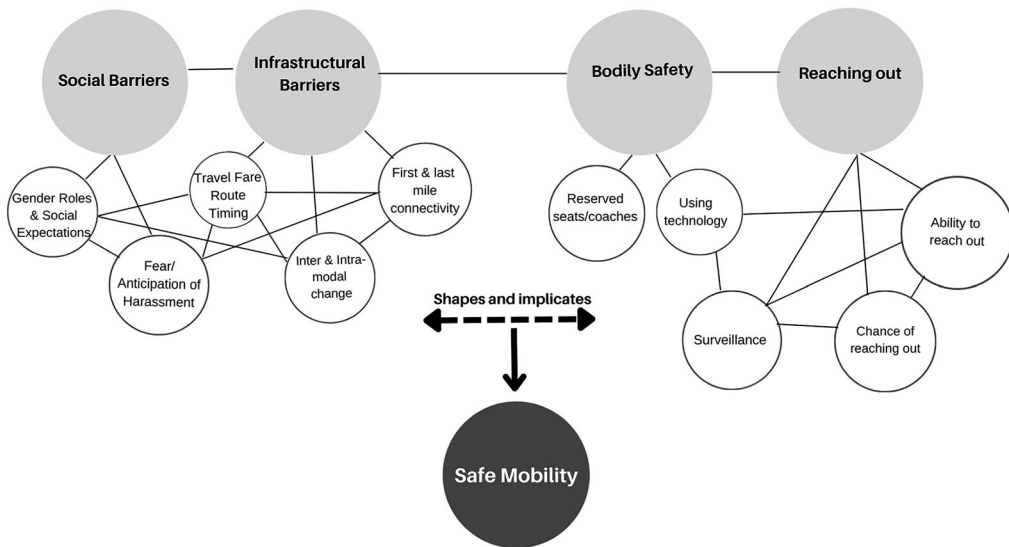
Under 'Occupational status' the numbers do not match 'n' because some participants were studying and working simultaneously.

transport (Basu 2019; Biswas 2007). Therefore, understanding the barriers faced during walking including while accessing public transport is critical to improve women's mobility, access to, and use of public spaces, specifically the streets. Through this study in Kolkata, we attempt to understand how the built environment – the streets, the buildings, and the people therein – shape women's perceptions of safety, and how they negotiate such conditions.

In Kolkata, participants were selected based on their places of residence from both northern and southern parts of the city. They were also selected from different professions as that would influence their use of public spaces both in terms of location and time, and therefore their experiences. Participants included students and service persons who used public spaces regularly, across the city, to obtain exhaustive experiences and views. For this study, participants need not experience harassment on the streets, although all of them did. Purposive sampling was used and participants were recruited in two rounds (September 2017 and January 2018) until data saturation was reached. A total of 35 women were recruited of which 26 participants responded to in-depth interviews and nine participants (between the ages of 24 and 35) joined in for focus group discussions. A tabulation of the socio-demographic profiles of participants from both cities are presented in Table 1.

### 2.3. Virtual stakeholder consultations

In addition, the paper draws on two stakeholder consultations (dated 3 February 2021 and 25 August 2021) with representation from academia, the development sector, and key public transport authorities actively involved in works around gender and transport. There were a total of 39 participants and the event duration was an average of 90 minutes each. The consultations were conducted as a participatory workshop, and stakeholders were encouraged to engage in knowledge-sharing. The purpose of these consultations was to consider research evidence through the lens of stakeholder expertise, contextual pragmatics, and the policy context. The consultations have been imperative in highlighting research gaps and suggesting new avenues for research. Due to the ongoing COVID-19 pandemic, the consultations were conducted online.



**Figure 1.** Visual representation of codes used in analysis of this paper.

A thematic analysis was conducted on the interviews and codes related to different aspects of their everyday travels were generated. For a visual interpretation of codes used in analysis, see [Figure 1](#).

In analysing, we use principles of grounded theory and steps including codes and categories to arrive at an inductive knowledge on the topic giving due importance to lived experiences. The following section presents our findings and discusses them in light of the literature exploring gender and transport in South Asia with a focus on safety, and Section 4 concludes with a reflection on socio-spatial understandings of women's mobility which can inform gender-responsive attributes of transport policies.

### 3. Findings and discussion

The results have been divided into two broad themes: 'barriers to mobility' and 'constructing safety'. The themes recurred throughout the interviews and had overlapping boundaries. Consequently, they were often used interchangeably by the participants. Was it the infrastructural barriers that led to unsafe mobility? Or was it the danger lurking in (unsafe) dark streets that itself became a barrier to mobility? Why do interventions that are designed to empower women, like women-only spaces, prove inadequate in establishing women's *right* to public spaces? Evidently, the subject of women's mobility and safety in public spaces remains contested, and is not fully understood to inform gender-responsive interventions and policy. In this section, we lay out our findings in two folds. We start with highlighting barriers, both social and infrastructural, that impede women's everyday mobility and their participation in quality education and livelihoods. Then we present findings on how women construct safety by using interventions and tools available to them, namely technology, women-only solutions, and infrastructural



design (also tabulated in [Table 2](#)). Throughout, we deliberate on how our fieldwork data compare to the existing literature and what gaps remain for further research.

### **3.1. Barriers to mobility**

In this section, we discuss ways in which infrastructural and social barriers prevent women's mobility and restrict their access to economic and social opportunities. Fieldwork in Kolkata finds crowded conditions as one of the major barriers for women to access public transport. Regular metro users narrate the difficulty women face to even enter the metro during rush hours, thus forcing them to wait which often causes delay in reaching their workplaces and other destinations. A 21-year-old participant who juggles her academics and part-time work explained crowding in the metro as a barrier which added to her travel time because of its implicit link with sexual harassment:

In the morning it is very difficult to go inside the metro, it is so crowded that daily I have to leave one to three metros because I am unable to board. And if we try to board because we are getting late, you will see men in front of every gate, if we have to enter then we have to pass by all those men. Making your way through two women, and making your way through two men are very different things. It is like a hurdle. (Interview, Kolkata, 12 September 2017)

But the lived experiences from Kolkata suggest that it is not only crowded conditions, even empty streets instil a fear in them and deter their mobility. Their ordeals on empty streets not only prompt them to resort to avoidance, and preventive and protective measures, but in a few extreme cases even force them to quit their jobs. The impact on their livelihood causes financial constraint which further reduces their access to transport.

In-depth interviews with women residents of an informal settlement in Delhi highlighted that women's mobility requires door-to-door consideration and is not limited to in-vehicle experiences. The interviews revealed barriers which they face across different segments of a single trip from origin to destination. Fear of sexual harassment at any point in the journey any time of the day, fear of their mobilities being curbed by families, gendered labour division, poor transport services around the residential area, and long travel times were key factors preventing or limiting women's transport use and, thus, their mobility. Mode selection outside the neighbourhood was based on factors such as cost, nearest stop, and inter-modal changes rather than a matter of preference between modes perceived as comparable in terms of travel safety or comfort. For instance, even though metro rail was perceived to be a safer, punctual, and more comfortable mode, buses were used when travelling outside the settlement more than the metro, due to cost and proximity of the bus stop from the residence. The nearest metro stations were located at least 5 km away from their location, requiring additional inter-modal changes and costs. Bus stops were located on the main road as soon as the participants stepped out from the connecting road of the settlement. Thus, the same participant would choose to make multiple trips in a month by bus rather than by a metro.

Sexual harassment (through comments, songs, stares), unavailability of intermediate public transport (IPTs), and traffic congestion within the neighbourhood extending

the travel time were key challenges hindering mobility for the participants in Delhi. The following daily morning experience was shared by a 23-year-old participant who stepped out every day at a fixed time for her work with a private organisation. Living more than 2 km away from the main road, she first had to navigate her intra-neighbourhood mobility including what transport to use, fluctuating travel time due to erratic availability of transport, traffic congestion, and the ever-present threat of sexual harassment. These could impact her timings to reach the workplace:

I leave home by 9 am. I walk for 10–15 minutes. Then I wait for an auto. Sometimes I have to wait till 30 minutes. Then, I take the auto and go ... Several boys keep standing. That is a daily thing. Even while returning. Sometimes you get them in the autos too. But that is a daily thing one has to face ... If there is no jam, then 30 minutes. But if there is a jam, then it can be 45 minutes also, an hour also going from within the streets. (Interview, Delhi, 23 February 2020)

Not only infrastructural barriers, social barriers too greatly influence women's mobility. Given that notions of respectability and shame are entrenched in the South Asian context, many women shy away from reporting, even to their families lest they face restrictions on their mobility. A 20-year-old participant from Delhi highlighted families' role in limiting women's mobility before suggesting what she perceived were possible actions to bring changes. The participant was travelling over 20 km for her studies, using a combination of walking and buses. Her narration pointed out that the burden of crafting safety is thrust on women due to the patriarchal notions about the family's honour resting on a woman (body). This indicated that sexual violence against women is typically perceived not as an individual crime, but a matter of dishonour, tarnishing the respectability of the family in society. The participant questioned the possibility of changes in this way of thinking, and presented the possibility of some interventions for women:

there are parents who do not allow their daughters to go for studies because it is unsafe. And then there are parents who live with this thinking that if something bad were to happen to their daughter, they would be left red-faced in the society [*samaaj mein badnaami hogi*]. But that is wrong! Somebody else is at fault, not you. But that is how they think, who'll change that? But we can change some things, by providing facilities such as women's helpline or police security. (Interview, Delhi, 16 February 2020)

Besides, the anxiety a family goes through is echoed in the interviews from Kolkata. A 36-year-old participant who had raised her voice against harassment and sought help recollected her mother's fear for her daughter. This fear indicated a lack of trust in the redressal mechanism and anticipation of future violence against the participant. This pointed towards the issue of culprits/perpetrators escaping accountability for the crime and a possible space for them to repeat the violence:

When I told my mother about this, she was scared. She said – why did you complain, what if he harms you tomorrow or some other day' (interview, Kolkata, 10 January 2018).

In addition, lodging official complaints of harassment can be difficult, uncomfortable, and more importantly, ineffective since it rarely leads to prosecution of offenders. The evaluation of an official Women's Safety app implementation in Pakistan showed that

the number of active users had declined dramatically within three years since the app launch due to users' lack of trust in their complaints being followed up for meaningful change (USAID 2020). This came back in the fieldwork where participants expressed similar concerns. The lack of faith in law enforcement and judiciary owing to their placing the blame on women was strongly expressed in the interviews from Kolkata. This highlighted the reproduction of toxic patriarchal norms in the very institutions which are meant to be avenues for reporting and redressal. A 26-year-old office administrator in Kolkata shared:

Someone had once told me never to go to a police station alone. When something happens to a woman they will always say – oh she must have done something wrong. (Interview, Kolkata, 15 September 2017)

Another participant opined:

The female police personnel don't even want to listen. The society has become so impersonal now, they should be trained too, they want to avoid responsibility, they do not have the urge to do something for the country, for the people. Eighty per cent of the people are like that, [they have] less faith in approaching female police personnel. Even if she listens to me I don't think she can do anything. (Interview, Kolkata, 11 January 2018)

This section highlighted key infrastructural and social barriers faced by participants in the cities. The findings reveal gender-awareness training and education is imperative both at a familial level as well as at an institutional level to counter sociocultural barriers and to merit the issue of harassment in transport as a cognisable crime.

### **3.2. Constructing safety**

In this section, we articulate responses around what would increase perceptions of safety and how women use tools and interventions available to them to construct 'safety' in their everyday travels. As shown in [Table 2](#), we categorise some of the popular suggestions under five themes: (1) infrastructural changes; (2) transforming social norms and behaviour; (3) sex-segregation; (4) digital interventions; and (5) policy and planning.

Participants made clear demands for infrastructural changes, such as well-lit roads, bus shelters, and lighting inside the vehicles because they allowed one to see and be seen, warding off potential perpetrators. Many of the participants echoed the same about CCTV surveillance even as their awareness about the non-functioning of the system was apparent: 'Most CCTVs do not work. But when they [perpetrators] see there is CCTV, then they will be scared of doing anything bad.' Some participants seemed wary of CCTV surveillance and helplines, attributing sexual harassment to behavioural traits and societal norms, citing 'CCTVs won't help, it is not subject to CCTV' (focus group discussion, Kolkata).

Nonetheless, surveillance played a critical role in increasing perceptions of safety, be it through cameras, helplines, alarms, or physical patrol by law enforcement. When asked what would help them feel safer, a 31-year-old woman in government service

**Table 2.** Gender-responsive approaches (taken from stakeholder consultations and qualitative interviews)

Gender-responsive approaches	Popular suggestions and demands placed by stakeholders and participants	Examples
Infrastructural changes	<ul style="list-style-type: none"> <li>Increased surveillance</li> <li>Gender-responsive urban planning</li> <li>Intermediate public transport</li> </ul>	<ul style="list-style-type: none"> <li>CCTV cameras</li> <li>Well-lit spaces (bus shelters and inside the vehicles)</li> <li>Ensure diverse activity-based busy streets</li> <li>Female security personnel</li> </ul>
Transforming social norms and behaviour	<ul style="list-style-type: none"> <li>Gender awareness and sensitisation (at familial and institutional levels)</li> </ul>	<ul style="list-style-type: none"> <li>Recognising harassment in public spaces (including transport) as a major offence that merits swift and legal action</li> <li>Educating institutions such as the law enforcement on gender equity and women's rights to the city</li> </ul>
Sex-segregation	<ul style="list-style-type: none"> <li>Women-only spaces</li> </ul>	<ul style="list-style-type: none"> <li>Women's buses</li> <li>Increase women in professional driving</li> <li>Employers and educational institute mandated transport for women</li> </ul>
Digital interventions	<ul style="list-style-type: none"> <li>Interventions that cater across intersectional user profiles</li> <li>Must be affordable and user-friendly (for those who may not be digitally savvy)</li> </ul>	<ul style="list-style-type: none"> <li>Helplines and apps that contribute to long-term data collection and reporting</li> </ul>
Policy and planning	<ul style="list-style-type: none"> <li>Intersectoral collaborations</li> <li>Rights-based policy planning</li> </ul>	<ul style="list-style-type: none"> <li>Gender budgeting for transport</li> <li>Periodic collection of gender-disaggregated data</li> <li>Framing interventions in a rights-based manner to reduce backlash</li> <li>Institutionalising gender-disaggregated data to inform interventions</li> <li>Economising transport for women (e.g. affordable options)</li> </ul>

highlighted the presence of women police personnel as a way that would make her feel safer, before giving the example of the Delhi Metro as safe due to the presence of security personnel:

maybe police vans with female officers, so if something is happening, you can run and tell them. Like, in the metro you do not feel scared because there are so many security personnel. (Interview, Delhi, 23 February 2020)

Incorporating a gender dimension to transport planning is not as simple as recruiting more women, as evident from the literature. Merely increasing the number of female police officers on patrol or recruiting female bus drivers is not meaningful since the transport-sector ecosystem still remains largely male-dominated (Ng and Acker 2020) and the workplace culture may not be conducive for gender-equitable change. Rather, the newly recruited female incumbents will only act in their personal interest of fitting into the workplace and thereby reproduce toxic patriarchal norms of protectionism in the name of 'safety' (Raman 2018). Similar sentiments were echoed by NGO representatives, 'we need more women in decision-making not just token-representation' (stakeholder consultations, August 2021).

Additionally, studies in the Indian context contend that the presence of people and other users like street vendors that act as 'eyes on the streets' make travel on the streets

safe (Jagori and UN Women 2011). A 21-year-old participant from Kolkata shared how the presence of informal vendors on the streets were a source of comfort on empty streets. The narrative highlighted both the assurance provided by their presence as well as a possible indifference to the participants by other people after such an incident happens. The use of ‘we also hear’ indicated that experiences outside one’s own also become part of long-term travel behaviours:

We feel better if shops and hawkers are there, we feel if something happens, they may help, though we also hear that in some cases in spite of calling for help, nobody came for help or ignored, but their presence helps mentally as we feel that at least somebody is there whom we can reach out. (Interview, Kolkata, 10 September 2017)

Having eyes on the street to help is not the same as a crowd, as one 18-year-old female student made it a point to differentiate, ‘Busy but not crowded places help, busy means people will be there’ (interview, Kolkata, 13 January 2018).

There was consensus among participants in both cities about their demand for women-only spaces. Sex-segregated solutions such as the Delhi Metro, Pink Rickshaw in India and Pakistan, women-only buses in Bangladesh and Nepal, ride-sharing services for women driven by women, etc., enjoy high demand from women commuters in South Asian surveys (ActionAid International 2016; Shah 2018). A 45-year-old participant from Delhi associated women-only spaces and absence of men with an absence of fear:

If women are using the bus or the auto, then the drivers should also be women only. Women conductors should be there. Men should not be allowed at all. There’ll be no touching, no stealing. We will not be scared of anything. We can go feeling protected [*surakshit*]. (Interview, Delhi, 12 February 2020)

Although literature from the global North contends that sex-segregation is hardly a long-term solution and does not contribute to a rights-based discussion of mobility (Gekoski *et al.* 2015), we find it to be a popular ask from women across the two cities, including South Asian literature. This brings us to argue that given the contextual realities of patriarchal societies in the global South, where women are still discriminated against and harassed ‘for fun’ (Dhillon and Bakaya 2014; Lord 2009), perhaps it is a realistic ‘temporary’ solution as these societies undergo equitable transformation. However, the purpose of having women-only seats on buses or women-only buses on the streets is a policy decision that has been met with backlash from other population groups creating hostile atmospheres inside the buses for women. For many men, commuting during rush hour in an over-crowded vehicle is already a nuisance and so they feel that the allocation of reserved seats in coaches affords women ‘preferential treatment’ (Khurana 2020).

From our fieldwork, we find this sentiment rings true regarding women-friendly initiatives such as the subsidised ticket initiative for women in Delhi buses as well. The initiative was introduced in public buses in 2019, as an attempt to increase women’s safety through greater visibility. The subsidy was intended as a recognition of the socio-economic barriers women face, limiting their participation in the city. A 53-year-old

participant from Delhi expressed the negative experience of travelling by buses after the subsidy became operational through comments by male co-passengers ‘when we get up, the men say – look, the free one has come [free *waali aa gayi*]’ (interview, Delhi, 4 February 2020). This indicates that some of the participants felt such initiatives to be patronising and not facilitating their right to public places. Another Delhi participant in her forties felt that subsidised bus tickets for women were not fair on men. The participant indicated her dislike for interventions that ‘patronise’ women, saying she had last used the bus six months ago, and walks or uses the auto. Talking about reserved seats for women, she commented:

they say it’s good for the ladies, but men are human too, they use the same space as well. They don’t even have seats reserved for them. I mean if you are making them pay, at least provide them with seats. So I don’t like this. (Interview, Delhi, 18 February 2020)

This shows that women-centred initiatives fail to highlight the socioeconomic barriers that hinder women’s mobility, instead creating impressions of women as free-riders of public goods.

Other tools that have increased perceptions of safety for women commuters is digital technology in the form of smartphones with geo-tagging and location-sharing features, reporting apps, collating maps to chart out safe and unsafe routes, and ride-sharing apps among many others. There has been a proliferation of apps in recent years, some of which are directly linked with broader advocacy and anti-sexual harassment programmes. Examples of these include Harassmap.org, an extensively crowdsourced reporting tool in Egypt, and GIS Safe Path Recommender and SafetiPin.com, initiatives based in New Delhi, India. The objective of some of these apps is to provide a safe space for women to report crimes anonymously, with the long-term aim of collecting enough geo-specific data to demand infrastructural and environmental design changes. However, it must be kept in mind that digital apps are not necessarily inclusive as they do not account for intersectional user profiles (older adults, urban poor, people with disabilities) with low (digital) literacy and issues of affordability or accessibility (of smartphones, internet data packages). One 45-year-old participant from Delhi shared her discomfort in using app-based services. A government worker who commuted using the auto or by walking said, she was still getting used to operating a smartphone: ‘my children only do it [use Ola]. So, they know best. I don’t know how to use it. I just received this recently [points to her smartphone] and I am facing difficulties using it’ (interview, Delhi, 12 February 2020).

During consultations with stakeholders, representatives from an Indian NGO argued that ‘Technology can only complement other ongoing efforts, but alone cannot solve anything’ (stakeholder consultation, 23 August 2021). The concern resonated across the discussion table and literature reiterates that technology is no magic bullet, and it can be *protectionist* or *empowering* depending on how we use it (Soni 2016). For instance, if apps are used to only inform family and friends about the commuter’s whereabouts, it still places the onus on the commuter to be on constant alert and the mobile acts much like a digital chaperone. However, as one of the stakeholders suggested, ‘technology

could be used to collect long-term gender-disaggregated data' and feed into integrated solutions for reporting incidents to the police, or crowdsourcing unsafe routes for wider sharing among users, and contributing useful data to influence long-term policy change.

As illustrated in Table 2, these findings highlight the need for gender-responsive approaches to be implemented across multiple categories such as budgeting for gender in urban planning, digital, design, and social interventions. As evidenced from our research, the feeling of 'safe' or 'unsafe' is a discursive process and is constantly constructed and deconstructed by the interactions of physical and social elements inhabiting that space. By that, we refer to the transport infrastructures, the built environment, the socially embedded value system, and the capabilities of women commuters – all of which combine to create perceptions of safety. *Safety* as an outcome is contingent on social, cultural, economic, and familial issues (Jagori 2010), and thereby requires carefully designed interventions that reflect a rights-based approach to claiming inclusion.

#### 4. Conclusion

This paper contributes to advancing the discourse on user-centred perspectives for inclusive transport. Our interviews show that women's transport mobility is interconnected in a network of social and infrastructural interactions, and warrants a holistic lens. The paper highlights the different barriers women face across origin-to-destination journeys of which bodily safety emerges as a primary concern. Thus, this paper contends that the issue of women's mobility must be looked at from a lens of safety to derive holistic solutions for door-to-door trips.

To do so, reviews of interventions are beneficial in guiding their future courses. For instance, technological interventions must incorporate intersectional user profiles (accounting for age, education, disability, income, digital literacy among other things) to ensure greater reach to diverse groups of women. These must empower women rather than providing temporary and short-term services which do not ensure longer-term safe and comfortable journeys. Similarly, any interventions targeting sensitisation through behavioural changes or conversations on harmful cultural norms must not reproduce skewed patriarchal relations which are harmful for women.

The study also shows that women's safety in public transport cannot be treated in silo and warrants co-ordination between multiple actors: law enforcement, built environment, the transport authorities, and policymakers. The research strongly supports the cognisance of sociocultural underpinnings of using spaces (including transport) when designing gender-responsive interventions. For instance, patriarchal macro institutions such as the police, women's general lack of legal awareness, their discomfort of using emergency alarms in fear of drawing attention to oneself, negative social sanctions on respectability of women who have been violated – all of these serve to shape women's everyday mobility in South Asia.

Interviews conducted in the cities of Delhi and Kolkata have revealed barriers which prevent uptake of interventions and hinder women's mobility. These overlapping barriers are infrastructural (e.g. erratic services of modes, condition of roads, overcrowding,

extended travel time, fares), behavioural (e.g. communication by transport or police personnel, co-passengers), cultural (e.g. gendered labour division, prevalence of sexual harassment, notion of bringing shame to the family), and legal (e.g. lack of faith in redressal mechanisms). These barriers occur in tandem, creating complex travel experiences for women and must be addressed for equitable change. Consequently, stakeholder consultations have been instrumental in guiding this research and suggesting new frontiers of research such as ‘What is the gender difference in spending while travelling? How does it translate to women’s workforce participation? How do policy-makers and decision makers engage in infrastructure planning? What are the gaps in their processes, in their thinking, in their sensitisation?’ (stakeholder consultation, 23 August 2021)

Approaching transport from an inter-disciplinary and trans-disciplinary lens will be beneficial to locate gaps and relevant strategies from different perspectives. This can generate diverse data (e.g. data through ticketing on passenger trips, gender-sensitive data on travel patterns through interviews) which can lead to targeting the same gap from different directions and at different levels. Focusing on all segments of a trip through local and city-level interventions with stakeholders will assist in co-designing inclusive transport measures. Transport systems can engage women to actively participate in planning. Simultaneously, long-term gender-focused sensitisation and capacity building at different levels (family, neighbourhood, institutions) is a must to tackle harmful gender norms which have daily implications on women’s mobility.

## Acknowledgements

We acknowledge the contribution of all the participants and thank them for their wholehearted participation and enthusiasm. We would also like to thank the NGOs and acquaintances who assisted with participant recruitment. We also thank the reviewers of this paper for their clear suggestions and feedback.

## Funding

This work was supported by the Dutch Research Council (NWO) and Utrecht University, The Netherlands as part of the research project EQUIMOB - ‘Inclusive Cities through Equitable access to Urban Mobility Infrastructures for India and Bangladesh’ under the research programme Joint Sustainable Development Goal research initiative with project number W 07.30318.003.

## Notes on contributors

*Saakshi Joshi* is a postdoctoral researcher with the EQUIMOB project at Manipal Academy of Higher Education, India. A doctorate in social anthropology, she has both academic and industry experience in qualitative research on themes related to environment and gender. Her current research focuses on women’s travel experiences using public transport in Delhi, India. Postal address: Transdisciplinary Centre for Qualitative Methods (TCQM), Prasanna School of Public Health, Manipal Academy of Higher Education (MAHE), Manipal, Karnataka – 576104, India. Email: saakshi.joshi@learner.manipal.edu



**Sanghamitra Roy** is a doctoral researcher with the EQUIMOB project at Utrecht University, The Netherlands. She is also Professor, Manipal School of Architecture and Planning, Manipal Academy of Higher Education, India. She specialises in architecture and city planning. She has both academic and industry experience. Her doctoral research focuses on equitable access for women to urban transport in Kolkata, India. Postal address: Manipal School of Architecture and Planning, Manipal Academy of Higher Education (MAHE), Manipal, Karnataka – 576104, India. Email: s.roy@uu.nl

**Seema Mowri** is a doctoral researcher with the EQUIMOB project at Utrecht University, The Netherlands. She specialises in ethnographic and qualitative research. Her doctoral research focuses on women's safety in public mobility infrastructures of Bangladesh. Postal address: International Development Studies, Department of Human Geography and Spatial Planning, Faculty of Geosciences, Princetonlaan 8a, Room 6.96, 3584 CB Utrecht, Utrecht University, The Netherlands. Email: s.s.mowri@uu.nl

**Ajay Bailey** is the Chair in Social Urban Transitions, International Development Studies, Department of Human Geography and Spatial Planning, Utrecht University. He also holds the Dr T.M.A. Pai Endowed Chair in Qualitative Methods at the Manipal Academy of Higher Education, India (honorary position). His areas of expertise include anthropology, sustainable development, public health, and social demography. Postal address: Vening Meineszgebouw A, Princetonlaan 8a, Room 6.94, 3584 CB Utrecht, The Netherlands. Email: a.bailey@uu.nl

## ORCID

Ajay Bailey  <http://orcid.org/0000-0003-3163-6805>

## References

- ActionAid International** (2016) Freedom to Move: Women's Experience of Urban Public Transport in Bangladesh, Brazil and Nigeria, and How Lost Tax Revenues Can Pay to Improve It. Retrieved from [https://actionaid.org/sites/default/files/178622\\_2786.pdf](https://actionaid.org/sites/default/files/178622_2786.pdf).
- Adeel, M., A. G. Yeh and F. Zhang** (2017) 'Gender inequality in mobility and mode choice in Pakistan', *Transportation* 44(6): 1519–1534. doi:10.1007/s11116-016-9712-8
- Allen, H.** (2018) 'Approaches for gender responsive urban mobility' Sustainable Transport: A Sourcebook for Policy-makers in Developing Cities Module 7<sup>a</sup>. <https://sutp.org/publications/approaches-for-gender-responsive-urban-mobility-gender-and-urban-transport-smart-and-affordable/> (last checked 08 January 2022).
- Anand, A. and G. Tiwari** (2007) 'A gendered perspective of the shelter–transport–livelihood link: the case of poor women in Delhi', *Transport Reviews*, 26(1): 63–80. doi:10.1080/01441640500175615.
- Basu, A.** (2019) 'Viability assessment of emerging smart urban para-transit solutions: case of cab aggregators in Kolkata city, India', *Journal of Urban Management* 8(3): 364–376.
- Biswas, S.** (2007) 'Sustainable mobility services in Kolkata', *Design Philosophy Papers* 5(3): 149–164.
- Borker, G.** (2020) 'Safety First: Perceived Risk of Street Harassment and Educational Choices of Women' [https://grijaborker.files.wordpress.com/2020/11/borker\\_2020\\_safetyfirst-1.pdf](https://grijaborker.files.wordpress.com/2020/11/borker_2020_safetyfirst-1.pdf) (last checked on 08 February 2022).
- Chakrabarty, A. and S. Gupta** (2015) 'Estimation of congestion cost in the city of Kolkata—a case study', *Current Urban Studies* 3(02): 95–104.
- Clifton, K. J. and S. L. Handy.** (2003) 'Qualitative Methods in travel behaviour Research', in P. Jones and P. R. Stopher (eds.) *Transport Survey Quality and Innovation*, Bingley: Emerald Group Publishing Limited, 283–302. doi:10.1108/9781786359551-016

- Das, A. K. (2020)** ‘Gender-responsive public transport’, in W. Leal Filho, A. M. Azul, L. Brandli, P. G. Özyayar and T. Wall (eds.) *Sustainable Cities and Communities: Encyclopedia of the UN Sustainable Development Goals*, Cham: Springer, 1–12, doi:10.1007/978-3-319-71061-7\_106-1
- DDA (Delhi Development Authority) (1990)** *Master Plan for Delhi - 2001*, Delhi: Government of NCT of Delhi.
- DDA (Delhi Development Authority) (2010)** *Master Plan for Delhi - 2021*, Delhi: Government of NCT of Delhi.
- Dhillon, M. and S. Bakaya (2014)** ‘Street harassment: a qualitative study of the experiences of young women in Delhi’, *SAGE Open* 4(3): 1–11, doi:10.1177/2158244014543786.
- Duchène, C. (2011)** ‘Gender and transport’ [https://www.oecd-ilibrary.org/transport/gender-and-transport\\_5kg9mq47w59w-en](https://www.oecd-ilibrary.org/transport/gender-and-transport_5kg9mq47w59w-en) (last checked 08 January 2022).
- Gekoski, A., J. M. Gray, M. A. H. Horvath, S. Edwards, A. Emirali and J. R. Adler (2015)** ‘What works’ in reducing sexual harassment and sexual offences on public transport nationally and internationally: a rapid evidence assessment’, Project Report. Middlesex University; British Transport Police; Department for Transport, London. Available at <https://eprints.mdx.ac.uk/15219/> (last checked 08 January 2022).
- Godfrey, J. and R. L. Bertini (2019)** ‘Attracting and Retaining Women in the Transportation Industry’. Mineta Transportation Institute, California, <https://transweb.sjsu.edu/sites/default/files/1893-Godfrey-Attract-Retain-Women-Transportation.pdf> (last checked on 09 February 2022).
- Hidayati, I. (2020)** ‘Understanding mobility inequality: A socio-spatial approach to analyse transport and land use in Southeast Asian metropolitan cities’, University of Groningen. doi:10.33612/diss.146785021.
- Irvin-Erickson, Y. A. Malik, F. Kamiran and M. Natarajan (2020)** ‘Utility of ecological momentary assessments to collect data on fear of crime’, *International Journal of Comparative and Applied Criminal Justice* 44 (4): 307-319. doi: 10.1080/01924036.2020.1719532.
- Jagori (2010)** ‘Understanding women’s safety: towards a gender-inclusive city’ [https://www.endvavnow.org/uploads/browser/files/understanding\\_womens\\_safety.pdf](https://www.endvavnow.org/uploads/browser/files/understanding_womens_safety.pdf) (last checked 08 January 2022).
- Jagori and UN Women (2011)** *Safe Cities Free of Violence Against Women and Girls Initiative: Report of the Baseline Survey Delhi 2010*. Signate G Press, Delhi.
- Khurana, N. V. (2020)** ‘Geographies of fear: sexual harassment and women’s navigation of space on the Delhi Metro’, *South Asian Journal of Law, Policy, and Social Research* 1(1): 18–40.
- Lord, T. L. (2009)** The relationship of gender-based public harassment to body image, self-esteem, and avoidance behavior. Retrieved from Doctoral dissertation, Indiana University of Pennsylvania, <http://www.stopstreetharassment.org/wp-content/uploads/2011/04/2009ThesisonstreetharassmentINPA.pdf>.
- NCRB (National Crime Records Bureau), Ministry of Home Affairs (2020)** *Crime in India 2019: Statistics Volume I*. National Crime Records Bureau, New Delhi. <https://ncrb.gov.in/en/crime-india-2019-0> (last checked 16 Feb 2022).
- NCW (National Commission for Women) (2019)** *Annual Report 2018-2019*. Government of India, Delhi. <http://ncw.nic.in/ncw-reports/annual-report-2018-2019>.
- Ng, W.-S. and A. Acker (2020)** ‘The Gender Dimension of the Transport Workforce’, *International Transport Forum Discussion Papers*, No. 2020/11, OECD Publishing, Paris.
- Peters, D. (2013)** ‘Gender and Sustainable Urban Mobility’ Thematic Study prepared for Sustainable Urban Mobility: Global Report on Human Settlements 2013.
- Peters, H. E., Y. Irvin-Erickson, S. Adelstein, A. Malik, T. Derrick-Mills, A. Valido and D. Esplage (2019)** *Qualitative Evidence on Barriers to and Facilitators of Women’s Participation in Higher or Growing Productivity and Male-Dominated Labour Market Sectors in low- and Middle-Income Countries*, London: EPPI Centre, Social Science Research Unit, UCL Institute of Education, University College London.
- Raman, U. and S. A. Komaraju (2018)** ‘Policing responses to crime against women: unpacking the logic of cyberabad’s “SHE teams”’, *Feminist Media Studies* 18(4 ): 718–733.

- Shah, S. K. Viswanath S. Vyas and S. Gadepalli (2017)** 'Women and transport in Indian cities: a policy brief' New Delhi, India: ITDP India, December 2017.
- Shah, S. (2018)** Women-Only Transport. A 'Solution' to What End? Retrieved from <https://www.itdp.org/wp-content/uploads/2019/01/Women-only-Transport.pdf>
- Soni, M. (2016)**. Rethinking the challenge of women's safety in India's cities. ORF Issue Brief 159. Available at <https://www.orfonline.org/research/womens-safety-in-indias-cities/>
- Thynell, M. (2016)** 'The quest for gender-sensitive and inclusive transport policies in growing Asian cities', *Social Inclusion* 4(3): 72–82. doi:10.17645/si.v4i3.479
- Tiwari, G. (2002)** 'Urban transport priorities: meeting the challenge of socio-economic diversity in cities, a case study of Delhi, India', *Cities* 19(2): 95–103. doi:10.1016/S0264-2751(02)00004-5
- Turnbull, P. J. Lear and H. Thomas (2013)** 'Women in the Transport Sector'. *Transport Policy Brief 2013*, Geneva: International Labour Office. [https://www.ilo.org/wcmsp5/groups/public/—ed\\_dialogue/—sector/documents/briefingnote/wcms\\_234882.pdf](https://www.ilo.org/wcmsp5/groups/public/—ed_dialogue/—sector/documents/briefingnote/wcms_234882.pdf) (last checked on 9 February 2013).
- UNICEF (n.d.)** 'Gender equality'. <https://www.unicef.org/rosa/what-we-do/gender-equality> (last checked 8 January 2022).
- United Nations Children's Fund (2019)** 'Gender Counts: South Asia. A quantitative assessment of gender inequality and its impact on children and adolescents.' UNICEF, Bangkok <https://www.unicef.org/rosa/media/4201/file/UNICEF%20South%20Asia%20Gender%20Counts%20Report.pdf> (last checked 8 February 2022).
- USAID (2020)** Gender-based violence on public transportation: A review of evidence and existing solutions. USAID Policy Brief. Available at <https://urban-links.org/resource/gender-based-violence-on-public-transportation-a-review-of-evidence-and-existing-solutions/>.
- Uteng, T. P. (2012)** 'Gender and mobility in the developing world', Washington DC: World Bank <https://openknowledge.worldbank.org/handle/10986/9111> (last checked 10 January 2022).
- Uteng, T. P. and J. Turner (2019)** 'Addressing the linkages between gender and transport in low-and middle-income countries', *Sustainability* 11(17): 4555, doi:10.3390/su11174555.
- Zolnik, E. J., A. Malik and Y. Irvin-Erickson (2018)** 'Who benefits from bus rapid transit? Evidence from the Metro Bus System(MBS) in Lahore', *Journal of Transport Geography* 71: 139–149, doi:10.1016/j.jtrangeo.2018.06.019