

WOMEN AND URBAN TRANSPORT



Women and Urban Transport Draft Policy

Cover Photo: Women in Janmarg BRT, Ahmedabad

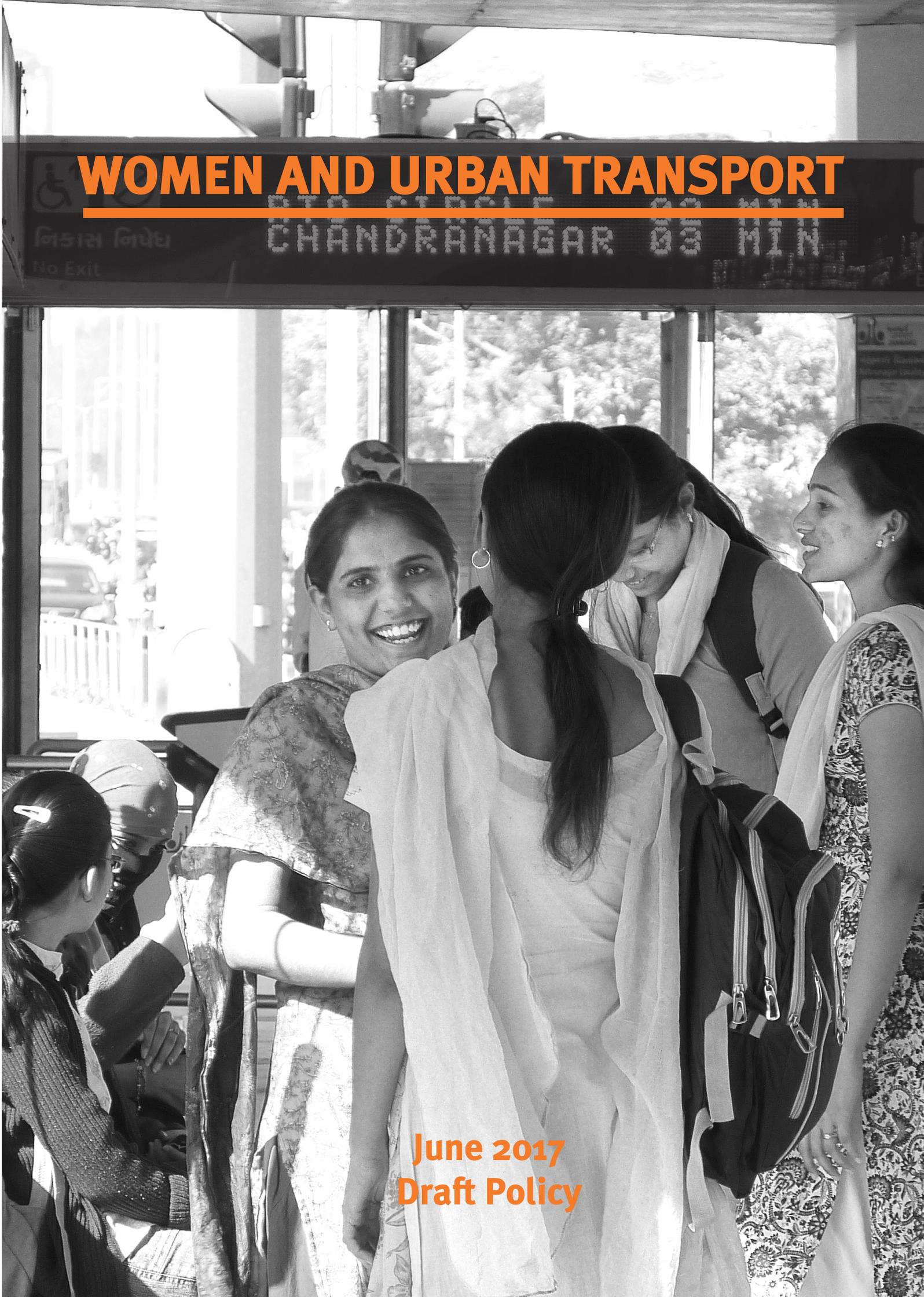
Cover Photo Credit: ITDP-India



WOMEN AND URBAN TRANSPORT

CHANDRANAGAR 03 MIN

June 2017
Draft Policy



Acknowledgements

We would like to thank the following peer reviewers for their comments and feedback:

Antara Ganguly, Gender and Development Specialist, UNICEF

Amit Bhatt, Strategy Head-Integrated Urban Transport, WRI

Dr Anvita Arora, Director, i-Trans

Ramon Cruz, International Policy Program Manager, ITDP

Authors

Sonal Shah

Kalpana Viswanath

Sonali Vyas

Shreya Gadepalli

Editing

Rekha Raghunathan

Layout

Nashwa Naushad



Photo by ITDP India



Photo by ITDP India

Table of Contents

Executive Summary	7
1. Introduction	9
2. Scope	10
3. Gender Dimensions of Urban Transport	11
3.1. Trip Patterns and Purpose	11
3.2. Modal Shares, Trip Distances and Time Poverty	11
3.3. Sexual Harassment	12
3.4. Employment	14
3.5. Urban Transport Functions	14
4. Policy Recommendations	16
4.1. Urban Transport and Development Policies	16
Recommendation 1: Create Gender Responsive Urban Transport Service Level Benchmarks	16
Recommendation 2: Mainstream Gender in Urban Transport Policies & Development Missions	17
4.2. Comprehensive Mobility Plans	19
Recommendation 3: Measure Gendered Mobility Patterns	19
Recommendation 4: Set Goals and Create a Mobility Plan Underpinning Women’s Concerns	20
Recommendation 5: Create an Institutional Framework for Implementation	20
Recommendation 6: Monitor and Evaluate	21
5. Modes of Transport	22
Recommendation 7: Create Safe and Comfortable Walking Environments for Women	22
Recommendation 8: Increase Women’s Cycling Shares	22
Recommendation 9: Increase Women’s Safety and Use of Public Transport	24
Recommendation 10: Engender Public Transport Institutions	28
Recommendation 11: Make Intermediate Public Transport Safer for Women	30
6. Conclusions	32
Definitions	33
List of Figures	34
List of Tables	34
Bibliography	35



Photo by Rajarshi Mitra

Executive Summary

By 2030, urban areas in India will constitute around 40% or 600 million of India's population. According to the High Powered Executive Committee (HPEC), around INR 23 lakh crores¹ is required over 2015–2030 for India's urban transport infrastructure. In 2017, the national government announced a Green Urban Mobility Scheme, which will invest around INR 70,000 crores² over 2018–2023 on sustainable transport.

While women constitute around half of India's population, their labour force participation in urban areas remains low at 15.5%. 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. However, our urban transport policies remain gender blind largely.

This policy brief aims to integrate women's use and perspectives in urban transport policies, programmes and projects in India. We recommend the following:

Recommendation 1: Create Gender Responsive Urban Transport Service Level Benchmarks

These should include the following:

1. Public transport: Gender disaggregated data for
 - Average waiting time for public transport users
 - Level of comfort in public transport
 - Incidents of sexual harassment in public transport (established through periodic surveys)
2. Pedestrian Infrastructure
 - Percentage of city covered with footpaths of a minimum width of 3.3m or Level of Service B (as per IRC 103: 2012 Guidelines for Pedestrian Facilities)³
 - Percentage of street network with uniform and consistent pedestrian lighting
3. Street Infrastructure
 - Median block face
 - Perception of safety (using safety audits)
4. Additionally, the following gender disaggregated outcome indicators should be included:
 - Modal shares
 - Median motorized trip distances
 - Median non-motorized trip distances and time
 - Persons near transit (PNT)
 - Jobs near transit (JNT)
 - Affordability

Recommendation 2: Mainstream Gender in Urban Transport Policies & Development Missions

- Measure women's use and assess their experience of the urban transport system;
- Increase their modal shares of walking, cycling and public transport;
- Enhance women's safety, convenience, comfort in the use of public spaces;
- Identify key metrics and indicators to monitor the city's goals;
- Allocate budget and create an institutional structure for implementation, monitoring and

¹ USD 490 billion at 2009-10 prices

² USD 10.9 billion at 2017 prices

³ Except local streets

evaluation;

- Initiate a capacity-building program.

Recommendation 3-6: Prepare and Implement Gendered Mobility Plans

- Measure gendered mobility patterns
- Set goals and create a mobility plan underpinning women's concerns
- Create an institutional framework for implementation
- Monitor and evaluate

Recommendation 7: Create Safe and Comfortable Walking Environments for Women

- Pedestrian infrastructure should be designed as per IRC 103: 2012 Guidelines for Pedestrian Facilities, which proposes three zones—a dead zone, a pedestrian zone and a multi-utility zone for footpaths along with a level of service approach for determining the width of footpaths.

Recommendation 8: Increase Women's Cycling Shares

- Create cycle tracks to provide safer cycling environments. These must be supplemented with advocacy programs to teach women how to ride and repair cycles.

Recommendation 9: Increase Women's Safety and Use of Public Transport

- Propose routes and operations that cater to destinations frequented by women such as schools, markets and time of travel. Include safety audits to improve last mile connectivity and to design and plan bus stops, train/metro stations, terminals and interchanges.
- Consider low floor buses with lower handlebars and wider gangways.
- Create communication campaigns to encourage women to report harassment, communicate a zero tolerance approach to harassment and encourage bystanders to assist harassed women.
- Provide real time and static passenger information as well as destinations frequented by women.

Recommendation 10: Engender Public Transport Institutions

- Create Safety Committees to define protocols to prevent and address sexual harassment in public transport vehicles.
- Recruit, retain and promote women at all levels within public transport authorities such that they at least mirror the city's women population ratio.
- Conduct gender sensitization trainings for drivers, conductors, depot managers and leadership.
- Create a capacity building program for planners and engineers for gender responsive planning, design, implementation, monitoring and evaluation of public transport services.

Recommendation 11: Make Intermediate Public Transport Safer for Women

- Conduct gender sensitization trainings with the drivers and conductors to identify and address sexual harassment in their vehicles. This can be mandated by the Regional Transport Organization (RTO), when approving IPT routes.
- Design IPT stands to provide sheltered, safe and well-lit waiting areas.

1. Introduction

In this decade, 865 million women will enter the workforce (Strategy & 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 workforce participation is only at 15.5% (MoSPI, 2014) and in fact, India's female labour force participation dropped by 19.2 million individuals between 2004-5 and 2011-12 (Andres, Dasgupta, Joseph, Abraham, & Correia, 2017). 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. 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).

In India, women's concerns in urban transport came to the fore primarily through the lens of safety since Jyoti Singh's death⁴ 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 announced and supplemented 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 cities⁵. 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 already underway prior to 2012, such as reserved seats for women and ladies special buses, coaches and trains at the city-level.

However, 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 & Tiwari, 2006). The Nirbhaya Fund is critiqued for its tardy utilization, and the service level benchmarks for urban transport remain gender blind. The Smart Cities Mission (MoUD, Smart City Features, 2017) and the recently announced Green Urban Mobility Scheme (MoUD, New Green Urban Mobility Scheme, 2016) do not include indicators such as increasing women's ridership and preventing and reducing incidents of sexual harassment in public transport, which could compel cities to improve their transportation systems for women's affordability, safety, accessibility and comfort. Gender is not a 'core competence' among urban local institutions or managers who remain primarily concerned with the provisioning of basic services. Besides, gender expertise is perceived to be within the domain of conventional women's programmes/agencies such as Women and Child Development (Khosla R., 2009).

In India's urban transition, women's mobility choices for work and care trips—walk, cycle, bus, auto-

⁴Jyoti Singh was a 23-year-old female, 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.

⁵ These are cities with a population of one million or more (as per the 2011 Census)

rickshaw or shared auto-rickshaw, cabs, two-wheeler or four-wheeler—will not only curb or exacerbate greenhouse gas emissions from transport, but also affect their access and right to the city. Therefore, this paper aims to integrate women and girls’ experiences and needs in national, state and local urban transport policies, programmes and projects in a fundamental way rather than as a special case.

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 paper focuses on urban transport as there is increased policy attention to the issue and there are no guidelines to address women’s needs in urban transport. It acknowledges that a gendered agenda is incomplete without including transgender persons, and more research is required to understand their issues, concerns and needs. 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, sexual harassment and employment in the transport sector.
- Section 4 outlines recommendations for national urban transport, planning policies and urban mobility plans.
- Section 5 makes specific recommendations to improve women’s’ shares and experiences of walking, cycling, and using public and intermediate public transport.
- Section 6 outlines broad conclusions and a way forward.

The recommendations are accompanied by case studies to highlight some Indian and global innovative 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 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 2016). This often makes it more costly for women to get around, since they may have to pay numerous single fare tickets during such a chained trip.

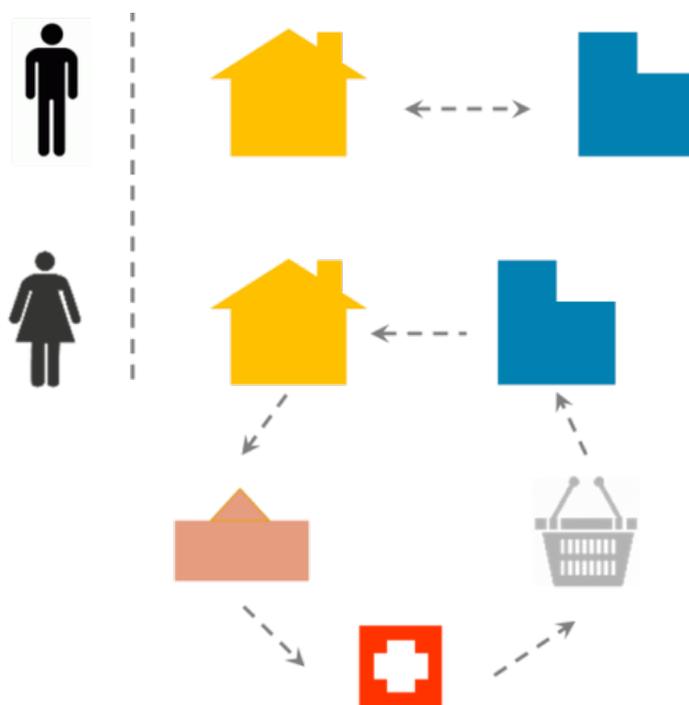


Figure 1: Trip Chaining as a Gendered Mode of Travel; Source: Sonal Shah

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 (GTZ 2007). In Visakhapatnam, while 39% of all trips were for work, only 11% of women's trips versus 62.7% 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% compared to just 5% for men (Anand & Tiwari, 2006).

3.2. Modal Shares, Trip Distances and Time Poverty

A gendered comparison of Census data (2011) for five cities⁶ on 'Travel to Place of Work for Other Workers' revealed that on average, 37% women walked to work compared to 27% of men. In Bangalore, 43% of women walked to work compared to 24% of men, whereas in Chennai, twice the number of women (34%) walked to work than men (16%). Similarly, in Ranchi, 59% women walked

⁶ Bangalore, Delhi, Kolkata, Mumbai and Chennai

to work whereas in Sanjay Camp in Delhi, 52% of women as compared to men 26% of men walked to work. However, though 21% of people used bicycles, women constituted only 2% and as pillion riders (Anand & Tiwari, 2006). Similarly, in Chennai, even with poor bicycling facilities, bicycling rates for low-income men were 8% compared to 1% for low-income women (Uteng & Cresswell, 2008). The difference in cycle use is explained by women's higher concern for safer riding environments and their inferior access to personal means of transport. 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'⁷ by their own children, as has been shown in Pune (Parisar & University of Pune, 2009).

While women's bus transport modal shares vary from 25% in Mumbai to 37% in Bhopal (DIMTS, 2012), women are more dependent on public transport than men are, especially when they are from lower-income groups. In Mumbai, it was observed that women made 45% more trips by bus than by train, which increased to 67% for households with incomes less than INR5000 per month (World Bank, 2011).

In Delhi, 34% of women commuted to work by bus compared to 25% of men, whereas the corresponding figures for Chennai were 34% (women) and 22% (men) (Census, 2011). Unfortunately, the off-peak and peripheral public transit 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. In Bhopal, the informal system carries more passengers (20%) than the formal public transport system (DIMTS, 2012). In Ranchi, 50% of all motorized trips are by shared auto-rickshaws (ITDP India, 2015). Due to the unregulated nature of this sector, it is characterized by affordable but poor quality of vehicles, unverified drivers and conductors, unpredictable schedules and a lack of accountability.

Women tend to take more and shorter trips at varied times, particularly during 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% of women worked within a 5km radius whereas 75% 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 & 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 in public spaces and public transport affects women's human rights and their ability to participate equally in the city.

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% of

⁷ Used as a term to connote that a woman has become "modern".

women said they had faced some form of sexual harassment in the past year (Jagori, 2010). The same study showed that 51% of women faced harassment inside public transport, and another 42% while waiting for public transport.

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

In a study done by Safe Safar with UCL, London in Lucknow, 88% 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 (BMTTC) 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. 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 both forced immobility and forced mobility. Forced immobility is when women and girls do not go out and curtail their movements due to fear. On the other hand, forced mobility is when women and girls have to undertake risks in movement because of lack of services, such as water and sanitation (Khosla & 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, & Thomas, 2009). In 2005, 6.85% of women were employed in the transportation sector in India compared to 19% of men. In Mumbai, according to a World Bank report, women constituted only 12.5% of the Brihanmumbai Electric Supply & Transport Undertaking or BEST Committee and 1% 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 & Shrivastava, 2017). Among other reasons, women drivers have often cited the lack of public toilet facilities as a barrier to taking up the job of driving. 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 with regards to its services and infrastructure.

3.5. Urban Transport Functions

Since urban transport is not the responsibility of one Ministry or Department, gender inclusion will require interventions at multiple scales and 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. They will have to work with the Police and with the Ministries/Departments responsible for women and child development.

Table 1: Institutions and Role in Urban Transport

	Ministries/ Departments	Priority	Role
National			
1	Ministry of Road Transport and Highways	India's road transport	Frame policies, rules and standards to promote and regulate road transport in India.
2	Ministry of Urban Development	India's urban development and transport	Formulate policies, sponsor and support programmes, coordinate the activities of various Central Ministries, State Governments and other nodal authorities, and monitor the programmes concerning all the issues of urban development in India.
3	Ministry of Railways	Rail passenger and freight transport	Plan and operate the railways for passenger and freight transport.
State			
4	State Transport Department	Urban transport	Formulate state-level urban transport policies; budget allocations.

5	State Urban Development and Housing Departments	Urban development and housing	Formulate state-level urban development and housing policies; budget allocations.
6	Public Works Department	Walking and cycling	Undertake street design projects.
City			
7	Unified Metropolitan Transport Authority	Urban transport	Plan for a metropolitan region's transport; facilitate implementation and coordination between different agencies.
8	Urban Local Body	Walking and cycling	Create street design guidelines; undertake street design projects.
9	Public Transport Authority / Special Purpose Vehicle	Public transport	Plan and/or operate public transport services.
10	Regional Transport Office	Intermediate Public Transport	Approve and regulate routes for IPT.
11	Traffic Police	Traffic management	Enforce traffic rules.

This section discusses 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, & 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 the women themselves (Phadke, Ranade, & Khan, 2009), and could result in restricting women's mobility or reflect a latent demand for trips not made. Similarly, peripheral areas often do not have affordable transport and access to water supply, sanitation and other social infrastructure, which increases women's household caretaking 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% of the trips in the centrally located slums were by non-motorized transport (NMT) modes compared to 73% in peripheral locations (Srinivasan, 2004). Therefore, policy recommendations must acknowledge the multiple dimensions shaping women's mobility.



ಶ್ರೀಮತರ ನಂಬಿಕೆಯನ್ನು ಪಡೆದಿರುವೆವು
ಪುಸ್ತಕಗಾರರು

M-TRAC

Activa



4. Policy Recommendations

4.1. Urban Transport and Development Policies

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

Recommendation 1:

Create Gender Responsive Urban Transport Service Level Benchmarks

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 (MoUD, SLB Focus Areas). The indicators should also include the following:

1. Public transport: Gender disaggregated data for
 - Average waiting time for public transport users
 - Level of comfort in public transport
 - Incidents of sexual harassment in public transport (established through periodic surveys)
2. Pedestrian infrastructure
 - Percentage of city covered with footpaths of a minimum width of 3.3m or Level of Service B (as per IRC 103: 2012 Guidelines for Pedestrian Facilities)⁸
 - Percentage of street network with uniform and consistent pedestrian lighting
3. Street Infrastructure
 - Median block face
 - Perception of safety (using safety audits)
4. Additionally, the following gender disaggregated outcome indicators should be included:
 - Modal shares
 - Median motorized trip distances
 - Median non-motorized trip distances and time
 - Persons near transit (PNT)
 - Jobs near transit (JNT)
 - Affordability

⁸ Except local streets

Recommendation 2:

Mainstream Gender in Urban Transport Policies and Development Missions

The vision of 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). The policy should adopt the gender responsive service level benchmarks for urban transport and recommendations for urban transport planning, infrastructure, public transport, non-motorized transport, financing, governance and capacity building, outlined in the following sections.

The Jawaharlal Nehru National Urban Renewal Mission (JnNURM) was launched over 2006–14 with the objective of investing in urban infrastructure, introducing governance reforms and providing basic services to the urban poor. Urban transport constituted 35% of all completed infrastructure projects and 27% of the expenditure (Jana, et al., 2015). However, the gender perspective within JnNURM was overlooked (Khosla R. , 2009). Similarly, the Smart Cities Mission 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 (MoUD, Smart City Features, 2017). MoUD is formulating the Green Urban Mobility Scheme (MoUD, New Green Urban Transport Scheme, 2016) which earmarks INR 70,000 crores for sustainable transport. Thus, there is an opportunity to mainstream gender in its formative stages in the aims and objectives, green mobility plans and evaluation criteria.

The Ministry of Urban Development (MoUD) should create guidelines for Gender Responsive Transportation Plans⁹ and encourage cities to adopt these through the national missions. The key elements of such a plan would be to:

- Measure women’s use and assess their experience of the urban transport system;
- Increase their modal shares of walking, cycling and public transport;
- Enhance women’s safety, convenience, comfort in the use of public spaces;
- Identify key metrics and indicators to monitor the city’s goals;
- Allocate budget and create an institutional structure for implementation, monitoring and evaluation;
- Initiate a capacity-building program.

⁹ The Asian Development Bank recommends creating a Safe City Plan (ADB, 2013).

Case: Women Friendly City Project, Seoul

In South Korea, the central government establishes basic guidelines, which are adopted by local governments to prepare detailed plans. Women-related policies in Seoul and the Women Friendly City program aimed to (i) address the needs of a diverse groups of women, (ii) their daily needs, (iii) and influence gender mainstreaming in other policies. According to an online survey, women experienced the most inconvenience in public restrooms, followed by public transportation, driving and parking, sidewalks, parks and public buildings.

The **Convenient Seoul** policy aims to improve women's accessibility to public places and mobility on public transportation. The Seoul metropolitan government increased the number of toilets in female restrooms in subway stations, newly-built performance centres, stadia and parks. It also installed diaper-changing tables and improved lighting in public restrooms. The government designated parking lots for women in public parking zones and installed more CCTV cameras. It lowered the height of the sidewalk ledge and installed hump-type crosswalks. For more convenient use of public transportation, the government lowered the knobs in buses and subways and installed transportation facilities to help women or the disabled. It promoted installation of ticket gates for baby carriages in subway stations. The Women Safety Brand Call Taxi project provides access to a safe taxi service at night. A phone service sends the plate number, departure time, and location via a text message to the family members of women who use the taxi at night. The city planning committee added more women committee members to encourage women's participation in policy-making.

Governance of the Women Friendly City Project

The Women Friendly City Project partner group consists of 187 members with women's civic groups, relevant officials of municipal government organisations and experts in various fields like women's issues, welfare, road, transportation, housing, architecture, city competitiveness and environment. Each department holds regular meetings, and works with officials in other relevant departments. The expert group provides advice from the planning stage to implementation and suggests new projects.

Education and Training for Government Officials

The Seoul Foundation of Women and Family (SFWF) developed the Women Friendly City Project manual, 'City Designed by Women: Transforming the City through Women's Eyes,' to help officials recognise gender issues in their work, and provide simulation practice sessions and cases from other countries. Additionally, the SFWF established an education programme for government officials and trained instructors for it. The programme consists of two parts. The first part is about gender mainstreaming in general. The second part consists of an action plan for the Women Friendly City Project, which introduces basic concepts and its practical application. Instructors are trained in gender based analysis, gender-sensitive budget and gender-disaggregated statistics. Experts in housing, roads, transportation, culture, environment and welfare also teach in the programme.

Challenges

The challenges include a lack of interest by some city departments, a need for accountability mechanisms that encourages voluntary participation and limited gender-planning competence of city officials and professionals.

Source: (UN Habitat, 2008)

4.2. Comprehensive Mobility Plans

Urban mobility plans need to adopt a holistic approach towards gender inclusion as outlined in Fig 1.

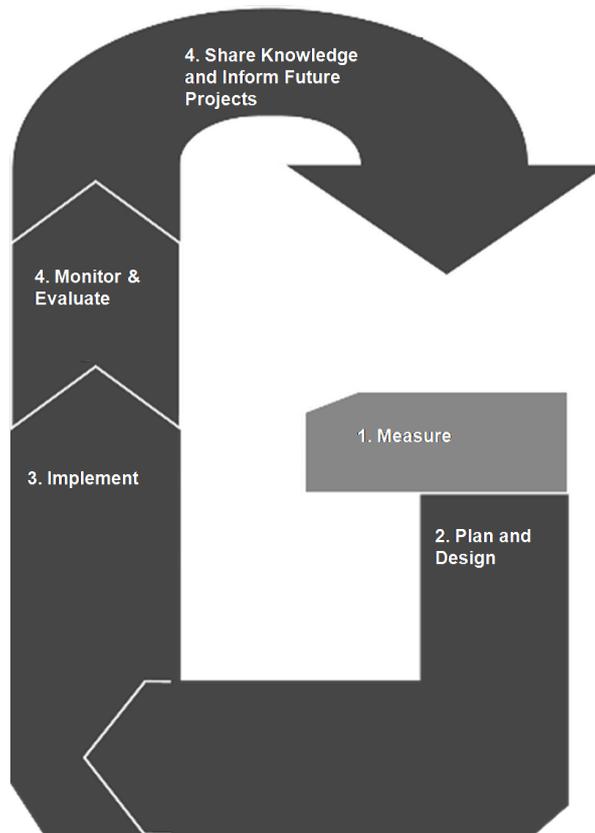


Figure 2: An approach to integrating gender in mobility plans; Adapted from ICRW

Recommendation 3: Measure Gendered Mobility Patterns

- Comprehensive mobility plans need to establish gendered mobility patterns such as trip chaining, modal shares, trip lengths, trip purposes, trip costs and travel times.
- Quantitative methods should be supported with qualitative experiences of different modes of transport with a specific focus on sexual harassment. These can be conducted through perception surveys, focus group discussions and safety audits.
- Gendered inequities in travel such as time poverty, travel costs, forced mobility and forced immobility need to be identified.
- Surveys with commuters, bus conductors and public transport officials should be conducted to understand their awareness of incidents of sexual harassment, and how it can be addressed.

Recommendation 4:

Set Goals and Create a Mobility Plan Underpinning Women's Concerns

- Identify goals and targets to increase women's modal shares in sustainable transport i.e. walking, cycling, public transport and travel demand management, and reduce women's experience of sexual harassment.
- Include women's safety and universal accessibility audits as an integral part of the transportation planning process – accessibility planning, bus/train/IPT stop, terminal and interchange designs.
- Organize inclusive consultations and design charrettes to incorporate women's perspectives in the planning and design process.

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 and may 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.
- Identify gender gaps, i.e. inequalities between women and men, which have to be considered in the outcomes and follow-up actions.

Source: Adapted from Local Government Participatory Practices Manual: A toolkit to support public participation. International Centre for Municipal Development, Federation of Canadian Municipalities, 2007.

Recommendation 5:

Create an Institutional Framework for Implementation

- Identify implementing agencies and departments along with nodal officers. Unified Metropolitan Transport Agencies (UMTA) can play this role in 1 million+ cities, whereas a multi-stakeholder committee under the state transport or urban development department, comprising of the Urban Local Body (ULB), Urban Development Authority (UDA), Traffic Police, Police and RTO can perform this role in smaller cities.
- Allocate budgets with clear phasing plans to facilitate timely implementation.

Recommendation 6: Monitor and Evaluate

- UMTA, ULB/UDA or multi-stakeholder committee should monitor the progress of the implementation.
- Periodic evaluations should be conducted to monitor progress of implementation and assess impact.

Case: Transport for London (TfL)

As women constitute 51% of London's population, it is important to address women's concerns and experiences in accessing public transport. In a study, it was found that women make more trips than men, mostly for work or to escort children, but in evenings, they felt vulnerable walking to their destination from the subway station/ bus stop. In its approach towards gender mainstreaming, Transport for London (TfL) held a consultation with 140 women's groups across London and constituted an Action Plan. This comprehensive plan is classified into five broad categories namely Accessibility, Safety and Security, Affordability, Information, and Employment. (Herbel & Gaines, 2009)

Action on Equality is a 4-year action plan formulated to promote equality and to enhance access to transport services and employment for diverse groups of people. This plan takes forward the initiatives noted under Single Equality Scheme (2012–15) i.e. accessible bus stops, legible maps, real time information on buses and equal opportunities for all the staff. The plan has set 11 equality goals that aim at safer and convenient public transport in London. Some of the initiatives under this plan include speedy customer service, priority seating, improved lighting around the bus stops, safer streets for pedestrians and cyclists, diverse workforce etc. TfL will also work with various youth groups to run campaigns and raise awareness on safer public transport, and review the campaign and initiatives of the goals annually.

Source: (Equality & Inclusion, 2016)

5. Modes of Transport

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

Recommendation 7:

Create Safe and Comfortable Walking Environments for Women

Since a greater proportion of women make walking trips, insufficient, unshaded and poorly maintained pedestrian infrastructure affects them to a greater degree than they do 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-utility 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.



Figure 3: Active edges and low compound walls; Source: WRI

Recommendation 8:

Increase Women's Cycling Shares

Since women express greater concern for safer cycling environments, this must be considered when planning for bicycling infrastructure. Painted cycle lanes are not recommended as they are prone to encroachment by on-street parking. Continuous, consistently shaded and well-lit, smooth cycle tracks are recommended where feasible and where demand is observed. Traffic calming of streets to regulate motor vehicle speeds to less than 40kmph is recommended on streets where cycle tracks are not feasible.

Case: Tamil Nadu and Bihar, India

Two states in India have had policies of providing girls with bicycles to improve their mobility—Tamil Nadu and Bihar. Tamil Nadu pioneered this initiative in 2010 and the state has given bicycles to over 300,000 girls who were in 11th and 12th standard. Similarly, Bihar introduced this scheme in 2012. Here, every 14-year old schoolgirl was given the money to buy a bicycle. This has led to a 30% increase in school enrolment of girls in just one year. 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. (How cycling set deprived Indian girls on a life-long journey, 2011)



Figure 4: Girls' Cycling Program in Bihar; Source: Bihar Education Project, East Champaran

Case: Santiago, Chile

In a survey conducted by the Ministry of Transport and Telecommunications in Santiago, it was observed that less than 20% of cyclists in the city were women. Women either didn't know how to ride or were afraid to use bicycles in the city. A local women's group, Macleta, initiated classes to encourage women to learn to ride bicycles. They had the 'Learn to pedal' course, which was for complete beginners, while 'Get off the sidewalk' aimed at women who knew how to ride a bicycle, but were too frightened to use it around the city. The city government has built an extensive network of cycle tracks. In addition, more than 40,000 people are seen cycling across the streets of Santiago every Sunday as part of the CiclRecreoVía initiative where city streets are closed to vehicular traffic and made available for walking, running, cycling and other social activities (Cycling in Santiago, 2014).

Recommendation 9: Increase Women's 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.

Route Planning and Operations

- 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 can 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.

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 specifically addresses women's limited access to safe and reliable transport by supporting a bus rapid transit (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:

- Reserve 20% of seats for women;
- Reserve and allocate at least 15% of the vendor area to women vendors;
- Provide subsidized monthly travel passes to 70% of garment workers (majority of whom are women);
- Employ at least 20% of women in BRT construction and maintenance work; and
- Ensure participation of at least 30% of women in the improvement of local markets and feeder roads for non-motorized transport.

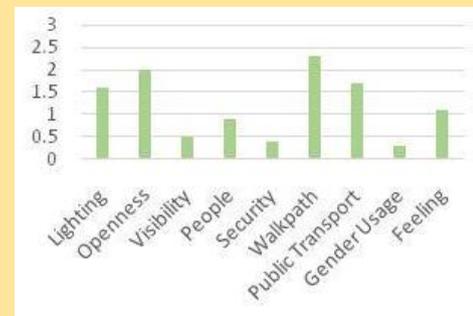
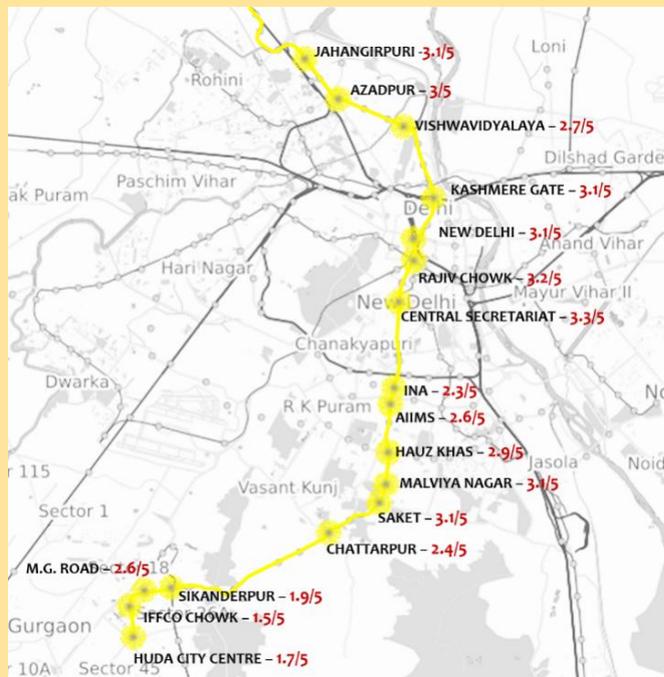
Source: (ADB, Bangladesh: Greater Dhaka Sustainable Urban Transport Project, 2012).

Infrastructure

- Assess women's experience of transport infrastructure such as bus/train shelters, IPT stands, terminals and multi-modal hubs or interchanges. Safety audits can be combined with levels of service analysis to illuminate the socio-spatial aspects that affect women.

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 a total of 1495 safety audits were generated using 'My Safetipin' and 'Safetipin Nite' applications. The audits were conducted in the evening hours between 5pm and 10pm for the 17 metro stations, to evaluate the level of safety and identify ways to improve it. The safety scores around each station can be seen in the map, and the graph shows the average rating of all the nine parameters (rated out of 3). The audits indicate that of the nine parameters, visibility, people, security and gender diversity are rated the poorest. Though the parameter of public transport at most of the stations are rated average, the last mile connectivity to the stations from one's residence/office continues to be poor on account of lack of paratransit (autos/shared autos/cycle-rickshaws) facilities.



Clockwise - Figure 5: Safety score along the Yellow Line of the Delhi Metro Rail corridor

Figure 6: Rating of safety parameters; Figure 7: Scores of safety parameters

Case: Toronto Transit Commission

Toronto Transit Commission (TTC) has been a pioneer in addressing women's safety concerns in public transport. In the late 80's, 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 provided 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 and bus stops made of glass to provide visibility to anyone walking by.



Figure 8: Designated Waiting Areas (DWA); Source: Toronto Transit Commission

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 supports, height of the floor 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. 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. In 2013, Mumbai Police introduced a helpline for women using public transport and they received 400 calls in the first two days. Gujarat State Transport also launched a helpline in 2013. While many of these are set up with great fanfare, they usually fizzle out due to poor implementation of the helpline. Also, many women are unaware of the helpline as they are not continuously advertised.

- Communication campaigns: Public transport authorities should create communication campaigns to encourage women to report incidents of harassment and encourage fellow passengers in assisting victims of sexual harassment. The Edmonton Transit Service in Canada adopted a zero tolerance approach to curb 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 Transit: A Concern for the City, 2016).
- 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 9: Gendered Signage; Source: Vienna Sees It Differently, <http://www.mrctv.org/>

- Information and Communication Technologies (ICT): ICT can be used to 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 GPS devices and CCTV cameras are being installed in buses, stations etc. From 1999–2001, around USD340 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 static information such as maps, which show destinations that are important to women namely amenities such as public toilets, markets, schools etc.

Recommendation 10:

Engender Public Transport Institutions

A gender audit of public transport authorities 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 and health and safety for women in the collective bargaining agreement, as well as leave for adoptive mothers.
- Have multi-stakeholder arrangements been created 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 and infrastructure.
- Have gender sensitization training of drivers, conductors, depot managers and other officials been conducted?
- Has the capacity of planners and engineers for gender inclusive planning, design, implementation, monitoring and evaluation of public transport services been built up? In the 1990s, the Toronto Transit Commission had gender experts to review station designs from a gender perspective, to incorporate these during the planning stage itself.

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), 3800 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. 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

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', gender sensitization training is being given to home guards that have been deployed as marshals in DTC buses. The key role of these home guards as marshals is to take appropriate action in case of any 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 peculiar situations and challenges that they may face that are gender-specific, and these are facilitated aptly.



Recommendation 11: Make Intermediate Public Transport Safer for Women

Intermediate public transport (IPT) refers to vehicles like auto rickshaws, cycle rickshaws, vans, tempos, jeeps, private city buses and private city 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.

One of the major interventions for informal IPT modes will be to conduct gender sensitization trainings with the drivers and conductors to identify and address sexual harassment in their vehicles. This can be mandated by the Regional Transport Organization (RTO) when approving IPT routes. The challenge remains as to who will bear the cost of these periodic trainings. Additionally, IPT stands will need to be designed to provide sheltered, safe and well-lit waiting areas.

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 always tracked by the Customer Care Centre with the help of a GPS device. Police, relatives and friends of the passenger can also monitor the cab using the system. Separate switches are provided in the car for drivers and passengers for sending distress signals to the centre. The service is an initiative of the state government's 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. They were selected by the Kerala Women's Development Corporation and given a loan to buy the vehicle at 7% interest. Maruti supplied the cars at concessional rates and Rain Concert, an IT firm at Technopark, takes care of the electronic security systems in the cars.



Figure 10: She-Taxis in Kerala; Source: <http://shetaxi.in>

Several other cities have also implemented or tried to implement women only vehicles. In Gurgaon, the pink autos were launched in 2015, but very soon became inoperative as there weren't enough of them, and the women passengers preferred not to wait. 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. They have been started in Thane, Ghaziabad, Noida, Mumbai and Ranchi among other cities.



Photo by Malcolm Payne

6. Conclusions

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 be taken to increase women's modal shares in walking, cycling and overall use of public transport.

Currently women's safety concerns are encapsulated under public spaces. One of the SDGs on gender aims to 'eliminate all forms of violence against all women and girls in the public and private spheres'. While this is true, we need to acknowledge the violence against women in transportation systems—when walking and cycling or accessing public transport stops/terminals, waiting at the bus stops, terminals and railway stations, boarding and alighting buses or trains, and travelling in these vehicles.

Further, women's groups, activists and professionals will need to ensure that women's concerns are not being pigeonholed while pursuing gender blind urban transport and development. At one level, higher educational institutions will need to equip themselves and their students in understanding the physical and social dimensions of how our cities are gendered. Simultaneously, urban transport and development authorities will need to build their capacity to understand the gendered dimensions of transport, and measure, plan, implement, monitor and evaluate gender inclusiveness of their plans and policies. This is to ensure that women's concerns are neither compartmentalized nor treated as special cases, but are an integral part of city design, planning and governance.



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 transit (BRT): High quality bus based transit 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*¹⁰, 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 transit (IPT): Public transit services provided by private operators and regulated by public agencies such as the RTO, auto-rickshaws and taxi services.

Mass rapid transit (MRT): A high quality public transit system characterized by high capacity, comfort, overall attractiveness, use of technology in passenger information systems, and ensuring reliability using dedicated right of way for transit 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 transit (PT): The term refers to mass rapid transit systems, publicly operated city bus services and intermediate public transit.

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.

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).

¹⁰ Transgender population in South Asia is referred to as *hijras*.

List of Figures

Figure 1: An approach to integrating gender in mobility plans; Adapted from ICRW	11
Figure 2: Active edges and low compound walls; Source: WRI	14
Figure 3: Girls' Cycling Program in Bihar; Source: Bihar Education Project, Champaran	15
Figure 4: Safety score along the Yellow Line of the Delhi Metro Rail	17
Figure 5: Rating of safety parameters	17
Figure 6: Scores of safety parameters	17
Figure 7: Designated Waiting Areas (DWA); Source: Toronto Transit Commission	18
Figure 8: Gendered Signage; Source: Vienna Sees It Differently, http://www.mrctv.org/	19
Figure 9: She-Taxis in Kerala; Source: http://shetaxi.in	22

List of Tables

Table 1: Institutions and Role in Urban Transport	7
---	---

Bibliography

- ADB. (2012). *Bangladesh: Greater Dhaka Sustainable Urban Transport Project*. Manila: ADB.
- ADB. (2013). *Gender Toolkit: Transport- Maximizing the Benefits of Improved Mobility for All*. Philippines: Asian Development Bank.
- Addressing Sexual Harassment on the Streets and on Transit: A Concern for the City*. (2016, April 19). Retrieved May 18, 2017, from Women's Initiative Edmonton : <http://womensinitiativeedmonton.ca/addressing-sexual-harassment-on-the-streets-and-on-transit-a-concern-for-the-city/>
- Akshara Centre. (2015). *Can we make our city safe for women? A Report on an experiment in Mumbai*. Mumbai: Akshara Centre.
- Allen, H., Vanderschuren, M., & Town, U. o. (2016). *Safe and Sound*. London: FIA Foundation.
- Anand, A., & Tiwari, G. (2006). A Gendered Perspective of the Shelter–Transport–Livelihoods Link: The Case of Poor Women in Delhi. *Transport Reviews* , 26 (1), 63-80.
- Andres, L. A., Dasgupta, B., Joseph, G., Abraham, V., & Correia, M. C. (2017). *Precarious drop: Reassessing patterns of female labor force participation in India*. Washington, D.C.: World Bank Group.
- Baxi, P. (2014). *Public Secrets of Law: Rape Trails in India*. New Delhi: Oxford University Press.
- Census. (2011). *B-28 'Other Workers' By Mode Of Travel To Place Of Work*. New Delhi: Office of the Registrar General & Census Commissioner, India.
- Cycling in Santiago*. (2014, August 09). Retrieved from Contact Chile: <http://www.contactchile.cl/en/santiago-blog/cycling-in-santiago---everything-you-need-to-know!-20140908>
- Davoudi, S., Crawford, J., & Mehmood, A. (2009). Introduction. In *Planning for Climate Change: Strategies for Mitigation and Adaptation for Spatial Planners*. London: Earthscan.
- Deccan Herald . (2013, October 07). *Two out of three women travelling in BMTC buses harassed*. Retrieved from Deccan Herald: <http://www.deccanherald.com/content/361794/039two-three-women-travelling-bmtc.html>
- Deike, P. (2011). *Gender and Sustainable Urban Mobility*. Nairobi: UNHS.
- DIMTS. (2012). *Draft Report on Comprehensive Mobility Plan for Bhopal*. Bhopal Municipal Corporation.
- Equality & Inclusion*. (2016). Retrieved from Transport for London: <https://tfl.gov.uk/corporate/about-tfl/corporate-and-social-responsibility/equality-and-inclusion#on-this-page-0>
- Esplen, E., & Jolly, S. (2006). *Gender and Sex: A sample of definitions*. University of Sussex, Institute of Development Studies. Brighton: Bridge (Gender and Development).

- Ewing, R., Bartholomew, K., Winkelman, S., Walters, J., & Chen, D. (2007). *Growing Cooler: The Evidence on Urban Development and Climate Change*. Chicago: Urban Land Institute.
- Gaikwadi, S. (2017, January 14). *Women safety: Maharashtra govt begins 'Tejaswini' buses during peak hours*. Retrieved June 7, 2017, from The Times of India Group: <http://timesofindia.indiatimes.com/city/pune/buses-set-to-get-safer-for-women/articleshow/56529463.cms>
- GoI. (2014). *Urban Transport*. New Delhi: Planning Commission: GoI.
- Heise, L., Ellsberg, M., & Gottemoeller, M. (1999). *Ending Violence Against Women*. Population Reports, Volume XXVII, Number 4, Series L, Number 11.
- Herbel, S., & Gaines, D. (2009). Women's Issues in Transportation - Summary of the 4th International Conference. *Volume 1: Conference Overview and Plenary Papers* (pp. 112-113). Irvine, California: Transportation Research Board of The National Academies.
- How cycling set deprived Indian girls on a life-long journey*. (2011, November 25). Retrieved from The Guardian: <https://www.theguardian.com/environment/bike-blog/2011/nov/25/cycling-indian-schoolgirls-bike-blog>
- ITDP India. (2015). *Mobility for All: A Strategic Transportation Plan for Ranchi*. Ranchi: ITDP India.
- Jagori. (2010). *A Baseline survey on women's safety of the nine districts of Delhi:2010*. New Delhi.
- Jana, A., Malladi, T., Anand, G., Anand, S., Bazaz, A., Bhan, G., et al. (2015). *Urban India 2015: Evidence*. Bangalore: IIHS.
- Kaul, K., & Shrivastava, S. (2017). *Safety of Women in Public Spaces in Delhi: Governance and Budgetary Challenges*. Delhi: Centre for Budget and Governance Accountability (CBGA) and Jagori.
- Khosla, P., & Dhar, S. (2013). Safe access to basic infrastructure: more than pipes and taps. In *Building Inclusive Cities: Women's Safety and Right to the City* (p. 117). London: Routledge.
- Khosla, R. (2009). *Addressing Gender Concerns in India's Urban Renewal Mission*. New Delhi: UNDP.
- Mahadevia, D. (2015). *Promoting Low Carbon Transport in India: Gender Sensitive Transport Planning for Cities in India*. New Delhi: Magnum Custom Publishing.
- MoSPI. (2014). *Women and Men in India (2014): Participation in Economy*. New Delhi.
- MoUD. (2014). *National Urban Transport Policy*. New Delhi: MoUD.
- MoUD. (2016, November 8). *New Green Urban Mobility Scheme*. Retrieved May 24, 2017, from Press Information Bureau: <http://pib.nic.in/newsite/PrintRelease.aspx?relid=153393>
- MoUD. (n.d.). *SLB Focus Areas*. Retrieved May 24, 2017, from Service Level Benchmarks | Urban Transport: <http://www.utbenchmark.in/#>
- MoUD. (2017, April 12). *Smart City Features*. Retrieved May 24, 2017, from Smart cities Mission:

<http://smartcities.gov.in/content/innerpage/smart-city-features.php>

Newman, P. (2009). Transitioning Away from Oil: A Transport Planning Case Study with Emphasis on US and Australian Cities. In S. Davoudi, J. Crawford, & A. Mehmood, *Planning for Climate Change: Strategies for Mitigation and Adaptation for Spatial Planners*. London: Earthscan.

Parisar, & University of Pune. (2009). *Women Bicyclists of Pune*. Pune: Parisar.

Phadke, S., Ranade, S., & Khan, S. (2009). Why Loiter? Radical Possibilities for Gendered Dissent. In M. Butcher, & S. Velayutham, *Dissent and Cultural Resistance in Asia's Cities* (pp. 185-203). London and New York: Routledge.

Safe Safar, Safetipin and UCL. (2014). *Study shows large scale sexual victimisation of women takes place on public transport in Lucknow*. Lucknow.

Sakhi. (2011). *Are cities in Kerala safe for Women? Research findings of the study conducted in Thiruvananthapuram and Kozhikode cities*. Thiruvananthapuram: SAKHI Women's Resource Centre.

Scott, J. (1986). Gender: A useful category of historical analysis. *American Historical Review*, 91, 1053-75.

Seoul Going Women Friendly. (2009, May 20). Retrieved from Korea Times:
http://koreatimes.co.kr/www/news/nation/2009/05/113_45305.html

Smaoun, S. (2000). *Violence Against Women in Urban Areas - An Analysis of the Problem from a Gender Perspective*. Nairobi: UNHABITAT Urban Management Programme Working Paper Series 17.

Srinivasan, S. (2004). Influence of Residential Location on Travel Behavior of Women in Chennai, India. *Research on Women's Issues in Transportation. Volume 2: Technical Papers*, pp. 4-13. Washington DC: TRB.

Strategy, & PwC. (2012). *Empowering the Third Billion: Women and the world of work in 2012*. Booz & Company.

Thomson Reuters Foundation. (2014, November 6). *Ranking the most dangerous transport systems for women in major cities*. Retrieved from Thomas Reuters:
<https://www.thomsonreuters.com/en/articles/2014/most-dangerous-transport-systems-for-women.html>

Transport for London (TFL). (2016). *Action on Equality*. London: TFL.

Turnbull, P., Lear, J., & Thomas, H. (2009). *Women in the Transport Sector*. Geneva: ILO.

UN Habitat. (2008). *Gender Mainstreaming in Local Authorities: Best Practices*. Nairobi: UN Habitat.

UN Habitat. (2008). *Gender Mainstreaming in Local Authorities-Best Practices*.

UNESCO. (2003, May 21). *Open Learning Communities*. Retrieved January 26, 2016, from
http://portal.unesco.org/ci/en/ev.php-URL_ID=3443&URL_DO=DO_TOPIC&URL_SECTION=201.html

UNSDSN. (n.d.). *United Nation*. Retrieved June 9, 2017, from Sustainable Development Knowledge Platform: <https://sustainabledevelopment.un.org/sdg11>

Uteng, T., & Cresswell, T. (2008). A spatial exploration of the accessibility of low-income women: Chengdu, China and Chennai, India. In S. Srinivasa, *Gendered Mobilities* (pp. 143-158). Avebury: Ashgate.

Welsh, B. C., & Farrington, D. P. (2008). *Effects of Closed Circuit Television Surveillance on Crime*. Campbell Systematic Reviews .

Women Friendly City Project. (2009). Retrieved from Women Friendly City: http://www.womenfriendlycity.or.kr/about/about_03.html

World Bank. (2011). *A Gender Assessment of Mumbai's Public Transport*. Washington DC: World Bank Group.

