

WOMEN AND TRANSPORT IN INDIAN CITIES





Women and Transport in Indian Cities

A Policy Brief

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^[1] Refer to List of Organisations in the Annexure







Executive Summary

The coming decade will be a defining moment for India as its urban areas are estimated to constitute around 40 per cent or 600 million of its total population by 2030. According to the High Powered Executive Committee (HPEC), around INR 23 lakh crores^[2] is required over 2015–2030 for India’s urban transport infrastructure. The recently announced Green Urban Mobility Scheme (GUMS) expects to invest around INR 70,000 crores^[3] over 2018–2023 on sustainable transport. The national government has initiated missions and schemes to invest in urban transport and infrastructure; and created indicators and service level benchmarks to establish a city’s baseline and goal for improvement.

While there is momentum by different levels of government in addressing women’s safety in public transport, urban transport investments are largely gender blind with a limited understanding of the interrelationships between gender and transport inequities. Sustainable urban development will remain elusive without integrating women and girls’ safety, comfort, convenience and affordability in urban transport.

Ultimately, transportation is the fulcrum that allows women to participate in the workforce, which can create a societal shift to transform the entire world economy. This policy brief fills a key gap in urban transport literature in India by recommending gender responsive transport indicators, supported by benchmarks to set goals and monitor outcomes and outputs at the city level. Additionally, it provides good practice case studies for implementation guidance. The brief will be relevant for policy and decision makers at the national, state and city levels, and professionals.

^[2] USD 490 billion at 2009-10 prices

^[3] USD 10.9 billion at 2017 prices

Recommendation 1 - 4: Prepare and Implement Gendered Mobility Plans

- Measure gendered mobility patterns.
- Set goals and create a mobility plan underpinning women and girls' concerns.
- Prepare an implementation plan.
- Monitor implementation progress and evaluate outcomes.

The comprehensive mobility plan can be assessed by the following indicators:

Table 1: Outcome indicators for comprehensive mobility plans

Indicator		Measure	Recommended Benchmarks
1	People near transport (PNT), disaggregated by gender	Percentage of women and girls living within 500m walking distance of public transport in the city and metropolitan region, with a frequency of at least 6 schedules per hour	At least 80 percent of women and girls
2	Mode shares, disaggregated by gender	Percentage of walking, cycling, public transport (buses and metro-rail separately), intermediate public transport, motorized two-wheeler and four wheeler trips by women and girls	At least 80 per cent of all trips are by public and non-motorized transport At least 40 percent of all public and non-motorized transport trips are by women and girls
3	Median non-motorized trip time, disaggregated by gender	Women and girls' median walking and cycling trip time	Women and girls' walking trips are less than 15 minutes Women and girls' cycling trips are less than 25 minutes
4	Median motorized trip distances, disaggregated by gender	Women and girls' median motorized trip distances	Stabilized at 2017 levels or lesser
5	Cost on transport per month	Monthly household expenditure on transport	Not more than 10 per cent for low-income households
6	State and city transport allocations and expenditures on transport	State and city transport budget that benefits women and girls	Specific allocations and expenditures in the state and city transport budget for women's safety in urban transport
7	Improved air quality	Reduction in air pollutants (to achieve CPCB ambient air quality norms) due to women and girls' use of sustainable transport	City achieves or exceeds air quality standards set by the CPCB. 50 percent of the reduction in air pollutants because of women and girls' use of sustainable modes of transport

Recommendation 5: Create Safe and Comfortable Walking Environments for Women and Girls

- Create a walking friendly street network with median urban block lengths of 100-150m.
- Design footpaths and pedestrian crossings as per IRC 103: 2012 Guidelines for Pedestrian Facilities, which proposes three zones—a dead zone, a pedestrian zone and a multi-functional zone for footpaths along with a level of service approach for determining the width of footpaths.

This can be measured with the indicators in Table 2.

Table 2: Indicators for street network and pedestrian infrastructure

Indicator		Measure	Recommended Benchmarks
Street Network			
1	Median block length	Median block length bounded by publicly accessible roads on all sides	100 – 150m
2	Level and perception of safety, comfort and convenience, disaggregated by gender	Experience and perception of safety, comfort and convenience of walking	At least 80 per cent of women and girls perceive the street network to be safe, comfortable and convenient. Each aspect will be evaluated separately.
Pedestrian Infrastructure			
3	Walking friendly streets	Percentage of city roads with right of way greater than 12m with universally accessible, shaded footpaths with minimum 3.5m width or Level of Service B (as per IRC 103: 2012 Guidelines for Pedestrian Facilities), whichever is greater	At least 80 per cent
4	Well-lit streets	Percentage of street network with uniform and consistent lighting for footpaths and cycling infrastructure <ul style="list-style-type: none"> • 25 lux for shopping areas • 30-40 lux for non-shopping areas 	Entire street network

Recommendation 6: Increase Women's Cycling Shares

- Create cycle tracks to provide safer cycling environments and reduce motor vehicle speeds where cycles share the carriageway with motor vehicles.
- Conduct education programs to teach women how to ride and repair cycles.

This can be assessed with the indicators in Table 3

Table 3: Indicators for cycling network and infrastructure

Indicator		Measure	Recommended Benchmarks
Cycling Network and Infrastructure			
1	Streets with dedicated, continuous, even, shaded, well-lit cycle tracks without encroachment	Percentage of streets 20m and above with dedicated, continuous, even, shaded, well-lit cycle tracks without encroachment. The following are recommended: <ul style="list-style-type: none"> • Minimum 2m for one-way cycle tracks • Minimum 2.5m for one-way cycle tracks with cycle rickshaws • Minimum 3m for two-way combined cycle tracks 	At least 80 per cent
2	Shared streets with traffic calming elements	Percentage of shared streets with design speeds less than 30kmph	At least 80 per cent

Recommendation 7: Increase Women's Safety and Use of Public Transport

- Propose routes and frequencies that cater to destinations visited by women (such as schools, markets) and their time of travel; reduce trip chaining fare burden.
- Conduct safety audits and level of service analyses to improve last mile connectivity and to design bus stops, IPT stops, train/metro stations, terminals and interchange stations.
- Procure public transport fleet as per UBS II specifications with lower handlebars, wider gangways, space for strollers, access ramps and women doors.
- Create campaigns to generate awareness on sexual harassment laws, communicate a zero tolerance approach to sexual harassment, encourage women to report harassment, and encourage bystanders to assist women and girls.
- Provide real time information on arrival and departure of public transport and major destinations around the public transport stops frequented by women and girls.

This can be measured with indicators in Table 4.

Table 4: Indicators for a public transport system

Indicator		Measure	Recommended Benchmarks
Overall System			
1	Availability of buses	Number of buses per lakh population in the urban and peri-urban areas of the city/ metropolitan region. These must have at least 35 per cent seats reserved for women or as per demand in peak hours, whichever is more	At least 50 buses per lakh population
2	Load factor of the bus	Ratio of the number of passengers in the bus to the capacity of the bus	Load factor should not exceed 100 per cent of the total capacity in peak hours
3	Level and perception of safety, comfort and convenience, disaggregated by gender	Experience and perception of safety, comfort and convenience of the public transport journey i.e. from origin to public transport stop, waiting at the stop, boarding and alighting, traveling inside the vehicle and travel from public transport stop to destination, conducted annually or bi-annually	At least 80 per cent of women and girls perceive the public transport journey to be safe, comfortable and convenient. (Each aspect must be evaluated separately)
4	Waiting time, disaggregated by gender	Women and girls' waiting time for public transport in peak and off-peak hours in urban and peri-urban areas of the city/metropolitan region	<5 minutes in peak hours <10 minutes in off peak hours
Infrastructure (Stations, Terminals, Interchanges)			
5	Universally accessible, sheltered stations	Percentage of sheltered stations/ stops with level boarding and alighting	At least 80 per cent of shelters/ stations All terminals and interchange stations
6	Well-lit stations	Percentage of sheltered stations/ stops with uniform and consistent lighting of 30-40 lux	All stations

7	Information and communication	Percentage of stations with real time information, route maps, functional help line numbers and emergency numbers	All stations
8	Public toilets	Gender disaggregated data on availability of adequate and universally accessible public toilets within 250m walking distance of a public transport stop ^[4]	<p>Terminal Stations and Bus Terminals</p> <p>Men: 4 water closets for first 1000 persons and 1 for every additional 1000 persons or part thereof; Urinals: 6 for every 1000 person and 1 for every additional 1000 persons or part thereof Women: 10 water closets for every 1000 persons and then 1 per 1000 persons after</p> <p>Within 250m walking distance of a public transport stop</p> <p>Men: 1 per 100-400 persons; For over 400 persons, add at the rate of 1 per 250 persons or part thereof. Urinals: 1 for 50 persons or part thereof Women: 2 for 100-200 persons; over 200 persons, add at the rate of 1 per 100 persons or part thereof</p>
Vehicles			
9	Public transport fleet as per Urban Bus Specifications II	Percentage of the public transport fleet with space for persons on wheelchairs and strollers, lower grab bars, minimum 700mm gangway, doors with a clear width of at least 1000mm	Entire public transport fleet
10	Information and communication	Percentage of public transport fleet with route maps, functional help line numbers and emergency numbers and real time information	Entire public transport fleet

^[4] This standard must be considered for intermediate public transport, where it serves the majority of public transport trips.

Recommendation 8: Engender Public Transport Authorities

- Create a Gender Advisory Committee (GAC) within public transport authorities to:
 - Make gender equality a core duty of the public transport authority.
 - Review all public transport plans to ensure gender responsive planning, implementation and evaluate impact.
 - Create and implement a capacity building program for gender responsive planning, design, implementation, monitoring and evaluation of public transport.
 - Define protocols to prevent and address sexual harassment in public transport.
 - Enable recruitment, retaining and promotion of women at all levels within public transport authorities.
 - Facilitate gender sensitization trainings for drivers, conductors, depot managers and leadership.

This can be measured with indicators in Table 5

Indicator		Measure	Recommended Benchmarks
Employees			
1	Women employees in the public transport authority	Percentage of women employees in the public transport authority at different levels	At least 50 per cent women at junior, mid and senior management levels across different functions (Eg. drivers, conductors, depot managers, engineers, urban and transport planners etc) or reflecting the city's female population ratio, whichever is greater
Trainings and Complaint Redressal			
2	Standard operating procedures	Standard operating procedures created for preventing and addressing sexual harassment	Public transport authority has created standard operating procedures, which is included in the core training curricula for drivers, conductors and depot managers
3	Drivers, conductors and depot managers, who have received gender sensitization trainings	Percentage of drivers, conductors and depot managers who have received training on gender sensitization and standard operating procedures annually, along with quarterly follow-ups to discuss challenges and share learnings	All drivers, conductors and depot managers
4	Complaints and redress mechanism is created	Gender disaggregated data on complaints filed and redressed by the public transport authority	At least 80 per cent of the complaints filed by men and women are addressed within 14 days

Recommendation 9: Make Intermediate Public Transport Safer for Women and Girls

- Recognize IPT as a mode of public transport
- Make police verification of drivers (and conductors) mandatory, create standard operating procedures and conduct gender sensitization trainings with the drivers (and conductors) to prevent and address sexual harassment in their vehicles. This can be mandated by the Regional Transport Organization (RTO), when issuing permits and approving IPT routes
- Design IPT stands to provide sheltered, safe and well-lit waiting areas with route signage and information on complaint and emergency helpline numbers

This can be measured with indicators in Table 6.

Table 6: Indicators for intermediate public transport

Indicator		Measure	Recommended Benchmarks
Overall Journey			
1	Level of safety, comfort and convenience in the intermediate public transport journey, disaggregated by gender	Annual or bi-annual surveys to assess sexual harassment, comfort and convenience in the intermediate public transport journey i.e. from origin to shared IPT stop, waiting at the stop, boarding and alighting, traveling inside the vehicle and travel from IPT stop to destination. For direct auto-rickshaw or taxi services, interaction with drivers and travel inside the vehicle will be critical	At least 80 per cent women and girls perceive the intermediate public transport journey to be safe, comfortable and convenient. (Each aspect is evaluated separately)
IPT Infrastructure			
2	Sheltered stops with consistent and adequate lighting	Percentage of sheltered stops with consistent lighting of 30-40 lux	All stops
IPT Vehicles and Drivers			
3	Intermediate public transport fleet	Percentage of intermediate public transport fleet with functional help line and emergency numbers and name and photograph of the driver published inside and outside the vehicle. The route maps must be shown where applicable (as in the case of mini buses etc.)	Entire intermediate public transport fleet

4	Drivers (and conductors) verified by the police	Percentage of drivers (and conductors) without criminal records, verified by the police	All drivers (and conductors)
5	Standard operating procedures	Standard operating procedures created for preventing and addressing sexual harassment	Standard operating procedures are created, which is a prerequisite for issuing permits
6	Drivers (and conductors) who have received gender sensitization trainings	Percentage of drivers (and conductors) who have received training on gender sensitization and standard operating procedures last year. This is accompanied with quarterly follow-ups to discuss challenges and share learnings	All drivers (and conductors)





1. Introduction

Over 2012-20, around 865 million women are expected to enter the workforce (Strategy and PwC 2012). According to the McKinsey Global Institute, if women were to play an equal role in labour markets, as much as USD 28 trillion could be added to the global economy by 2025. Yet, in urban India, women's labour force participation is only at 15.5 per cent (MoSPI 2014) and in fact, India's female labour force dropped by 19.2 million individuals between 2004-5 and 2011-12 (Andres, et al. 2017).

The performance of urban transport services places different burdens on women and men, with the costs of poor public transport often being borne by women. For example, women may turn down better employment opportunities further away from home in favour of lower-paid local opportunities when the public transport system is unreliable or unaffordable (ADB 2013). Safe, comfortable, convenient and affordable transport can play an important role in not only helping meet women's practical needs such as access to schools and markets, but also in contributing to their strategic empowerment by facilitating access to social and economic opportunities.

In India, women's concerns in urban transport came to the fore primarily through the lens of safety since Jyoti Singh's death^[5] in December 2012. It brought this issue, which had earlier remained confined to feminist and queer movements (Baxi 2014), to the public discourse and galvanized action by civil society and different levels of government to create safer public transportation systems. The Government of India created the Nirbhaya Fund over 2013–16 to implement schemes for improving women's security. Under the fund, the Cabinet Committee on Economic Affairs has approved the setting up of a unified system at the national and state levels (City Command and Control Centre) for Global Positioning System (GPS) tracking through emergency buttons and video recording in public transport vehicles in 32 cities^[6]. In 2016, Maharashtra introduced the Tejaswini buses, which were ladies' special buses plying during peak hours with women drivers and conductors (Gaikwadi 2017). While most of these services are yet to start, numerous initiatives were underway prior to 2012, such as reserved seats for women and ladies' special buses, coaches and trains at the city-level. However, these were not undertaken in a systematic or comprehensive manner.

Further, protectionist concerns (Phadke 2010), technological and project level interventions largely circumscribe the discussions on women's safety in India without an embedded inquiry into how transport systems and institutions are gendered (Anand and Tiwari 2006). The Nirbhaya Fund is critiqued for its tardy utilization (Kaul, Budget 2016: Nirbhaya Fund is a Dud; Jaitley Should Urgently Find Ways to Utilise It 2016), and the service level benchmarks for urban transport remain largely gender neutral. The Smart Cities Mission (MoHUA, Smart City Features 2015) and the Green Urban Mobility Scheme (MoHUA, New Green Urban Mobility Scheme 2016) do not include indicators, which could compel cities to improve their transportation systems for women's mobility of care (Madariaga 2013), affordability, safety, accessibility and comfort. **Gender is not a 'core competence' among urban local institutions or managers who remain primarily concerned with the**

^[5] Jyoti Singh was a 23-year-old woman, who was beaten and gang raped in a private bus in which she was travelling with a male friend. She was transferred to a hospital in Singapore for emergency treatment, but died from her injuries. This incident generated widespread national protests.

^[6] These are cities with a population of one million or more (as per the 2011 Census)

provisioning of basic services. Gender expertise is perceived to be within the domain of conventional women's programmes/agencies such as Women and Child Development (R. Khosla 2009). Additionally, women's access to urban transport has been framed through a rights based approach or a public health or economic development discourse, but not both (Law 1999).

Women and girls are close to 50 per cent of our urban population. They comprise only 19 per cent of "other workers" and yet 84 per cent of their trips are by public, intermediate public and non-motorized modes of transport (Census 2011)^[7].

While 73 per cent of trips by "other workers" in urban areas are by sustainable modes of transport, women and girls' share is only 14 per cent. In the coming decade, cities will need to make a concerted effort to improve women and girls' experience of sustainable modes of transport to achieve a target of 40 per cent of all trips. The policy brief fills this gap by providing a framework to integrate technical and social, quantitative and qualitative approaches for enabling this transition.



Figure 1: Women constitute only 4% of cyclists who commute to their workplace in urban India

^[7] Other workers as defined by the Census include all workers except cultivators, agricultural labourers or household industry workers.

2. Scope

This policy brief outlines the broad issues faced by women and girls when using or accessing urban transport, and recommends key measures to enable equitable access. The brief recommends gender responsive indicators, service level benchmarks and guidelines for comprehensive/green mobility plans as well as walking, cycling, public and intermediate public transport. This policy brief has the following constraints:

- A gendered agenda is incomplete without including transgender persons. This is a critical gap and more research is required to understand their issues, concerns and needs.
- The brief focuses on road-based passenger transport as it forms the backbone of our urban transportation systems.
- A safe and secure transport system requires intersectoral transformations in transportation and urban planning, institutions, criminal justice system and behavioural change. However, this should not result in policy paralysis and therefore this brief focuses on transport planning and design to provide guidance on sectoral interventions.

The structure of the paper is as follows:

- Section 3 describes the gendered dimensions of urban transport with a focus on trip chaining and purpose, modal shares, trip distances, time poverty, sexual harassment and employment in the transport sector.
- Section 4 proposes urban transport indicators and service level benchmarks for comprehensive mobility plans.
- Section 5 makes recommendations to improve women's modal shares and experiences of walking, cycling, public and intermediate public transport, and engendering public transport authorities.
- Section 6 identifies ministries and departments responsible for urban transport and their potential role in mainstreaming gender.

The recommendations include case studies to highlight Indian and global practices.



3. Gender Dimensions of Urban Transport

3.1. Trip Patterns and Purpose

Women’s travel is characterized trip chaining i.e. combining multiple destinations within one trip. Women make shorter and more trips, which often require them to change, divert, and break their journeys to pick up children, run errands, shop or take on other family obligations (Allen, Vanderschuren and Town 2016). This often makes it costlier for women to get around, since they may have to pay numerous single fare tickets during such a chained trip.

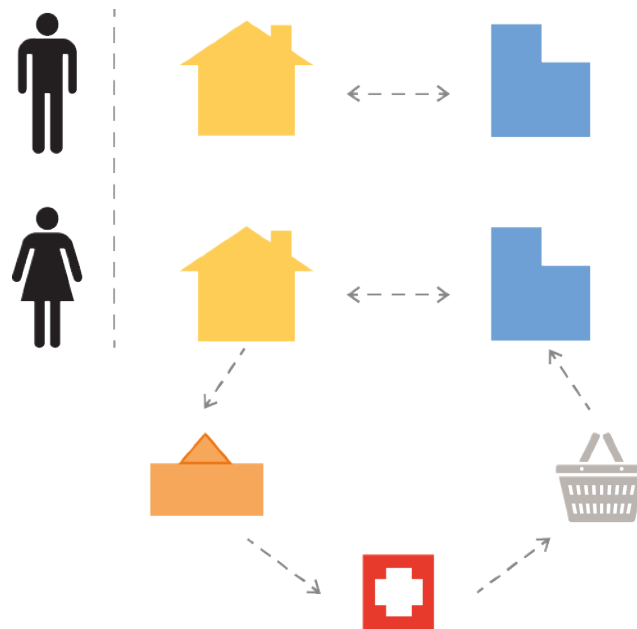


Figure 2: Trip Chaining as a Gendered Mode of Travel

Since women are overrepresented as informal workers, their destinations may not be concentrated in the central business district or in one or two main areas, but dispersed (Kuneida and Gauthier 2007). In Visakhapatnam, while 39 per cent of all trips were for work, only 11 per cent of women’s trips versus 63 per cent of men’s trips were for work. A study of a low-income settlement in Delhi showed a gender dimension to the shelter-transport-livelihood link i.e. women are more affected than men when access to employment, education or basic services are located far away from their residences. For example, relocation of squatter settlements to the periphery of Delhi led to an increase in female unemployment by 27 per cent compared to 5 per cent for men (Anand and Tiwari 2006).

3.2. Modal Shares, Trip Distances and Time Poverty

A gendered comparison of Census data (2011) for five cities^[8] on ‘Travel to place of work for other workers’ revealed that on average, 37 per cent women walked to work compared to 27 per cent of men. In Bangalore, 43 per cent of women walked to work compared to 24 per cent of men, whereas in Chennai, twice the number of women (34 per cent) walked to work than men (16 per cent). Similarly, in Ranchi, 59 per cent women walked to work (ITDP 2015), whereas in Hazaribag, 76 per cent

^[8] Bangalore, Delhi, Kolkata, Mumbai and Chennai

women walked to their educational institute or workplace (Jagori 2016). In Sanjay Camp in Delhi, 52 per cent of women as compared to 26 per cent of men walked to work. However, though 21 per cent of people used bicycles, women constituted only 2 per cent pillion riders (Anand and Tiwari 2006). Similarly, in Chennai, even with poor bicycling facilities, bicycling rates for low-income men were 8 per cent compared to 1 per cent for low-income women (Uteng and Cresswell 2008). The difference in cycle use is due to women's higher concern for safer riding environments and lower ownership of cycles. Women's limited access to basic carts or load-carrying bicycles results in frequent strain injuries, and neck and back pain due to excessive head loading (Deike 2011). Further women's choice of cycling is also constrained by socio-cultural perceptions, such as being perceived as 'madam'^[9] by their neighbours and children, as has been shown in Pune (Parisar and University of Pune 2009).

According to the National Sample Survey Office (NSSO), more than 60 per cent of rural and urban households use the bus as their main mode of public transportation, followed by auto-rickshaw, taxi, railways and cycle rickshaw (NSSO 2016). While women's bus transport modal shares vary from 25 per cent in Mumbai^[10] to 37 per cent in Bhopal (DIMTS 2012), women are more dependent on public transport than men are, especially when they are from lower-income groups. In Mumbai, women made 45 per cent more trips by bus than by train, which increased to 67 per cent for households with incomes less than Rs 5000 per month (World Bank 2011).

In Delhi, 34 per cent of women commuted to work by bus compared to 25 per cent of men, whereas the corresponding figures for Chennai were 34 per cent (women) and 22 per cent (men) (Census 2011). Unfortunately, the off-peak and peripheral public transport routes on which many women depend for their travel to the market or social facilities, have much less priority than the radial commuter corridors going straight to the city centre (Viswanath 2013). In Bhopal, the informal system carries more passengers (20 per cent) than the formal public transport system (DIMTS 2012). Due to the unregulated nature of this sector, affordable but poor quality of vehicles, unverified drivers and conductors, unpredictable schedules and a lack of accountability characterize it.

Women tend to take more and shorter trips at varied times, during peak and afternoon off-peak hours. In Bangalore, the average distance traveled by women for work (1.7km) was about half of that for men (3.3km), whereas in Mumbai, women traveled 3/4th the distance of men (4km) (Census 2011). In Delhi's Sanjay Camp, 75 per cent of women worked within a 5km radius whereas 75 per cent of men worked within a 12km radius. Lower income women used slower and inexpensive modes of transport to manage transport costs, which exacerbates their time poverty (Anand and Tiwari 2006).

3.3. Sexual Harassment

Sexual harassment is unwanted sexual behaviour that includes physical harassment such as touching and groping, verbal harassment including commenting and whistling, and visual harassment such as staring and leering. With growing urbanization, the phenomenon of sexual violence in cities has become a serious issue. Sexual harassment has an effect on women's mobility, accessibility and confidence. Lack of safety and security in public spaces and public transport affects women's human rights and their ability to participate equally in the city.

^[9] Used as a term to connote that a woman has become "modern"

^[10] The reserved seats are taken as an indicator of women's ridership in BEST

There have been several studies conducted in India over the past few years that have explored the nature and extent of sexual violence that women and girls face in Indian cities, specifically in public spaces including public transport. A study conducted in Delhi in 2010, reported that over 90 per cent of women had faced some form of sexual harassment in the past year (Jagori 2010). The same study showed that 51 per cent of women faced harassment inside public transport, and another 42 per cent while waiting for public transport.

Similar studies in Mumbai, Kerala, Guwahati and Bengaluru showed high levels of sexual harassment and everyday violence. In a study of two cities in Kerala by Sakhi in 2010, Kozhikode reported that 71 per cent of women respondents faced harassment while waiting for public transport while 69 per cent faced it while using public transport. Similarly, in Trivandrum, over 80 per cent faced sexual harassment while either waiting for or riding public transport (Sakhi 2011). In Mumbai, a survey done by Akshara in 2013 also showed that 46 per cent of women reported facing sexual harassment inside buses and 17 per cent inside trains (Akshara Centre 2015).

In a study done by Safe Safar with UCL, London in Lucknow, 88 per cent of the respondents said that they had faced sexual comments while in public transport (Safe Safar, Safetipin and UCL 2014). A Bengaluru Metropolitan Transport Corporation (BMTC) survey among female commuters in 2013 found that two out of three commuters faced regular harassment (Deccan Herald 2013). The 2014 Thomson Reuters Foundation survey on unsafe transport in capital cities around the world found Delhi to have the fourth most unsafe public transport among the cities surveyed after Bogota, Lima and Mexico. (Thomson Reuters Foundation 2014) A 2008 National Association of Software and Services Companies (NASSCOM) study showed that female employees in the IT sector across India depended heavily upon the transport provided by the company as it was considered safer than public transport.

While there are occurrences of gruesome and violent crimes, the defining characteristic of violence against women is its normalization and ordinary and continuous nature (Viswanath 2013). This forces us to examine violence within the frame of rights and its violations. ‘Although feeling unsafe is not confined to women, the fear that women feel in urban areas is quite particular. It is to do with physical and psychological honour. Although not all women have been raped or attacked; all have felt at some point that indescribable feeling of unease which ranges from merely feeling uncomfortable to paralysis.’ (Smaoun 2000)

Further, there is high underreporting of violence against women in public spaces and of sexual harassment in public transport as it takes place during a journey making it more difficult to report the offence. It is sometimes difficult to identify the harasser in a crowded space and know whom to report to. In a metro train, it is possible to have a button, which directly links to the security at the next station where the woman can lodge her complaint as well as identify the harasser, but in most situations, women just move away from the harasser or at the most confront him and make a noise.

Women and girls fear using public transport because of violence and the fear of violence. Crowded public transport is often a space where women face sexual harassment, because the crowd offers anonymity. This has led to interventions such as women only carriages in metro trains or women only buses. Consequences of the violence and insecurity that women face leads to forced immobility. Simultaneously, women and girls are subject to forced mobility when they have to undertake trips,

which are often unsafe because of lack of services, such as water and sanitation (Khosla and Dhar 2013).

3.4. Employment

According to the International Labour Organization, transport is one of several sectors that has traditionally been regarded as having ‘no place for women’ (Turnbull, Lear and Thomas 2009). In 2005, 6.85 per cent of women were employed in the transportation sector in India compared to 19 per cent of men. In Mumbai, according to a World Bank report, women constituted only 12.5 per cent of the Brihanmumbai Electric Supply & Transport (BEST) Committee and 1 per cent of its engineers in 2010. When BEST attempted to induct women bus conductors, all of them requested to be shifted to desk jobs (World Bank 2011). Similarly, the Delhi Transport Corporation (DTC) has 245 women conductors and only one-woman driver (Kaul and Shrivastava, Safety of Women in Public Spaces in Delhi: Governance and Budgetary Challenges 2017).

Women face multiple challenges including accessing vocational training specific to transport sector jobs. For example, the requirements pertaining to driving licenses are passed on informally from older male family members to younger ones. Moreover, the upfront investment associated with training programs may be a barrier for resource-poor women. In the DTC, drivers are required to hold a valid heavy motor vehicle license for at least three years and a public service vehicle (PSV) badge issued by the licensing authority, which is a major entry barrier. Additionally, when women are qualified for the jobs, insidious gendered assumptions regarding their suitability for the job prevent them from breaking into the transport sector (Azad Foundation and University of Western Ontario 2014).

Harassment and threats by commuters and colleagues, lack of public toilet facilities are additional barriers. Encouraging women in non-traditional occupations requires institutions to create a conducive environment. Simultaneously, women’s presence at different levels in public transport authorities has the potential of mainstreaming gender within the organization by bringing women’s issues to the fore in its services and infrastructure.

3.5. Conclusion

This section discussed how urban mobility is gendered. While cost, personal security and time poverty are considered as the three main factors that influence women’s transportation accessibility (Allen, Vanderschuren and Town 2016), cultural perceptions and spatial location also shape women’s mobility. For example, women may not travel without a male escort, or they have to be ‘decently’ dressed to prevent harassment. They may also be expected to wear markers of respectability such as a *mangalsutra* (a necklace worn after marriage), and exhibit controlled body language. These beliefs are also internalized by the women themselves (Phadke, Ranade and Khan 2009), and could result in restricting women’s mobility and reflect a latent demand for trips not made. Similarly, peripheral areas often do not have reliable and affordable transport, which can limit women’s employment opportunities while increasing their time poverty from household responsibilities. A study of the differences in travel behaviour between two low-income settlements in the city centre and peripheral areas in Chennai revealed that 88 per cent of the trips in the centrally located slums were by non-motorized transport (NMT) modes compared to 73 per cent in peripheral locations (Srinivasan 2004). Therefore, policy recommendations must acknowledge the multiple dimensions shaping women and girls’ travel, especially mobility of care and social norms, perceptions and behavior.

M-TRAC





4. Policy Recommendations

4.1. Urban Transport Indicators and Benchmarks

National level policies and missions have addressed women's concerns primarily through the lens of safety, with project and technology centric interventions. The National Urban Transport Policy (2014) makes some recommendations such as police verified drivers and conductors, GPS for public and intermediate public transport, closed-circuit television (CCTV) cameras in all transport infrastructure and street lighting (MoHUA, National Urban Transport Policy 2014).

Similarly, the Jawaharlal Nehru National Urban Renewal Mission (JnNURM) was launched over 2006 with the objective of investing in urban infrastructure, introducing governance reforms and providing basic services to the urban poor. Urban transport constituted 35 per cent of all completed infrastructure projects and 27 per cent of the expenditure (Jana, et al. 2015). However, the gender perspective was overlooked within JnNURM (R. Khosla 2009). The Smart Cities Mission launched in 2015, aims to create walkable localities, promote mixed-land uses, preserve and develop open spaces along with technology-centric pan city proposals such as CCTV cameras (MoHUA, Smart City Features 2015) MoHUA is formulating the Green Urban Mobility Scheme which earmarks INR 70,000 crores for sustainable transport (MoHUA, New Green Urban Mobility Scheme 2016).

There is a need to create urban transport indicators and benchmarks and define a process to create, implement, monitor and evaluate gender responsive comprehensive/green mobility plans. The National Urban Transport Policy should adopt the sustainable development goal 11.2, which aims to “By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons” (UNSDSN n.d.).

Additionally, the existing service level benchmarks for urban transport cover indicators for public transport facilities, pedestrian infrastructure, non-motorized facilities, intelligent transport systems, street infrastructure, road safety, parking facility, pollution levels, land-use and transport integration and financial sustainability of public transport (MoHUA n.d.). These should be modified to become gender responsive as outlined in the subsequent sections.

4.2. Comprehensive Mobility Plans

Urban mobility plans need to adopt a holistic approach towards gender inclusion as outlined in Figure 3. An institutional framework is recommended to guide the preparation, implementation, monitoring and evaluation of the comprehensive mobility plan.

- Create a functional Unified Metropolitan Transport Authority (UMTA) in 1 million+ cities to coordinate the planning and implementation of urban transport projects in the metropolitan region. The UMTA should include women's groups, gender, urban planning and transportation experts.
- Create a multi-stakeholder committee (MSC) in cities less than a population of 1 million, comprising of the urban local body, urban development authority, traffic police, police, public transport authorities, relevant state departments along with women's groups, gender, urban planning and transportation experts.
- Create a Gender Advisory Committee (GAC) within the UMTA or the multi-stakeholder committee to review each stage of the comprehensive mobility plan process, transportation projects, policies and programs, monitor implementation, evaluate impact and implement a capacity building program. The GAC will include gender experts from transport organizations in the UMTA. Identify a senior state level official, such as the Chairman of the UMTA or MSC to preside over the GAC and become a champion for implementation of gender responsive projects in the mobility plan.

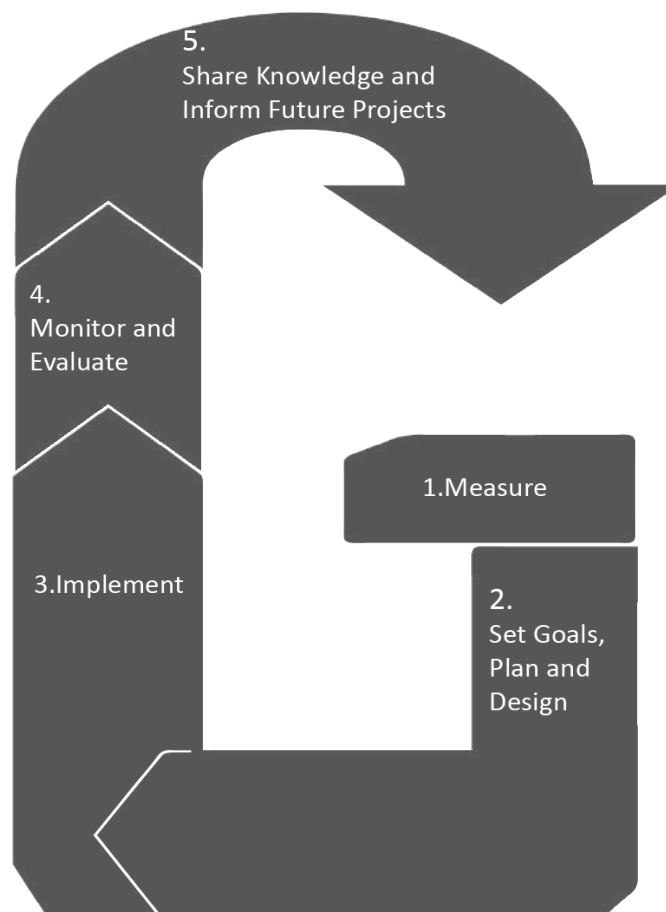


Figure 3: Suggested approach to integrating gender in mobility plans

Recommendation 1: Measure Gendered Mobility Patterns

- Conduct household surveys to
 - Understand gendered mobility patterns such as trip origins and destinations, trip purposes, trip chaining, mode of transport, trip lengths, trip costs and travel times.
 - Understand women's perceptions of security, comfort and convenience and aspirations from the transportation system.
 - Measure gendered inequities in travel such as time poverty, travel costs, forced mobility and forced immobility.
- Consider time use diaries to understand how men and women structure their everyday life for productive, care and leisure (Kuneida and Gauthier 2007).
- Conduct focus group discussions with women and men's groups to understand their needs and aspirations from the urban transport system.
- Conduct surveys and focus group discussions with commuters, bus conductors and public transport officials to assess their awareness and perceptions of sexual harassment, and how it can be addressed.
- Conduct universal accessibility and women's safety audits to assess the quality of urban transport infrastructure (bus and IPT stops, trains stations, terminals and interchanges).
- Assess the urban transport system using the indicators and service level benchmarks identified in Tables 7, 8, 9, 10, 11, 12 and evaluate gaps.

The following are some concepts of gendered travel:

Mobility of care is an appraising and labeling of care-related travel, which is predominantly undertaken by women currently. Care trips are often chained, shorter, cover a smaller geographical area and closer to home as compared to employment trips. They tend to be insufficiently accounted for and therefore systematically under-represented in transportation statistics (Madariaga 2013).

Forced mobility is caused when functions that are taken for granted in some places are absent in others. Due to inadequate water and sanitation infrastructure in low-income communities, many essential functions such as defecation and accessing water require long, risky trips. Women and girls may perform the former functions under cover of darkness, facing the threat of harassment or violence (Whitzman 2013).

Time poverty is the lack of time for rest and leisure after accounting for time spent working (in the labour market or performing domestic tasks) and on other activities. Women's greater domestic responsibilities coupled with their weaker access to household resources can result in the use of less expensive and slower modes of transport, especially when they are lower income. This can exacerbate their time poverty (Turner and Grieco 1998).

Forced immobility is a consequence of violence and insecurity in transport, which constrains movement (Whitzman 2013).

Recommendation 2: Set Goals and Create a Mobility Plan Underpinning Women and Girls' Concerns

- Identify goals, targets and projects with women's groups to increase women and girls' mode shares in sustainable transport i.e. walking, cycling, public transport, prevent and reduce women's experience of sexual harassment, reduce time poverty and improve affordability, comfort and convenience. Table 7 identifies indicators and recommended benchmarks for a gender responsive comprehensive mobility plan.
- Create gender disaggregated business as usual and subsequent sustainable transport scenario to estimate reductions in greenhouse gas emissions.

Table 7: Indicators and benchmarks for comprehensive mobility plans

Indicator	Recommended Benchmarks
1 People near transport (PNT), disaggregated by gender	At least 80 percent of women and girls live within 500m walking distance of public transport in the city and metropolitan region, with a frequency of at least 6 schedules per hour
2 Mode shares, disaggregated by gender	At least 80 per cent of all trips are by public and non-motorized transport At least 40 percent of all public and non-motorized transport trips are by women and girls
3 Median non-motorized trip time, disaggregated by gender	Women and girls' walking trips are less than 15 minutes Women and girls' cycling trips are less than 25 minutes
4 Median motorized trip distances, disaggregated by gender	Stabilized at 2017 levels or lesser
5 Cost on transport per month	Not more than 10 per cent of household expenditure for low income households
6 State and city transport allocations and expenditures on transport, benefiting women and girls	Specific allocations and expenditures in the state and city transport budget for women's safety in urban transport
7 Improved air quality	City achieves or exceeds air quality standards set by the CPCB; 50 percent of the reduction in air pollutants because of women and girls' use of sustainable modes of transport

- Organize inclusive consultations and design charrettes to incorporate women’s perspectives and prioritize projects.

Some guidelines for inclusive consultations are:

- Proactively reach out to marginalized women and men to ensure they are included, especially street vendors and other workers in the informal economy.
- Partner with local women’s and membership based organizations to access their networks and expertise.
- Hold consultation meetings where women or particular communities already gather (i.e. informal settlements, markets, schools, childcare centres, parks etc.), and in settings that are accessible and comfortable for diverse groups of women.
- Plan meetings at different times of the day and not just in the evenings as women might be reluctant to go out at night or have family responsibilities in the evenings.
- Ensure safety at consultation events by holding them in well-lit areas, areas that have easy access to public transportation, etc. Provide practical support such as transportation subsidies, child care, translation for non-native English speakers, and spaces that are accessible for women and men with disabilities.
- Ensure that information is disaggregated by gender, age, caste, income and other relevant socio-economic factors, and provided in a lucid manner in all major languages.

Source: Adapted from (International Centre for Municipal Development 2007)

Recommendation 3: Set Goals and Create a Mobility Plan Underpinning Women and Girls’ Concerns

- Prepare implementation and phasing plan with timelines, financial resources to meet the gender targets, goals and projects of the comprehensive mobility plan and identify responsible agencies.
- Gender Advisory Committee (GAC) should monitor implementation progress on an annual or bi-annual basis.

Recommendation 4: Monitor Implementation Progress and Evaluate Outcomes

- Conduct periodic evaluations by a third party (with women’s groups) to monitor implementation progress and assess impact.
- Share implementation challenges, successes and build capacity within UMTA or multi-stakeholder committee.

These can be facilitated by the GAC.



5. Modes of Transport

The following recommendations aim to increase women's mode shares of walking, cycling and public transport.

Recommendation 5: Create Safe and Comfortable Walking Environments for Women and Girls

Since a greater proportion of women make walking trips, insufficient, unshaded and poorly maintained pedestrian infrastructure affects them to a greater degree than men. Pedestrian infrastructure should be designed as per IRC 103: 2012 Guidelines for Pedestrian Facilities, which proposes three zones - a dead zone, pedestrian zone and a multi-functional zone for footpaths along with a level of service approach for determining the width of footpaths. Further, streets and pedestrian infrastructure should be consistently lit and shaded, along with access ramps and tactile pavers to facilitate universal accessibility. Additionally, active street edges with pedestrian friendly ground floor uses are recommended along with low compound walls. Street vendors also provide 'eyes on the street' by creating an informal surveillance system. Table 8 identifies indicators and benchmarks for a walkable street network and pedestrian infrastructure.



Figure 4: An active street: Jungli Maharaj Road, Pune

Table 8: Indicators and benchmarks for street network and pedestrian infrastructure

Indicator	Measure	Recommended Benchmarks
Street Network		
1 Median block length	Median block length bounded by publicly accessible roads on all sides	100 – 150m
2 Level and perception of safety, comfort and convenience, disaggregated by gender	Level and perception of safety, comfort and convenience of walking	At least 80 per cent of women and girls perceive the street network to be safe, comfortable and convenient. Each aspect will be evaluated separately.
Pedestrian Infrastructure		
3 Walking friendly streets	Percentage of city roads with right of way greater than 12m with universally accessible, shaded footpaths with minimum 3.5m width or Level of Service B (as per IRC 103: 2012 Guidelines for Pedestrian Facilities), whichever is greater Percentage of city roads with right of way less than 12m, with design speeds less than 30kmph	At least 80 per cent
4 Well-lit streets	Percentage of street network with uniform and consistent lighting for pedestrian and cycling infrastructure • 25 lux in shopping areas • 30-40 lux in non-shopping areas	Entire street network

Recommendation 6: Increase Women and Girls' Cycling Shares

There are three key levers to improve adoption of cycling i.e. urban measures/design, behavioural measures (education, promotion, social marketing), and the development of a “cycling economy”, which involves improving the availability of suitable products (cycles, accessories) and services (rentals, repairs, cycle-taxis) (Sagaris 2015).

Women and girls' cycling mode shares are low across India, which is due to a number of reasons. Men and boys, generally get a preference in the ownership of personal motor vehicles within a household, thereby limiting women and girls' access to non-motorized vehicles. Additionally, women have a greater concern for safer bicycling environments, which must be considered when planning for bicycling infrastructure.

The ownership of bicycles can be addressed by schemes like the one introduced by the Bihar state government, which provided girls with bicycles in 2006. Here, every 14-year old school girl enrolled in state government schools was given the money to buy a bicycle. This has led to a 30 per cent increase in school enrolment of girls. This initiative demonstrates that safe mobility is a necessary condition for girls to continue their education, especially in rural areas of the country. Safe transportation is one of the main factors in addition to proper toilet facilities, better infrastructure and better teaching facilities at schools (Muralidharan and Prakash 2013).

Further, painted cycle lanes are discouraged as they are prone to encroachment by on-street parking. Continuous, consistently shaded and well-lit, smooth bicycle tracks are recommended on roads above 20m, and where demand is observed. Streets less than 20m should be traffic calmed such that motor vehicle speeds do not exceed 30kmph. This should be combined with programs to teach women how to repair and ride bicycles and create groups to increase women's confidence in riding bicycles by themselves at a later stage. Table 9 identifies indicators and benchmarks for cycling infrastructure.

Table 9: Indicators and benchmarks for cycling infrastructure

Indicator	Definition	Recommended Benchmarks
Cycling Network and Infrastructure		
1 Streets with dedicated, continuous, even, shaded, cycle tracks without encroachment	Percentage of streets 20m and above with dedicated, continuous, even, shaded, cycle tracks without encroachment. The following are recommended: <ul style="list-style-type: none"> • Minimum 2m for one-way cycle tracks • Minimum 2.5m for one-way cycle tracks with cycle rickshaws • Minimum 3m for two-way combined cycle tracks 	At least 80 per cent
2 Shared streets with traffic calming elements	Percentage of shared streets with design speeds less than 30kmph	At least 80 per cent

Case: Santiago, Chile

In a survey conducted by the Ministry of Transport and Telecommunications in Santiago, it was observed that women constituted 10 per cent of cyclists in Santiago. A cycling master plan was created and the number of cycle tracks quadrupled from 2007-12. The cycling mode shares increased from 3 per cent in 2006 to 6 percent a decade later.

However, since women did not know how to ride or were afraid to use bicycles in the city, a local women's group, Macleta (Women on Bikes), initiated classes to encourage women to learn to ride bicycles. They had a 'Learn to pedal' course, which was for beginners, while 'Get off the sidewalk' was for women who knew how to ride a bicycle, but were too frightened to use it around the city. Women and girls now constitute 30 per cent of all cyclists in the city.

In addition, around 30,000-40,000 people are seen cycling across the streets of Santiago every Sunday as part of the CiclRecreoVía initiative where 40 kilometres of the city's roads are closed to vehicular traffic and made available for walking, running, cycling and other social activities (Cycling in Santiago 2014).



Figure 5: Women cyclists in Santiago increased from 10% to 30% of total cyclists in a decade

Case: ECOBICI - Bike Share System, Mexico City

ECOBICI, Mexico city's public bicycle sharing system, is the largest one in Latin America. According to the Ministry of Environment, Department of Cycling Culture and Infrastructure, ECOBICI's management authority, women were only 20 per cent of its users in 2010 (when the program was initiated), which increased to 40 per cent by 2017. Moreover, the number of women users in ECOBICI is three times higher than the number of women cyclists in the city.

ECOBICI's features - more than 450 stations located at a distance of around 300m in Mexico City's central business district with a high level of public activity and connectivity to other modes of transport such as the Metrobus (bus rapid transit system) and the subway, low cost and accessibility to the payment system - make it a safe, flexible and convenient mode for short trips. (Ministry of Environment n.d.)



Figure 6: ECOBICI's women cyclists increased from 20% to 40% of total users over 2010 to 2017

Recommendation 7: Increase Women and Girls' Safety and Use of Public Transport

There is a strong case for gender-responsive approaches to public transport development, which takes into account gender dimensions of cost, safety and availability of services, and synchronization of different forms of formal and informal public transport. Table 10 identifies indicators and benchmarks for public transport system, infrastructure and vehicles.

Table 10: Indicators and benchmarks for public transport

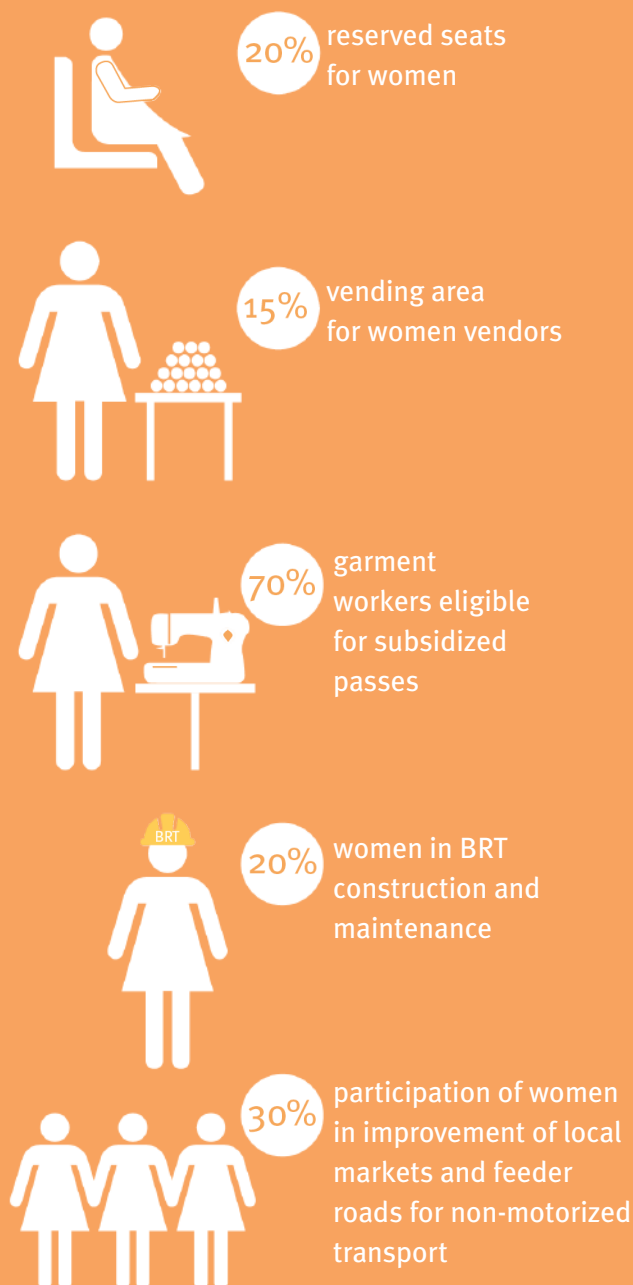
	Indicator	Measure	Recommended Benchmarks
Overall System			
1	Availability of buses	Number of buses per lakh population in the urban and peri-urban areas of the city/ metropolitan region with at least 35 per cent seats reserved for women or as per demand in peak hours, whichever is more	At least 50 buses per lakh population
2	Load factor of the bus	Ratio of the number of passengers in the bus to the capacity of the bus	Load factor should not exceed 100 per cent of the total capacity in peak hours
3	Level and perception of safety, comfort and convenience	Experience and perception of safety, comfort and convenience of the public transport journey i.e. from origin to public transport stop, waiting at the stop, boarding and alighting, traveling inside the vehicle and travel from public transport stop to destination, conducted annually or bi-annually	At least 80 per cent of women and girls perceive the public transport journey to be safe, comfortable and convenient. (Each aspect must be evaluated separately)
4	Waiting time, disaggregated by gender	Waiting time for public transport in peak and off-peak hours in urban and peri-urban areas of the city/metropolitan region	<5 minutes in peak hours <10 minutes in off peak hours
Infrastructure (Stations, Terminals, Interchanges)			
5	Universally accessible, sheltered stations	Percentage of sheltered stations/ stops with level boarding and alighting	At least 80 per cent of shelters/ stations All terminals and interchange stations

6	Well-lit stations	Percentage of sheltered stations/ stops with uniform and consistent lighting of 30-40 lux	All stations
7	Information and communication	Percentage of stations with real time information, route maps, functional help line numbers and emergency numbers	All stations
8	Public toilets	Gender disaggregated data on availability of adequate and universally accessible public toilets within 250m walking distance of a public transport stop ^[11]	<p>Terminal Stations and Bus Terminals</p> <p>Men: 4 water closets for first 1000 persons and 1 for every additional 1000 persons or part thereof; Urinals: 6 for every 1000 person and 1 for every additional 1000 persons or part thereof Women: 10 water closets for every 1000 persons and then 1 per 1000 persons after</p> <p>Within 250m walking distance of a public transport stop</p> <p>Men: 1 per 100-400 persons; For over 400 persons, add at the rate of 1 per 250 persons or part thereof. Urinals: 1 for 50 persons or part thereof Women: 2 for 100-200 persons; over 200 persons, add at the rate of 1 per 100 persons or part thereof</p>
Vehicles			
9	Public transport fleet as per Urban Bus Specifications II	Percentage of the public transport fleet with space for persons on wheelchairs and strollers, lower grab bars, minimum 700mm gangway, doors with a clear width of at least 1000mm	Entire public transport fleet
10	Information and Communication	Percentage of public transport fleet with route maps, functional help line numbers and emergency numbers and real time information	Entire public transport fleet

^[11] This standard must be considered for intermediate public transport stops, where they serve equal or a majority of public transport trips.

Case: Greater Dhaka Sustainable Urban Transport Project in Bangladesh

This project aims to improve the public transport system of Dhaka North City Corporation and Gazipur City Corporation. The gender analysis resulted in a project design that addresses women's limited access to safe and reliable transport by supporting a bus rapid transport (BRT) line in an area where a large proportion of passengers will be female garment sector workers commuting from their homes to the factory. A gender action plan has been prepared, which includes the following features:



Source: (ADB, Bangladesh: Greater Dhaka Sustainable Urban Transport Project 2012).

Route Planning and Operations

- Conduct household surveys to understand women's travel patterns, the extent to which public transport meets their daily mobility, the prevalence, frequency and type of sexual harassment faced in different legs of the public transport journey.
- Conduct gender disaggregated boarding and alighting counts to understand women's origin and destinations, occupancy within public transport vehicles, travel during peak and off-peak hours, trip lengths, trip costs etc. This will inform decisions on how many seats/coaches should be reserved within public transport (if at all), if ladies' special buses/trains are required and at what frequencies, and if special services like 'Request a Stop or Hail a Service' are required at night to pick up and drop off women, girls, children and the elderly closest to their origin or destination.
- Assess feeder services in providing last mile connectivity.

Infrastructure

- Combine safety audits with levels of service analysis to assess last mile connectivity and women's experience of transport infrastructure (bus/train shelters, IPT stands, terminals and multi-modal hubs or interchanges).

Case: Safety Audits to assess Last Mile Connectivity

Safetipin conducted safety audits to assess last mile connectivity around the metro stations along the Yellow Line of the Delhi Metro Rail Corporation (DMRC). An area of approximately 500m radius around the metro stations was studied and 1495 safety audits were conducted using ‘My Safetipin’ and ‘SafetipinNite’ applications. The audits evaluated the level of safety in the evening hours between 5pm and 10pm for the 17 metro stations, and identified ways to improve it. The safety scores around each station are indicated on the map, and the graph shows the average rating of all the nine parameters (rated out of 3). The audits rated visibility, people, security and gender diversity the poorest of all the nine parameters. Though the public transport at most of the stations is rated average, the last mile connectivity to the stations continues to be poor on account of lack of para-transport (autos/shared autos/cycle-rickshaws) options.

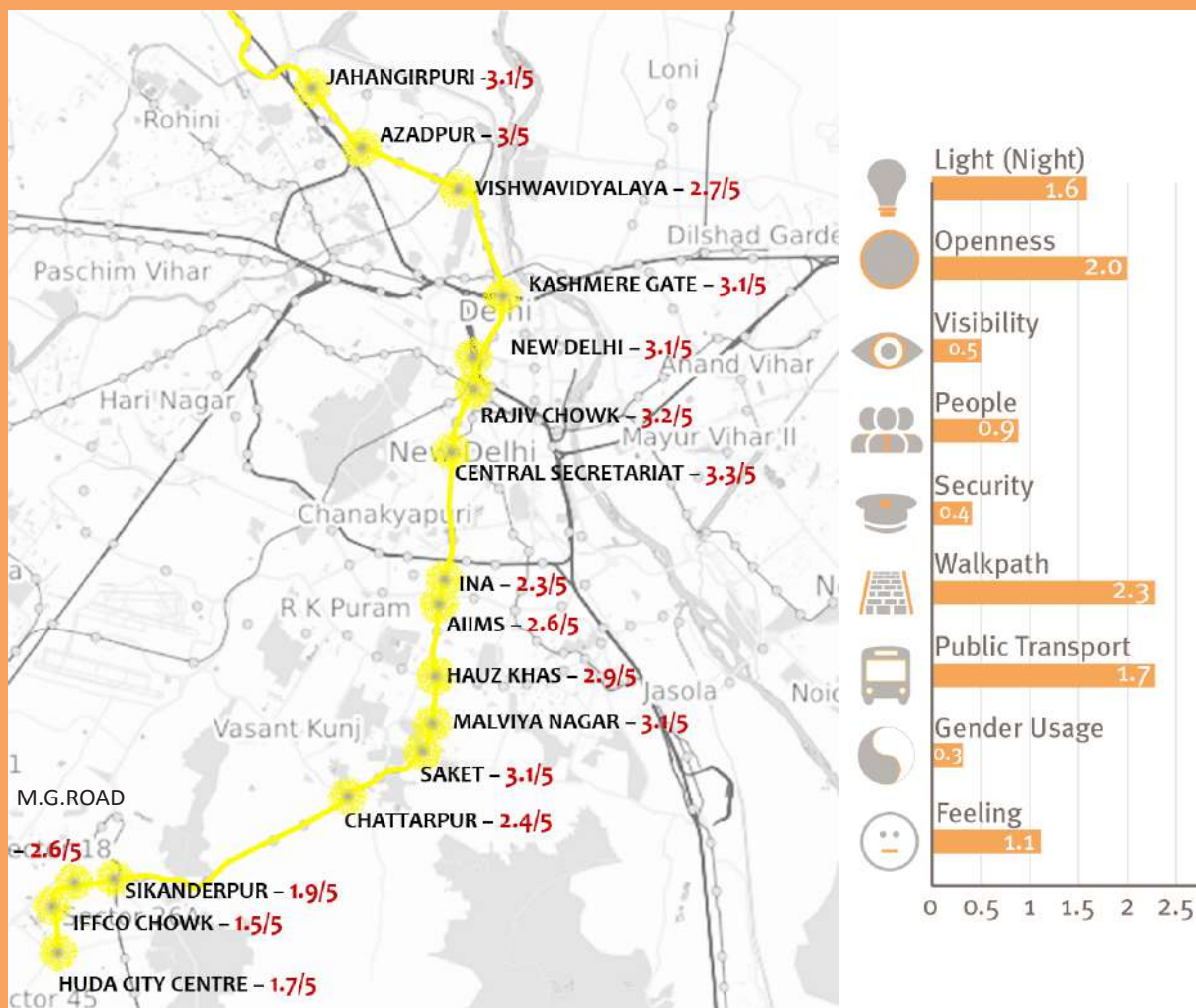


Figure 7: (Left) Safety score in the night along the Yellow Line of the Delhi metro rail corridor; (Right) Graph showing rating of safety audit parameters

Case: Safety Audits to assess Last Mile Connectivity

Toronto Transport Commission (TTC) has been a pioneer in addressing women's safety concerns in public transport, as early as the 1990s. They introduced the Between Stops Program to help women get off in between bus stops if they were travelling between 9pm and 5am. The Commission also created Designated Waiting Areas (DWAs) on subway platforms that provide a safe, well-lit space and access to an intercom that enables communication with station operators. Public telephones are located on all subway station platforms, at station entrances and in many bus and streetcar transfer areas. There is also an emergency button at the entrance of every train carriage. Montreal also has a between-stops service as well as transparent bus stops to provide visibility.



Figure 8 (above): Designated Waiting Areas (DWA);
Figure 9 (below): Bus shelter in Toronto

Public Transport Vehicles

- Evaluate women's experience in public transport vehicles including the design of vehicles such as width of the gangway, height of the grab rails or handles, height of the floor, provision of space for strollers, access ramps etc. to suit their needs.

Information and Communication

- Reporting of sexual harassment, redressal and tracking progress: Currently public transport authorities do not record incidents of harassment separately from other complaints in a sustained manner. The process of reporting harassment and its redressal must be clearly communicated along with a mechanism to track progress of reported incidents.

In 2007, the Delhi Transport Corporation (DTC) launched a helpline for women, but it was a short-lived exercise as the helpline was neither publicized nor did it receive many calls (The Hindu 2007). The Women and Child Department (Delhi) launched another helpline in 2012, which was also received poorly (PTI 2015). In 2014, Mumbai Police introduced a helpline for women using public transport and they received 400 texts in the first two days (Pai 2014). Gujarat State Transport also launched an online complaint redressal system and Volvo Bus helpline in 2013 (Indian Express 2013). While many of these are set up with great fanfare, they usually fizzle out due to poor implementation and communication of the helpline. In addition, with multiple helpline numbers and poor advertising campaigns, many women are unaware of the helpline, underscoring the need for a universal helpline number.

- Communication campaigns: Public transport authorities should create communication campaigns to encourage women to report incidents of harassment and encourage bystanders in assisting victims of sexual harassment. The Edmonton Transport Service in Canada adopted a zero tolerance approach towards sexual harassment. It created posters and advertisements that listed examples of inappropriate behaviour and told people how to report them (Addressing Sexual Harassment on the Streets and on Transport: A Concern for the City, 2016). In 2008, Massachusetts Bay Transportation Authority (MBTA) in partnership with the MBTA Transport Police, the Boston Center for Independent Living, and the Boston Area Rape Crisis Center launched a public awareness campaign – using large scale posters across the transport network. Postcards were handed out at the stations to encourage victims to report incidents to the police, emphasizing that certain behaviour was not acceptable and would be treated seriously by the authorities. After four years of this campaign, an evaluation study indicated 32% increase in reporting of sex offences. The number of arrests for the sex offences also increased by 96% (Gekoski A., Gray J.M., Horvath M.A.H., Edwards S., Emirali A. & Adler J. R. 2015).
- Gender inclusive signage: In 2006, the city of Vienna introduced a communication campaign titled 'Vienna sees it differently' as part of its gender mainstreaming project. The aim was to question visual habits and to compel people to think and see differently by giving both genders the same exposure and ensure an equal distribution of chances, opportunities and duties by changing the gender of figures shown on familiar signs.



Figure 10: Gendered Signage

- Information and Communication Technologies (ICT): ICT can improve the experience of public transport through real time information on websites, phones, public transport stops, and vehicles and safety applications.

Increasingly, technological solutions like CCTV cameras are installed in buses, stations etc. From 1999–2001, around USD 340 million was spent to install CCTV cameras in town and city centres, car parks, crime hot spots and residential areas in the United Kingdom. However, studies revealed that they were most effective in reducing crime in car parks, and not so significant in city centres and public transport (Welsh & Farrington, 2008). Thus, the efficacy of CCTV cameras in reducing crime must be evaluated before it is replicated at a city-wide scale.

- Static information: Real time information must be combined with route maps, and destinations that are important to women such as public toilets, markets, schools etc.

Recommendation 8: Engender Public Transport Authorities

Gender Advisory Committee (GAC) is recommended within the public transport authority to review public transportation projects, policies and programs, monitor implementation, evaluate impact and implement a capacity building program. The committee should be presided by a senior official such as the Managing Director of the public transport authority and include gender experts along with representation from women and youth groups, commuter associations and at least the personnel, human resources, traffic operations, engineering, accounts, planning and public relations departments. Table 11 identifies indicators and benchmarks for public transport authorities.

Table 11: Indicators and benchmarks for public transport authorities

Indicator	Measure	Recommended Benchmarks
Employees		
1 Women employees in the public transport authority	Percentage of women employees in the public transport authority at different levels	At least 50 per cent women at junior, mid and senior management levels across different functions (For example drivers, conductors, depot managers, engineering, planning etc) or reflecting the city's gender ratio, whichever is more
Trainings and Complaint Redressal		
2 Standard operating procedures	Standard operating procedures created for preventing and addressing sexual harassment	Public transport authority has created standard operating procedures, which is included in the core training curricula for drivers, conductors and depot managers
3 Drivers, conductors and depot managers, who have received gender sensitization trainings	Percentage of drivers, conductors and depot managers who have received training on gender sensitization and standard operating procedures last year, along with quarterly follow-ups to discuss challenges and share learnings	All drivers, conductors and depot managers
4 Create a complaints and redress mechanism	Gender disaggregated data on complaints filed and redressed by the public transport authority	At least 80 per cent of the complaints filed by men and women are addressed within 14 days

A gender audit of public transport authorities (Hamilton and Jenkins 2000) must be conducted to understand the extent to which gender equality is a mandate within the organization and its services. Specifically, it must include the following:

- What are the initiatives undertaken to recruit, retain and promote women at all levels within the organization? For example, the Transport & Dock Workers' Union (Mumbai) has included maternity benefits, health and safety for women in the collective bargaining agreement, as well as leave for adoptive mothers (Turnbull, Lear and Thomas 2009). The Delhi Transport Corporation has taken responsibility of training women conductors after they are selected from interviews. There is an unofficial policy within the depots to give women their first choice of shifts and routes. Women are often given the morning shift from 7:00am to 3:30pm. This presents a step forward in creating a positive environment for women, but its application across the organizations needs assessment (Azad Foundation and University of Western Ontario 2014).
- Are there multi-stakeholder arrangements to define a protocol to address sexual harassment in public transport? In 2014, the Bengaluru Metropolitan Transport Corporation (BMTC) created a Women's Safety Committee, which consisted of the Security and Vigilance Department, Police, Traffic Police, the commuters' association and other civil society organizations. A first of its kind in India, the goals of this Committee is to create a protocol for addressing incidents of sexual harassment in BMTC buses. This also presents a step in the right direction, but its implementation needs assessment
- Are gender sensitization training of drivers, conductors and depot managers conducted regularly?
- Are capacity building workshops organized with planners and engineers for gender responsive planning, design, implementation, monitoring and evaluation of public transport services? In the 1990s, the Toronto Transport Commission created a Security Advisory Committee, which comprised of women's organizations to review station designs of a new subway line from a security perspective, during the planning stage itself (Wekerle 2005).

Case: Gender Sensitization Trainings

In 2007, Jagori initiated the idea of conducting gender sensitization sessions for drivers and conductors to encourage them to be stakeholders in the process of making transport safer for women. As part of the initiative with Delhi Transport Corporation (DTC), 3600 drivers and conductors underwent the one-hour training module. A unique training method was used whereby drivers were made to sit in a bus and watch role-plays about how women experienced the bus ride. These role plays were used to initiate conversations about gender and sexual harassment (Jagori 2012). Since 2012, Manas Foundation, a mental health organization in Delhi, has taken forward this programme and have trained over 100,000 transport personnel including bus drivers and conductors, taxi drivers as well as auto-rickshaw drivers. This is in partnership with the Department of Transport who also certifies the drivers with stickers after they have undergone the training. They have three programs:

Building Bonds for Gender Sensitization is an initiative with drivers of public transport vehicles. It aims to enhance women's safety in Delhi by engaging men in gender justice. The Building Bond trainings sensitize all commercial vehicle drivers including auto-rickshaw, taxi and bus drivers in gender justice and equity through interactive workshops.

DTC Marshal Training: Under Manas' campaign 'Barabariki Dagar...Surakshit Safar', home guards deployed as marshals in DTC buses undergo gender sensitization trainings. Their role is to take appropriate action in case of an incident of sexual harassment in the bus.

After Training Support: A unique feature of Building Bonds is the Auto-Sahara and Taxi-Sahara helpline, a medium by which auto and taxi drivers can ask questions and receive responses on gender sensitive behaviour. This increases the possibility of a two-way dialogue on gender, and creates an ongoing engagement with the drivers. Drivers can call and share their concerns about gender-specific situations and challenges, which can be addressed aptly.

Source: (Manas Foundation 2012)



Figures 11 and 12: Gender sensitization training with DTC drivers and conductors

Recommendation 9: Make Intermediate Public Transport Safer for Women

Intermediate public transport (IPT) refers to vehicles like auto rickshaws, cycle rickshaws, vans, tempos, jeeps, private buses and private minibuses that operate on a metered, shared or per seat basis on routes operated by the private sector with intermediate stops. The service may or may not have a predefined fare structure.

The National Urban Transport Policy 2014 recommends employing police verified drivers in intermediate public transport. The Ministry of Road Transport and Highways (MoRTH) has made it mandatory for taxis across the country including app-based service providers to install GPS enabled panic devices which will transmit distress signals to the nearest police stations or police control rooms in case of any untoward situation. Further, it is mandatory for all taxis, including app-based service providers like Uber, Ola Cabs, Easy Cabs, Taxi for Sure etc., to display the vehicle number, driver's photo ID and license number both inside and outside the cab. The violation of guidelines will invoke strict action, including impounding of the vehicle.

IPT needs to be recognized as a transport service in our cities and regulated to provide safer travel for women. One of the major interventions for informal IPT modes will be to conduct regular gender sensitization trainings with the drivers (and conductors) to identify and address sexual harassment in their vehicles along with after-training support. The Regional Transport Organization (RTO) can mandate this when approving IPT routes and renewing licences. The challenge remains as to who will bear the cost of these periodic trainings. Membership-based organisations can play a key role in facilitating these. Additionally, IPT stands should be designed to provide sheltered, safe and well-lit waiting areas with signage and information on complaint and emergency helpline numbers.



Figure 13: More than 60% of rural and urban households use the auto-rickshaw, taxi, railways, bus and cycle rickshaw as their main modes of public transportation. (NSSO 2016)

Table 12: Indicators and benchmarks for intermediate public transport

Indicator	Measure	Recommended Benchmarks
Overall Journey		
1 Level of safety, comfort and convenience in the intermediate public transport journey, disaggregated by gender	Annual or bi-annual surveys to assess sexual harassment, comfort and convenience in the intermediate public transport journey i.e. from origin to shared IPT stop, waiting at the stop, boarding and alighting, traveling inside the vehicle and travel from IPT stop to destination. For direct auto-rickshaw or taxi services, travel inside the vehicle will be critical.	At least 80 per cent women and girls perceive the intermediate public transport journey to be safe, comfortable and convenient. (Each aspect is evaluated separately)
IPT Infrastructure		
2 Sheltered stops with consistent and adequate lighting	Percentage of sheltered stops with consistent lighting between 30-40 lux	All stops
IPT Vehicles and Drivers		
3 Intermediate public transport fleet	Percentage of intermediate public transport fleet with functional help line and emergency numbers and name and photograph of the driver published inside and outside the vehicle. The route maps must be shown where applicable (as in the case of mini buses etc.)	Entire intermediate public transport fleet
4 Drivers (and conductors) verified by the police	Percentage of drivers (and conductors) without criminal records, verified by the police	All drivers (and conductors)
5 Standard operating procedures	Standard operating procedures created for preventing and addressing sexual harassment	Standard operating procedures are created, which is a prerequisite for issuing permits
6 Drivers (and conductors) who have received gender sensitization trainings	Percentage of drivers (and conductors) who have received training on gender sensitization and standard operating procedures last year. This is accompanied with quarterly follow-ups to discuss challenges and share learnings	All drivers (and conductors)

Case: Kerala She-Taxi

In Kerala, She-Taxi, the all-woman taxi service is similar to other taxi aggregators but only hires women drivers. The vehicle is tracked by the Customer Care Centre with a GPS device. Police, relatives and friends of the passenger can also monitor the cab using the system. There are separate switches in the car for drivers and passengers to send distress signals to the centre. The service is initiated by the state social justice department, which started it under Gender Park, a new institution launched by the department to empower women through livelihood creation. The drivers own their vehicles. The drivers were selected by the Kerala Women's Development Corporation and given a loan to buy the vehicles at 7 per cent interest. Maruti supplied the cars at concessional rates and Rain Concert, an information technology firm, provides electronic security systems in the cars (She Taxi 2013).



Figure 14: The She-Taxi in Kerala is an all-woman taxi service, similar to other taxi aggregators but only hires women drivers

Several cities have also implemented or tried to implement women only vehicles. In Gurgaon, the pink autos launched in 2015 soon became inoperative, as women passengers preferred not to wait for infrequent services. The one place where it worked well for a while was at the HUDA City Centre metro station where there was a prepaid booth for these autos and women found them available. “Pink auto-rickshaws” have been started in Thane, Ghaziabad, Noida, Mumbai and Ranchi among other cities.



6. Conclusion and Way Forward

Women’s access and use of urban transportation will play a big role in achieving India’s sustainable development goals (SDGs) and ensure women’s right to the city and its public spaces.

This policy brief describes the issues underpinning women’s access to sustainable modes of transport, and the key actions to improve women’s safety, comfort and convenience in walking, cycling, public and intermediate public transport.

Since urban transport is not the responsibility of one ministry or department, gender inclusion will require interventions at multiple scales and coordination with a number of ministries and departments. The table below provides a broad overview of the key government institutions responsible for urban transport in India at the national, state and city levels and the potential role they can play in implementing the recommendations of this policy brief. They will not only have to work with the Police and with the ministries/departments responsible for women and child development to coordinate efforts, but also generate public awareness and initiate behavior change. Further, each institution will need to create a Gender Advisory Committee (GAC) to mainstream gender in transportation projects, policies and programs, monitor implementation, evaluate impact and implement a capacity building program.

Table 13: Institutions, responsibilities and potential role

Ministries/ Departments		Responsibility for Urban Transport	Potential Role
National			
1	Ministry of Road Transport and Highways	Frame policies, rules and standards to promote and regulate road transport in India.	Undertake gender budgeting and create gender responsive policies, processes, guidelines, indicators, service level benchmarks in road transport, railway infrastructure, urban development and housing. E.g. Indian Roads Congress Codes, Urban and Regional Development Plan Formulation and Implementation (URDPFI) Guidelines, National Urban Transport Policy. Incentivize states and cities to adopt the above through missions, schemes and grant allocations. E.g. Smart Cities Mission, AMRUT, GUMS
2	Ministry of Housing and Urban Affairs	Formulate policies, sponsor and support programs, coordinate the activities of various Central Ministries, State Governments and other nodal authorities, and monitor programs concerning all urban development issues in India.	
3	Ministry of Railways	Plan and operate the railways for passenger and freight transport.	

State			
4	State Transport Department	Formulate state-level urban transport policies; budget allocations.	<p>Formulate state-level gender responsive urban transport, development and housing policies within the overall national framework.</p> <p>Undertake gender budgeting to set priorities for all urban areas.</p> <p>Assess implementation progress and evaluate outcomes in all urban areas, annually.</p>
5	State Urban Development and Housing Department	Formulate state-level urban development and housing policies, legislation and schemes; budget allocations.	<p>Create and modify urban transport and planning legislation, rules, development control regulations. E.g. State town planning acts, building by-laws.</p> <p>Undertake capacity building, review and monitor progress of implementation.</p>
6	Public Works Department	Undertake street design projects.	Undertake street design projects using safety audits and levels of service analysis for non-motorized transport users.
City			
7	Unified Metropolitan Transport Authority	Plan for a metropolitan region's transport; facilitate implementation and coordination between different agencies.	<p>Integrate gender within a metropolitan region's mobility plan.</p> <p>Ensure co-ordination between different agencies.</p>
8	Urban Local Body/ Urban Development Authority	Create comprehensive mobility plan, master plan, street design guidelines; undertake street design projects.	<p>Integrate gender within a city's mobility plan and master plan.</p> <p>Implement urban transport and street design projects as per the city/ regional mobility plan and within the framework of state and national policies, guidelines and standards.</p> <p>Conduct gender sensitization trainings, public awareness programs, communication</p>

			<p>campaigns on sexual harassment.</p> <p>Recruit gender experts, and conduct capacity building of staff</p>
9	Public Transport Authority / Special Purpose Vehicle	Plan and/or operate public transport services.	<p>Undertake gender responsive route planning and operations, conduct safety audits, procure vehicles and create gender responsive employment policies.</p> <p>Conduct gender sensitization trainings, public awareness programs, communication campaigns.</p> <p>Recruit gender experts, and conduct capacity building of staff.</p>
10	Regional Transport Office	Approve and regulate driving licences and routes for intermediate para-transport.	Initiate verification of drivers and conductors of intermediate public transport vehicles, gender sensitization trainings.
11	Traffic Police	Manage traffic and enforce rules	Gender sensitization trainings and enforce rules to facilitate safer crossing for pedestrians and vulnerable road users.



Annexure

Table 14: Rationale for indicators for comprehensive mobility plans

Indicator	Measure	Recommended Benchmarks	Source
1	People near transport (PNT), disaggregated by gender	Percentage of women and girls living within 500m walking distance of public transport in the city and metropolitan region, with a frequency of at least 6 schedules per hour	<p>At least 80 percent of women and girls</p> <p>MoHUA has a service coverage indicator, which measures public transport availability as a percentage of the road network with a headway of 60 minutes or less.</p> <p>The critical factors for public transport patronage from a passenger perspective are service speed, frequency, connectivity and legibility (Dodson, et al. 2011). Passengers are likely to ‘forget the timetable’ for frequencies of 6 schedules per hour (10 minutes), though 12 schedules per hour is preferred (Thompson, Kooner and Massman 1976, Mees, A Very Public Solution: Transport in the Dispersed City 2000, Nielsen, et al. 2005, Mees, Transport for Suburbia: Beyond the Automobile Age 2010).</p>
2	Mode shares, disaggregated by gender	<p>Percentage of walking, cycling, public transport (buses and metro-rail separately), intermediate public transport, motorized two-wheeler and four wheeler trips by women and girls</p> <p>At least 80 per cent of all trips are by public and non-motorized transport</p> <p>At least 40 percent of all public and non-motorized transport trips are by women and girls</p>	<p>MoHUA does not recommend a benchmark for mode shares.</p> <p>D. Mahadevia 2015 recommends</p> <ul style="list-style-type: none"> • Non-motorized mode shares related to city size, varying from 75 per cent for a small sized city to 25 per cent for a mega city • Public transport mode shares related to city size, at least 50 per cent in a mega city to 25 per cent in a small sized city <p>These benchmarks do not specify gender disaggregated targets.</p> <p>According to a national level study by MoHUA (2008), at least 50 per cent of the trips in cities above 0.5 million and 75 per cent of the trips in metros were by public and non-motorized transport. Therefore the above mode shares are used as a basis for recommending the benchmark. Women and girls’ shares are recommended to be half of the desired goal.</p> <p>Since the goal of a city is to encourage sustainable modes of transport, a combined mode share of public and non-motorized transport is considered.</p>

3	Median non-motorized trip time, disaggregated by gender	Women and girls' median walking and cycling trip time	Women and girls' walking trips are less than 15 minutes Women and girls' cycling trips are less than 25 minutes	This indicator measures travel time to understand if women's travel exacerbates their time poverty.
4	Median motorized trip distances, disaggregated by gender	Women and girls' median motorized trip distances	Stabilized at 2017 levels or lesser	This indicator aims to understand two aspects: <ul style="list-style-type: none"> • Whether short trips, which could be made by walking or cycling are being made by motorized modes • Whether lack of public transport makes women use personal motorized modes for longer trips. The goal is to reduce the use of personal motor vehicles and stabilize trip distances by discouraging sprawl based development
5	Cost on transport per month	Monthly household expenditure on transport	Not more than 10 per cent for low-income households	D. Mahadevia 2015 recommends up to 10 per cent of household expenditure for low-income households.
6	State and city transport allocations and expenditures on transport	State and city transport budget that benefits women and girls		Specific allocations and expenditures in the state and city transport budget for women's safety in urban transport
7	Improved air quality	Reduction in air pollutants (to achieve CPCB ambient air quality norms) due to women and girls' use of sustainable transport	City achieves or exceeds air quality standards set by the CPCB. 50 percent of the reduction in air pollutants because of women and girls' use of sustainable modes of transport	National Ambient Air Quality standards established by the Central Pollution Control Board.

Table 15: Rationale for indicators for street network and pedestrian infrastructure

Indicator	Measure	Recommended Benchmarks	Source	
Street Network				
1	Median block length	Median block length bounded by publicly accessible roads on all sides	100 – 150m	Draft report of the National Mission for Sustainable Habitat
2	Level and perception of safety, comfort and convenience, disaggregated by gender	Experience and perception of safety, comfort and convenience of walking	At least 80 per cent of the street network is perceived to be safe, comfortable and convenient	This indicator evaluates the intended outcome i.e. creating safe, comfortable and convenient streets. Each must be evaluated separately. A third party should measure this.
Pedestrian Infrastructure				
3	Walking friendly streets	Percentage of city roads with right of way greater than 12m with universally accessible, shaded footpaths with minimum 3.5m width or Level of Service B (as per IRC 103: 2012 Guidelines for Pedestrian Facilities), whichever is greater Percentage of city roads with right of way less than 12m, with design speeds less than 30kmph	At least 80 per cent	Design guidelines as per IRC 103: 2012 Guidelines for Pedestrian Facilities. URDPFI Guidelines recommends maximum design speeds of 30 kmph for local streets.
4	Well-lit streets	Percentage of street network with uniform and consistent lighting for footpaths and cycling infrastructure • 25 lux for shopping areas • 30-40 lux for non-shopping areas	Entire street network	Design guidelines adapted from IRC 103: 2012 Guidelines for Pedestrian Facilities. Luminance recommended from 25-40 lux. UTTIPEC Street Design Guidelines recommend around 30 lux in non-shopping areas and 25 lux in shopping areas.

Table 16: Rationale for indicators for cycling network and infrastructure

Indicator	Measure	Recommended Benchmarks	Source	
Cycling Network and Infrastructure				
1	Streets with dedicated, continuous, even, shaded, well-lit cycle tracks without encroachment	Percentage of streets 20m and above with dedicated, continuous, even, shaded, well-lit cycle tracks without encroachment. The following are recommended: <ul style="list-style-type: none"> • Minimum 2m for one-way cycle tracks • Minimum 2.5m for one-way cycle tracks with cycle rickshaws • Minimum 3m for two-way combined cycle tracks 	At least 80 per cent	The draft report of the National Mission of Sustainable Habitat recommends a citywide cycle network of segregated lanes or traffic calmed streets that provide access to at least 80 per cent of built plots, while aiming for a 100 per cent.
2	Shared streets with traffic calming elements	Percentage of shared streets with design speeds less than 30kmph	At least 80 per cent	Refer above.

Table 17: Rationale for indicators for cycling network and infrastructure

Indicator	Measure	Recommended Benchmarks	Source	
Overall System				
1	Availability of buses	Number of buses per lakh population in the urban and peri-urban areas of the city/ metropolitan region. These must have at least 35 per cent seats reserved for women or as per demand in peak hours, whichever is more	At least 50 buses per lakh population	MoHUA recommends at least 40 buses per lakh population for a level of service 2. There are no recommendations for reserved seats for women. Cities reserve either front portion or one side of the bus for women. These vary by cities with 25 per cent in Delhi to 40 per cent in Pune.

				Reserved seats for senior citizens and persons with disabilities are additionally considered. Reserve the front portion of the bus for women, elderly and persons with disabilities, so that they can board and alight from the front.
2	Load factor of the bus	Ratio of the number of passengers in the bus to the capacity of the bus	Load factor should not exceed 100 per cent of the total capacity in peak hours	This indicator aims at addressing overcrowding in buses during the peak hours, which can be a disincentive for women to use public transport.
3	Level and perception of safety, comfort and convenience, disaggregated by gender	Experience and perception of safety, comfort and convenience of the public transport journey i.e. from origin to public transport stop, waiting at the stop, boarding and alighting, traveling inside the vehicle and travel from public transport stop to destination, conducted annually or bi-annually	At least 80 per cent of women and girls perceive the public transport journey to be safe, comfortable and convenient. (Each aspect must be evaluated separately)	This indicator evaluates the intended outcome i.e. creating safe, comfortable and convenient streets. (Each aspect must be evaluated separately).
4	Waiting time, disaggregated by gender	Women and girls' waiting time for public transport in peak and off-peak hours in urban and peri-urban areas of the city/metropolitan region	<5 minutes in peak hours <10 minutes in off peak hours	MoHUA defines average waiting time in peak hours with a maximum of 10 minutes for a level of service 4. This indicator focuses on peak and off-peak hours to assess waiting times. Since public transport services tend to vary significantly between urban and peri-urban areas, these are measured separately.
Infrastructure (Stations, Terminals, Interchanges)				
5	Universally accessible, sheltered stations	Percentage of sheltered stations/ stops with level boarding and alighting	At least 80 per cent of shelters/stations All terminals and interchange stations	Terminals and interchange stations are major hubs and therefore it is mandatory for them to provide shelter and be universally accessible.
6	Well-lit stations	Percentage of sheltered stations/ stops with uniform and consistent lighting of 30-40 lux	All stations	Well-lit stations are a critical component of creating a safe waiting area for public transport and therefore mandatory for all stations.

7	Information and communication	Percentage of stations with real time information, route maps, functional help line numbers and emergency numbers	All stations	Information on routes, stations, helpline and emergency numbers are critical and therefore mandatory for all stations.
8	Public toilets	Gender disaggregated data on availability of adequate and universally accessible public toilets within 250m walking distance of a public transport stop ³	Terminals Men: 4 water closets for first 1000 persons and 1 for every additional 1000 persons or part thereof Urinals: 6 urinals for every 1000 person and 1 for every additional 1000 persons or part thereof Women: 10 water closets for every 1000 persons and then 1 per 1000 persons after	Town and Country Planning Organization's Model Building by-laws 2016. This standard must be considered for intermediate public transport, where it serves equal or a majority of public transport trips.
			Within 250m walking distance of a public transport stop Men: 1 per 100-400 persons; For over 400 persons, add at the rate of 1 per 250 persons or part thereof. Urinals: 1 for 50 persons or part thereof Women: 2 for 100-200 persons; over 200 persons, add at the rate of 1 per 100 persons or part thereof	According to the TCPO, people, especially women and aged, are unlikely to use a toilet facility if it is beyond 500m. The preferable location shall be within 200-500m from the main entry of a building.
Vehicles				
9	Public transport fleet as per Urban Bus Specifications II	Percentage of the public transport fleet with space for persons on wheelchairs and strollers, lower grab bars, minimum 700mm gangway, doors with a clear width of at least 1000mm	Entire public transport fleet	Urban Bus Specifications II
10	Information and communication	Percentage of public transport fleet with route maps, functional help line numbers and emergency numbers and real time information	Entire public transport fleet	Information on routes, stations, helpline and emergency numbers are critical and therefore mandatory for the entire public transport fleet.

Table 18: Rationale for indicators for public transport authorities

Indicator	Measure	Recommended Benchmarks	Source
Employees			
1	Women employees in the public transport authority	Percentage of women employees in the public transport authority at different levels	At least 50 per cent women at junior, mid and senior management levels across different functions (For example drivers, conductors, depot managers, engineers, urban and transport planners etc) or reflecting the city's female population ratio, whichever is greater
			The city's female population ratio or 50 per cent, whichever is greater, is taken for gender parity within the public transport authority. The only cities with at least 1 planner per lakh of their population are Delhi, Chennai, Kolkata and Mumbai. Urban planners per 400,000 population India: 1 South Africa: 4 United States: 48 United Kingdom: 148 Source: (Nair, et al. 2016)
Trainings and Complaint Redressal			
2	Standard operating procedures	Standard operating procedures created for preventing and addressing sexual harassment	Public transport authority has created standard operating procedures, which is included in the core training curricula for drivers, conductors and depot managers
			(Akshara Centre 2016)
3	Drivers, conductors and depot managers, who have received gender sensitization trainings	Percentage of drivers, conductors and depot managers who have received training on gender sensitization and standard operating procedures annually, along with quarterly follow-ups to discuss challenges and share learnings	All drivers, conductors and depot managers
			Since change in human behavior and perceptions is a long term process, this indicator aims to ensure that drivers, conductors and depot managers receive gender sensitization trainings. This should be accompanied with support/follow-ups so that drivers, conductors and depot managers can discuss situations faced and how to take appropriate action
4	Complaints and redress mechanism is created	Gender disaggregated data on complaints filed and redressed by the public transport authority	At least 80 per cent of the complaints filed by men and women are addressed within 14 days
			This indicator aims to instill confidence amongst women and girls in complaint redressal by the public transport authority, which can encourage them to report complaints.

Table 19: Rationale for indicators for intermediate public transport

Indicator	Measure	Recommended Benchmarks	Source	
Overall Journey				
1	Level of safety, comfort and convenience in the intermediate public transport journey, disaggregated by gender	Annual or bi-annual surveys to assess sexual harassment, comfort and convenience in the intermediate public transport journey i.e. from origin to shared IPT stop, waiting at the stop, boarding and alighting, traveling inside the vehicle and travel from IPT stop to destination. For direct auto-rickshaw or taxi services, interaction with drivers and travel inside the vehicle will be critical.	At least 80 per cent women and girls perceive the intermediate public transport journey to be safe, comfortable and convenient. (Each aspect is evaluated separately)	This indicator evaluates the intended outcome i.e. creating safe, comfortable and convenient streets.
IPT Infrastructure				
2	Sheltered stops with consistent and adequate lighting	Percentage of sheltered stops with consistent lighting of 30-40 lux	All stops	Sheltered, well-lit stops are a critical component of creating a safe waiting area for intermediate public transport and therefore mandatory for all stops.
3	Intermediate public transport fleet	Percentage of intermediate public transport fleet with functional help line and emergency numbers and name and photograph of the driver published inside and outside the vehicle. The route maps must be shown where applicable (as in the case of mini buses etc.)	Entire intermediate public transport fleet	Information on routes and stations (where applicable), helpline and emergency numbers are critical and therefore mandatory for the entire intermediate public transport fleet.
4	Drivers (and conductors) verified by the police	Percentage of drivers (and conductors) without criminal records, verified by the police	All drivers (and conductors)	All drivers and conductors must be verified by the police to ensure that they do not have a prior criminal record.
5	Standard operating procedures	Standard operating procedures created for preventing and addressing sexual harassment	Standard operating procedures are created, which is a prerequisite for issuing permits	Since change in human behavior and perceptions is a long term process, these indicators aim to ensure that drivers (and conductors) recognize their role in enabling safer travel for women.
6	Drivers (and conductors) who have received gender sensitization trainings	Percentage of drivers (and conductors) who have received training on gender sensitization and standard operating procedures last year. This is accompanied with quarterly follow-ups to discuss challenges and share learnings	All drivers (and conductors)	

List of organisations that participated in the Gender and Transport roundtable

Akshara Centre	Janki Devi Memorial College (JDMC)
Asian Development Bank	KfW
Azad Foundation	Manas Foundation
Breakthrough	Oak foundation
Centre for Urban Equity (CUE)	Oasis Design
Confederate of Indian Industry (CII)	Observer Research Foundation (ORF)
Columbia Global Centre	Plan India
Cornell University	Sushant School of Art and Architecture, Ansal University
CORO	Tata Institute for Social Sciences (TISS)
Centre for Policy Research (CPR)	Toji Communication Consultancy
Centre for Road Research Institute in India (CRRI)	TRIPP-IIT Delhi
Centre for Women and Development Studies (CWDS)	UBER
Delhi University	UITP
DIMTS	UNDP
Hindustan Times	UNICEF
iTrans	World Bank
Jagori	World Resources Institute (WRI)

Definitions

Access /Accessibility: Facilities offered to people to reach social and economic opportunities, measured in terms of the time, money, discomfort and risks that are associated with reaching such opportunities.

Block: An area of contiguous land surrounded by publicly accessible streets (that may or may not be accessible by motor vehicles).

Bus rapid transport (BRT): High quality bus based transport system that delivers fast, comfortable, reliable and cost-effective urban mobility through the provision of segregated right-of-way infrastructure, rapid and frequent operations, and marketing and customer service.

Gender: is associated with the perceived differences between women and men and the unequal power relations based on these differences (Scott 1986). The distinction between sex and gender has been used by feminists to argue against the ‘biology is destiny’ argument. However, this ignores

individuals who identify as intersex, transgender, transsexual and *hijras*^[12], who do not fit neatly in these biological and social categories of men and women (Esplen and Jolly 2006). While this paper only focuses on male and female categories of gender, this limitation is acknowledged and indicated as a research gap.

Intermediate public transport (IPT): Public transport services provided by private operators and regulated by public agencies such as the RTO, auto-rickshaws and taxi services.

Mass rapid transport (MRT): A high quality public transport system characterized by high capacity, comfort, overall attractiveness, use of technology in passenger information systems, and ensuring reliability using dedicated right of way for transport vehicles (i.e. rail tracks or bus lanes).

Mobility: Conditions under which an individual is capable of moving in the urban environment.

Non-motorized transport (NMT): Walking, cycling, cycle rickshaw, pushcarts, and other forms of mobility that are powered by humans.

Public transport (PT): The term refers to mass rapid transport systems, publicly operated city bus services and intermediate public transport.

Sexual Harassment: It is defined as unwelcome behaviour of a sexual nature. (UN Women)

Sexual Violence: Any type of sexual contact or behaviour that occurs without the explicit consent of the recipient.

Sustainable transport: Broadly engages with the idea of enabling access through transportation systems that consider ecological (sustaining natural ecosystems and resources), economic (considering the environmental impacts of economic decisions) and social (ensuring equitable access and fair processes) goals (Hanson 2010, Bruntland Commission 1987, Lucas 2007).

Travel demand management: A mechanism to ensure the efficient use of street space and over time, through various mechanisms like congestion pricing, parking fees etc. to manage demand.

Violence against Women: The United Nations General Assembly (1993) defined violence against women as ‘any act of gender based violence that results in, or is likely to result in physical, sexual or psychological harm or suffering to women’(United Nations, 1993). It acknowledged that gender based violence was rooted in gender inequality and often served to enforce it (Heise, Ellsberg and Gottemoeller 1999).

Women’s safety: The United Nations General Assembly (1993) defined violence against women as ‘any act of gender based violence that results in, or is likely to result in physical, sexual or psychological harm or suffering to women’(United Nations, 1993). It acknowledged that gender based violence was rooted in gender inequality and often served to enforce it (Heise, Ellsberg and Gottemoeller 1999).

[12] Transgender population in South Asia is referred to as hijras.

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