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GENDER-SENSITIVE REFORMS IN PUBLIC TRANSPORT

A CASE OF KERALA

SOCIAL JUSTICE DEPARTMENT
Care, Protection & Empowerment

KMTA

GENDER-SENSITIVE REFORMS IN PUBLIC TRANSPORT

A CASE OF KERALA

IMPRINT

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FOREWORD

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02.12.2021

362/Prl.Secy/Dev/2021

FOREWORD

Greetings!

A city is truly developed when the women of the city can travel freely at any time of the day. However, women's mobility is often restricted because of unsafe transportation systems and first and last mile. This directly impacts women's access to various opportunities. Kerala is a front runner in taking up initiatives towards women empowerment and safety, and leads the country in social parameters such as sex ratio and female literacy, however, falls behind in female work force participation.

There is a need to develop adequate facilities for women passengers and staff, use technology and data to take informed decisions regarding planning and development of services and infrastructure. Complementary actions focussing on capacity building and awareness programs are also necessary towards a mind-set change. The Transport Department, Government of Kerala is moving towards a transitioning to electric mobility, and open mobility network, and would like to look at this transition as an opportunity to develop safe and secure transportation systems.

With these initiatives, I am very pleased to announce the launch of the report "Gender Sensitive Reforms in Public Transport- A Case of Kerala" developed by Transport Department, Government of Kerala with the support of the technical cooperation, Integrated Sustainable Urban Transport Systems for Smart Cities (SMART-SUT) of Deutsche Gesellschaft fuer Internationale Zusammenarbeit (GIZ) GmBH under the umbrella of Green Urban Mobility Partnership (GUMP). I truly believe that the implementation of the suggested reforms will lead to development of a women-centric transportation systems.

K.R. Jyothilal IAS

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FOREWORD

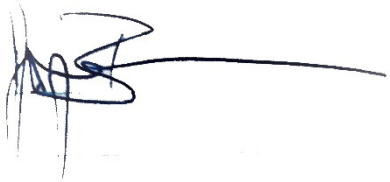
Juergen Baumann
Project Head, SMART-SUT (GIZ)

The SDG´s 5 and 11 of the 2030 agenda for Sustainable Development, adopted by United Nations Member States, aims at “Achieving Gender Equality and Empower All Women and Girls”; and “Make Cities and Human Settlements Inclusive, Safe, Resilient and Sustainable” respectively. Achieving these goals requires development of public transportation systems which are safe for women and caters to their needs. However, issues of harassment in transportation system and public spaces and inconvenient transport services make women feel vulnerable while travelling. These issues often result in restricted mobility and missed employment opportunities. The root cause of these issues is also the difference between women and men’s travel pattern, which is generally not captured.

We believe that a concerted effort towards

1. developing gender responsive infrastructure,
2. preparing mobility plans and master plans considering gender aspects,
3. sensitization of public and front-line staff,
4. women inclusion in transport sector, and
5. gender disaggregated data collection and analysis will be required to make transportation systems safer for women.

It has been a pleasure to support the Transport Department, Government of Kerala in developing reforms towards gender sensitive transportation systems, following which this report is being launched. We believe that this report will not only guide the cities of Kerala, but also other cities in moving towards women friendly transportation systems.



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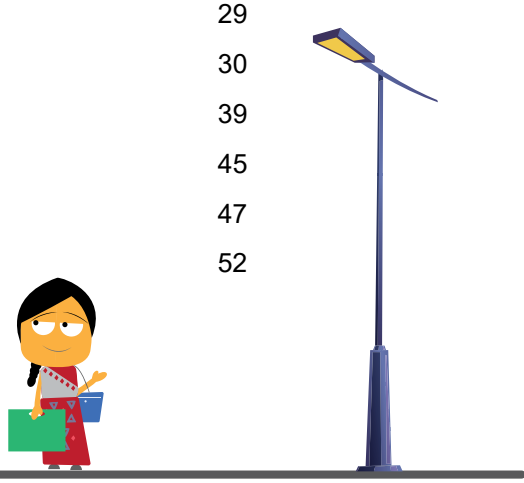

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LIST OF ABBREVIATIONS

FGD: Focus Group Discussion

CMP: Comprehensive Mobility Plan

DA: Development Authority

DNT: Developed Area near Transport

GAC: Gender Advisory Committee

GCDA: Greater Cochin Development Area

GEWE: Gender Equality and Women Empowerment

GSCC: Gender State Coordination Committee

GOK: Government of Kerala

HD: Home Department

IR: Indian Railways

KMRL: Kochi Metro Rail Limited

KMTCS: Kochi Metropolitan Transport Cooperative Society

KMTA: Kochi Metropolitan Transport Authority

KSJD: Kerala Social Justice Department

KSPBOF: Kerala State Private Bus Operators Federation

KSRTC: Kerala State Road Transport Corporation

KSTD: Kerala State Transport Department

KURTC: Kerala Urban Road Transport Corporation

LFPR: Labour Force Particiaption Rate

MTA: Metropolitan Transport Authority

MVD: Motor Vehicle Department

NHAI: National Highways Authority of India

ROA: Road Owning Agency

RDA: Road Development Agency

RTO: Regional Transport Office

SJD: Social Justice Department

SM: Suchitwa Mission

SMART-SUT: Sustainable Urban Transport Systems for Smart Cities

SHAI: State Highways Authority of India

SOP: Standard Operating Procedure

TCPD: Town and Country Planning Department

TD: Transport Department

TRIDA: Trivandrum Development Authority

TVC: Town Vending Committee

UBS: Urban Bus Specification

UNDP: United Nations Development Programme

VLT: Vehicle Location Tracking

WCD: Women and Child Development Department

1

INTRODUCTION

1.1 BACKGROUND

Differing social and economic roles taken up by women and men are reflected in their travel patterns. Short trip length, dependency on public and non-motorized transport, restricted travel times and trip chaining are general characteristics of a woman's travel pattern. Moreover, they decide the mode of travel bearing in mind the parameters such as affordability, coverage, frequency, safety and comfort. While this purports the need for gender-sensitive transportation systems, the planning approach in India uses standardized mobility solutions for men and women. Disaggregated data is rarely collected and analysed for transportation planning and operations. This has resulted in gender-neutral transportation systems. Further, under-representation of women in technical jobs of the sector is echoed in the infrastructure systems as well, which lacks women's perspective.

We acknowledge that non-binary folks, queers and people belonging to other minority genders also face challenges with regard to transport infrastructure designs. However, this report specifically addresses the issues faced by people who identify themselves as women.

IMPACT OF UNSAFE TRANSPORTATION SYSTEMS

Unsafe public transportation systems have often been identified as one of the barriers to women's participation in the labour force, in addition to domestic and childcare responsibilities.[1] In India, the state of Kerala leads the country in parameters such as sex ratio and female literacy rate, and leads the country in Human Development Index with a score of 80 (UNDP report 2018). While the female literacy rate of the state is the highest in the country with 92%, the female work force participation rate is only 20%, compared to 54% for men. Further, the wages for women for casual labour force is 46% lesser compared to that of men. Agricultural and specific service sectors see the highest female employment, whereas sectors with technical knowledge, such as electricity, water, transport, storage and communication, see the lowest female employment. Even with such high literacy rate, around 22 lakh women are job seekers (Kerala State Planning Board- Economic Review, 2020).

Figure 1: Gender employment disparity in Kerala

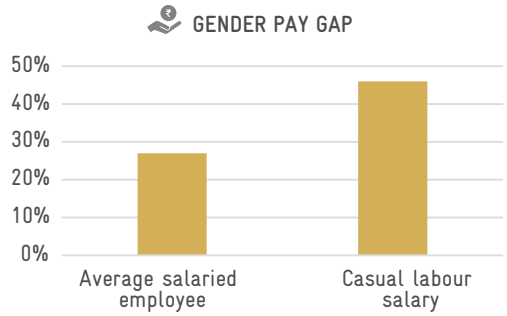


Figure 2: Gender pay gap in Kerala

A study conducted by Sakhi in 2010 for the cities of Kozhikode and Trivandrum suggests that 95–99% of the respondents had faced some sort of harassment. While a few of the respondents had discussed these issues with their family or had registered complaints, a majority of them took no action fearing restriction of mobility. Issues of unsafe transportation, inadequate accessibility and coverage have impacted women's mobility. While breaking the social and cultural barriers is dependent on multiple factors, public transport safety can always be improved, which may help several women take up missed opportunities.

[1] Closing the Gap: Gender, Transport and Employment in Mumbai: Policy Note 2021.

OBJECTIVE OF THE STUDY

Considering these factors, the Kerala State Transport Department (KSTD) initiated this study with the objective of improving women's safety in public transport with support of the Indo-German cooperation project 'Integrated Sustainable Urban Transport Systems for Smart Cities' (SMART-SUT) as part of the Indo-German Green Urban Mobility Partnership (GUMP) funded by the German Federal Ministry for Economic Cooperation and Development (BMZ) and jointly implemented by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH and the Ministry of Housing and Urban Affairs (MoHUA), India. The objective of this study is to strategize suitable actions which can be taken up by the Government of Kerala (GoK) for improving women's safety in public transport and increase women's ridership.

1.2 METHODOLOGY OF THE STUDY

This study aims to provide suggestions to the State Transport Department towards making transportation systems inclusive and safer. Qualitative and quantitative data have been collected towards this through various tools mentioned below to understand the issues and priorities of women towards safer transportation systems. Issues were identified through:

1. Assessment of the initiatives taken by the State Government
2. Stakeholders' consultation
3. Focus group discussion (FGDs) with different women groups
4. Perception surveys
5. Transport infrastructure assessment

Literature review and stakeholders' consultations were conducted to understand the initiatives taken up by the GoK concerning transport improvements, women's safety, and grievance redressal. The stakeholders consulted are:

1. Kerala State Road Transport Corporation (KSRTC)
2. Motor Vehicles Department (MVD)
3. Kerala Police department
4. Kerala Social Justice Department (KSJD)
5. Kerala Metro Rail Limited (KMRL)

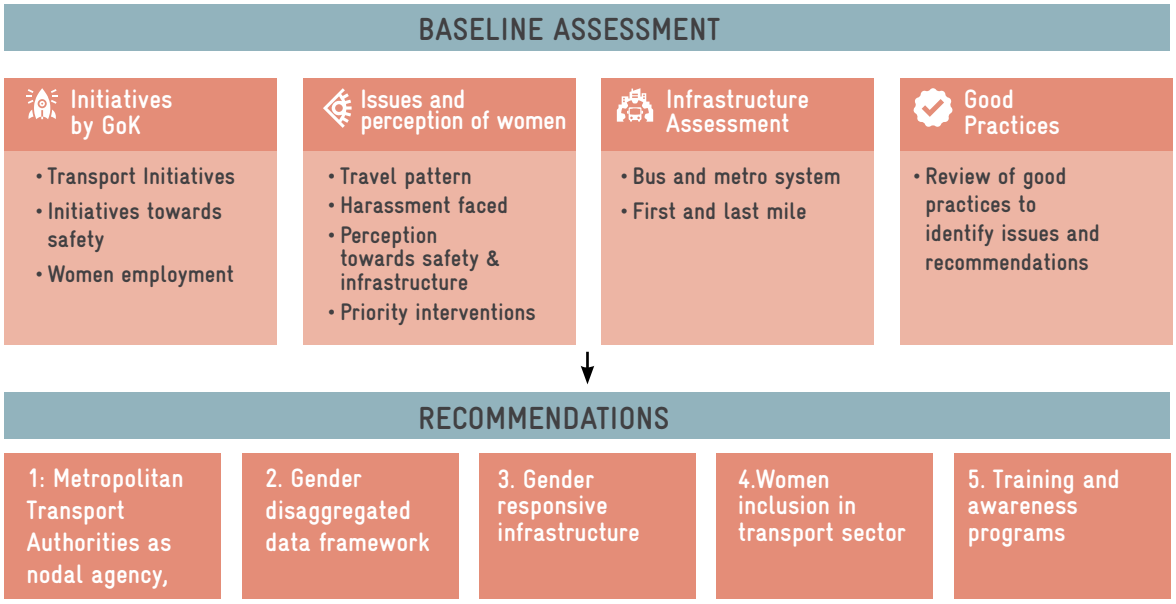


Figure 3: Broad methodology of the study

6. Kudumbasree[2]
7. NGOs such as Sakhi and Anweshi that work for women empowerment

The FGDs and online and offline perception survey were conducted in the three cities of Kochi, Trivandrum and Kozhikode to understand:

1. Issues faced by women in transportation systems—first and last mile, waiting at stops/terminals and inside the vehicle
2. Response towards harassment
3. Impact on travel behaviour
4. Feedback towards infrastructure
5. Travel pattern
6. Women's experience and perception of safety in public transport
7. Important public transport service quality attributes impacting women's safety and satisfaction

The FGDs were designed to understand women's perception towards the infrastructure for the bus systems, metro, paratransit and the first and last mile. The perception survey was designed based on the results of the FGDs which highlighted the issues in the bus system and the first and the last mile.

With respect to the infrastructure, an assessment of the bus system, metro systems, and the first and last mile infrastructure were undertaken through a female-centric lens to understand the issues women face while travelling. This included factors such as transport vehicles, bus stops, bus terminals, metro stations, and the first and last mile connectivity. For assessment, parameters such as the quality of facilities, lighting, seating, ease of movement, communication, visibility, information system, crime preventing designs, pedestrian movement etc. were analysed.

Measures taken up by cities across the globe and India were reviewed, to consider and frame suitable reforms for the identified issues.

[2] Kudumbasree is a society formed by the Government of Kerala towards poverty eradication and women empowerment.

2

INITIATIVES BY KERALA GOVERNMENT

The state is a front-runner in the country taking up measures towards women's equality and empowerment. With regard to transport initiatives, the State is moving towards developing an inclusive, sustainable and coordinated transport sector, in consonance with the Electric Vehicle Policy 2019 and Kerala Metropolitan Transport Authority Act 2019 Several initiatives are also being taken up by the Kerala Police to ensure women's safety in public spaces. However, one needs to acknowledge that women's safety in transportation systems is not the responsibility of a single agency, but of all agencies functioning towards 1) planning and implementation of transportation systems, 2) enforcement, 3) urban planning and 4) social development.

The Transport Department, Government of Kerala, which regulates and monitors all transport-related activities of the state, comprises para-statal agencies such as KSRTC, KMRL, State Water Transport Department and MVD. These agencies are responsible for the planning, designing, implementation and operations of the bus system, metro system and water transport, respectively. The MVD is responsible for regulating and monitoring the functions of the private bus operators and para-transit systems.

The Municipal Corporation with the Town Planning Department is responsible for the preparation of the development plans of the cities as per the Town and Country Planning Act of Kerala. These plans guide the development of the city in terms of land use, development regulations and road networks. The Municipal Corporation is also responsible for the development of streets, streetlights, footpaths and bus stops.

The KSJD works for the upliftment of the marginalized groups and to provide justice to the victimized. Kudumbasree is a society formed by the GoK for women empowerment and poverty eradication. Additionally, several NGOs are also functioning towards women empowerment and safety. The Kerala Police is responsible for law enforcement. The key initiatives undertaken by the various agencies are as given below.

2.1 KEY INITIATIVES AND GRIEVANCE REDRESSAL SYSTEM

INITIATIVES TOWARDS WOMEN SAFETY

1. Gender Equality and Women Empowerment Policy (GEWE Policy, 2014), Social Justice Department:

The objective of the GEWE Policy is to strengthen women's voice in decision-making, ensure women's access to the right to livelihood, develop gender-responsive infrastructure and instil cross-sectoral coordination, data collection and analysis.

The policy recommends the formation of a Gender Advisory Committee (GAC) for the supervision of overall implementation and monitoring of the GEWE Policy, and coordination and synergizing of the efforts of different entities. The GAC will be responsible for providing guidance as well as establishing norms for monitoring policy implementation. The Minister of Social Justice shall chair the GAC and work under the guidance of the Gender State Coordination Committee (GSCC). The GSCC shall review and inform key policy decisions and ensure synergies between different departments for effective implementation of the policy. It is also responsible for taking necessary action on key legal and policy issues and strategies to attain gender equality. The committee shall also review the allocation and utilization of funds to support gender equality.

While the gender advisory committee has been formed, there has been no translation of the policy in the transport sector.

2. Pink police patrol under Kerala Police and CCTV cameras installations:

Kerala Police has introduced Pink Police Control Room and Pink Police Patrol Vehicles in major cities of the state. Under

Pink patrols in Kerala

Night shelter facility at Thampanoor, Thiruvananthapuram

the initiative, the pink patrol teams are equipped with GPS tracking devices and cameras. The patrols are operated by specially trained women police personnel and are monitored through the pink control room, which is under the control of the district police chief and the Assistant Commissioner of Police. As per standard operating procedures, in case of any complaint received at the control room or any issue noticed while patrolling, suitable actions are to be taken by the personnel to stop the harassment on-site and if the action is beyond the control of the pink vehicle, then the same is to be informed to the nearest concerned police station. The patrol is deployed in areas with a high presence of women and functions from 8 am to 8 pm. Significant reduction of crimes against women in public places has been reported by police officials after the implementation of these initiatives. However, the number of patrols deployed currently is found to be inadequate as per the safety audit of streets conducted by Safetipin in 2017.

CCTV cameras have also been installed at several places to monitor the activities. Apart from monitoring public spaces, the pink patrol also keeps an eye inside the public buses and at bus stops to check anti-social activities.

3. Ente Koodu (My Nest):

The KSJD has come up with the scheme Ente Koodu. Under the scheme, women and children can avail free night shelter facilities from 5pm to 7am. The facility has currently been developed at one of the bus terminals at Thampanoor, in Thiruvananthapuram, and is expected to be developed in other terminals as well. The facility at Thampanoor can accommodate up to 50 people and is equipped with AC rooms, locker facilities, free food, television, washing machine and kitchen.

4. Nirbhaya and Raksha App by Kerala Police:

The Raksha app developed by Kerala Police provides emergency contacts, email-ids and contact details of all relevant police officials. The app also has a provision for finding the nearest police station and contacting them based on the user's geolocation. The Nirbhaya App allows the user to send messages and share their locations with police without internet coverage as well. The app also has the provision of one-click sharing of photos and videos.

TRANSPORT-RELATED INITIATIVES

5. Constitution of Kochi Metropolitan Transport Authority (KMTA):

KMTA has been recently constituted as per the Kerala Metropolitan Transport Authority Act 2019. The Act identifies the urban extent of Kochi, Trivandrum and Kozhikode for the formation of MTAs. The authority is envisaged to be an umbrella body that will be responsible for the development, operation, maintenance, monitoring and supervision of urban transport systems in these areas. The authority

is responsible for strategic policy formulation for the improvement of transportation systems in mobility areas. Given the mandate and the role of authority, KMTA becomes a suitable agency that can coordinate with various agencies for actions towards gender equality in transportation systems.

6. Formation of K-SWIFT:

K-SWIFT is a transport company, expected to be approved and formed soon, under The Companies Act. The formation of the company envisages the separation of city bus service and long-distance routes, adoption of technology such as GPS-based tracking, new electronic ticketing machines (ETMs) and clean fuel buses as per the Electric Vehicle (EV) Policy 2019. This transition can be looked at as an opportunity for transforming the sector and developing a women-friendly transport system.

7. GPS-enabled panic buttons / control centre SURAKSHA-MITR/ real time information

As per the mandate of the Ministry of Road, Transport and Highways, all public transport vehicles will have to be fitted with Vehicle Location Tracking (VLT) and panic buttons. The private buses in Kerala have installed VLT and panic buttons. These buses are tracked on real-time data through a recently developed control centre, SURAKSHA-MITR, developed by the MVD. KSRTC has now collaborated with MVD, to track KSRTC buses, generate reports on vehicle utilization and receive information on the estimated time of arrival and departure at various bus stops. Regarding this, KSRTC is in the process of procuring VLT devices for the buses with 6 panic buttons for each bus, and passenger information system for bus stops and terminals. This will allow KSRTC and MVD to monitor the fleet utilization, bus stops skipped and the delays in the schedule.

WOMEN EMPLOYMENT IN THE TRANSPORT SECTOR

8. Facility management centre (FMC):

Kudumbasree, a society formed by the GoK for women empowerment, has created facility management centre, which collaborates with public and private agencies to provide various services. The result of this initiative is:

a. Women workforce participation at various levels in the transport sector

b. Well-maintained facilities

KMRL and Vytilla Mobility Hub have collaborated with FMC for services related to ticketing, customer care, housekeeping and security. Currently, KMRL has employed 780 women through FMC, and Vytilla Mobility Hub has employed 48 women.

Women at KMRL employed through Kudumbasree (Source: KMRL)

Vytilla Mobility Hub: Maintenance and security services by women through Kudumbasree

9. Women drivers and conductors in KSRTC:

Since 1992, KSRTC has started giving equal opportunities to women and men for the role of conductors and drivers. Women with the requisite qualification (i.e., for Driver: minimum 10th class pass and with Heavy Motor Vehicle license with three years driving experience; and for Conductor: minimum 10th class pass with the recognized board; age limit: 17–42 years) are given equal opportunity. Currently, KSRTC has about 15% female conductors, and 1 female driver.

10. She taxi/ She autos/ Nirbhaya autos and taxi:

KSJD and Kudumbasree have come up with an initiative to promote women drivers for autos and taxis in Kochi, Trivandrum and Kozhikode. KSJD and Kudumbasree provide support to women in learning how to drive and how to buy an auto or taxi. Kerala Police has introduced Nirbhaya auto and taxi, which facilitate travel for women freely at night. Under this scheme, a selected number of autorickshaws / taxis will be identified through a rigorous selection and verification process and they will be designated as Nirbhaya Autos / Taxis in all the stands. To identify women-friendly autorickshaws, the facility will have large stickers which will be displayed as the logo of the service, with the name Nirbhaya Auto / Taxi, as displayed in the pictures.

Women-driven taxi, trained by Kudumbasree, KSJD

Women auto drivers for safer last mile (Source: Firstpost)

11. Training and awareness campaigns:

Kudumbasree, KSJD, Kerala Resource Centre and several NGOs in Kerala are involved in creating awareness about crimes against women and their impact. Several trainings are also conducted by these agencies to sensitize the behaviour patterns of frontline workers, such as bus drivers, conductors and police officials, towards women. In KSRTC, all the newly inducted drivers and conductors are mandated to undergo a two-day training, in which a two-hour slot is arranged specifically for gender sensitization and behavioural aspects. The gender sensitization trainings are generally provided by social workers from KSJD/ Kerala Resource Centre or NGO in women empowerment.

GRIEVANCE REDRESSAL SYSTEM

For women passengers in KSRTC and KMRL, a grievance redressal system has been set up, which is as follows:

1. In case of any issue within vehicles not involving the frontline staff, the conductor must immediately assist the passenger to report the complaint at the nearest police station. If the conductor fails to do so, then suitable action shall be taken on the conductor.
2. In case of any complaint against a conductor or driver, he/she must be terminated immediately.

2.2 KEY LEARNINGS

1. GoK has taken several initiatives towards the planning of better transportation services, and improving women's safety and security.

2. Initiatives have been taken to make first and last mile, and travel inside the vehicle safer through the deployment of Pink Patrols, and technology initiatives such as GPS-based panic buttons. Initiatives are also being taken to increase women's employment as frontline staff. However, the availability of patrols and women staff is limited. There is a need to take evidence-based decisions for the deployment of these limited resources.
3. Kudumbasree and the Social Justice Department are working extensively towards women's safety and to include them in various fields, including the transportation sector. Further, collaborations between Kudumbasree and transport agencies can be envisaged to increase women's participation in the transport sector and towards undertaking training and awareness programmes.
4. Kerala Police has also taken initiatives to include women and local people for women's safety. However, necessary steps need to be taken to make the process of reporting simpler and easier for the passengers. Currently, the process is deemed to be long and arduous.
5. Further, there needs to be a comprehensive process of recording data on complaints regarding sexual harassment in transport systems, analysis of which can indicate suitable interventions.
6. The State is moving towards developing an inclusive, sustainable and coordinated transport sector, in line with the Electric Vehicle Policy and Kerala Metropolitan Transport Authority Act. These policy changes envisage the development of mobility plans, procurement of new buses, and development of new infrastructure systems. This can be looked at as an opportunity for transforming the sector and developing a women-centric transport system.
7. The formation of KMTA, formed under the Kerala Metropolitan Transport Authority Act, can act as a nodal agency to take up all functions of gender mainstreaming in the transport sector, given its role and mandate as per the Act, and the representation of the authority it has.

3

FOCUS GROUP DISCUSSIONS AND PERCEPTION SURVEY

To understand the issues that women face while travelling in transportation systems, Focus Group Discussions (FGDs) and perception surveys were undertaken in three cities of the state—Trivandrum, Ernakulum and Kozhikode. The FGDs were conducted in February 2020, and the perception survey in October-November 2020. Both online and offline perception surveys were conducted; however, the online surveys did not yield any results as only 60 samples were recorded. Since most of the samples were incomplete, online data had to be discarded.

3.1 FOCUS GROUP DISCUSSIONS

FGD saw the participation of 120 females in Trivandrum, 54 in Ernakulum and 145 in Calicut, comprising female students, scholars, working women and Kudumbasree women. The objective of these FGD was to understand the issues faced by women while travelling in transportation systems and the impact of these issues on their travel behaviour, and collect feedback towards infrastructure.

Focus Group Discussion in progress in the three cities

KEY FINDINGS OF THE FGDS

- No issues were highlighted during discussions regarding the metro rail system in terms of safety or infrastructure. The infrastructure for the metro rail system was highly appreciated.
- Concerns regarding expensive fares were reported for the IPT system.
- The women felt most unsafe while walking the first and last mile, waiting at the bus stops and while travelling in crowded and empty busses. The first and last mile is felt unsafe because of the deserted streets and the low presence of women on the street. Traditionally, in the cities of Kerala, very few people are seen on the streets after dark, especially women.

The issues highlighted by the women about last mile connectivity, waiting at bus stops and experiences while travelling by bus are as given below:

3.2 PERCEPTION SURVEYS

The perception survey was undertaken in three cities:

1. To understand the travel pattern of women across different age groups
2. To generate quantitative evidence to understand women's experience and perception of safety in public transport
3. To identify the important public transport service quality attributes impacting women's safety and their satisfaction

A total of 1,233 samples were collected in this study. Of these, 409 were of female participants from Ernakulam, 410 from Kozhikode and 414 from Trivandrum. Women participants were randomly selected from near bus stops and different places in the city to ensure inclusion from

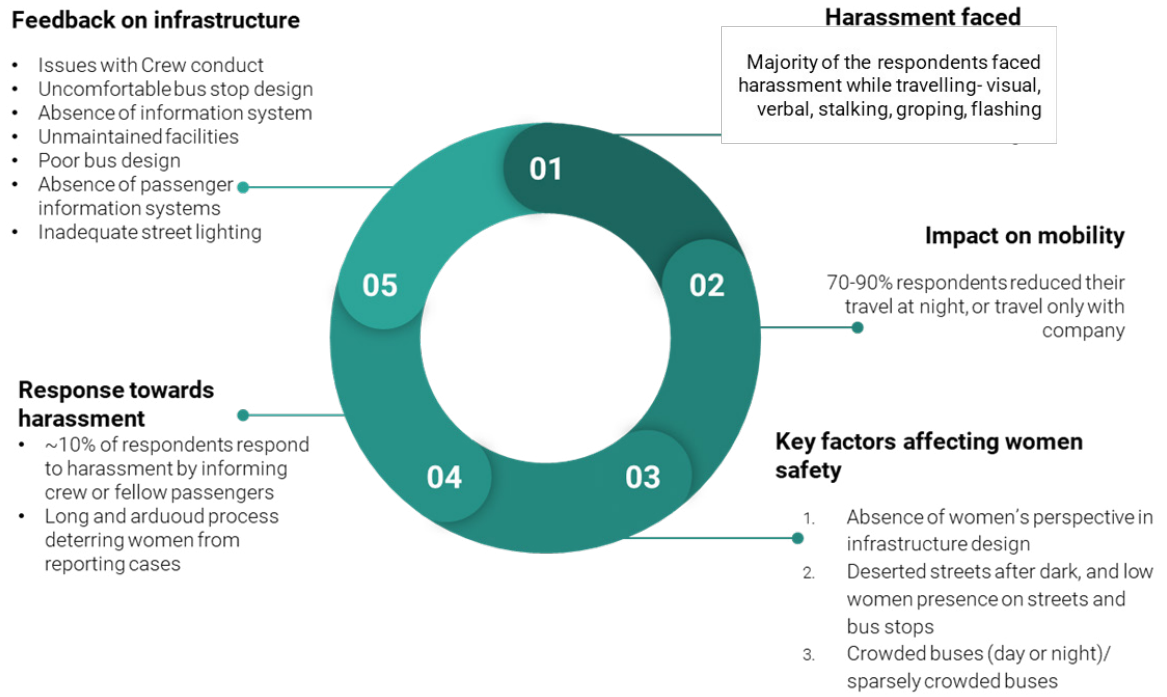


Figure 4: Key outcomes of the FGDs

different socio-economic and educational backgrounds. Descriptive statistics were used to investigate the overall perception of women towards safety during the day and the night time, and were compared across cities. Weighted scores and importance-satisfaction analysis were conducted to identify priorities that would improve women's safety at different stages of bus travel. The study also quantifies factors contributing to the level of safety during the day, at night and at three stages of the bus journey, i.e., travel to and from the bus stop, waiting at the bus stop, and boarding, alighting and travel in the buses. The study also identifies parameters at every stage of the journey that could influence and increase their safety. The results of the perception survey have been used for arriving at the key recommendations for the study.

Women conducting perception surveys in the three cities

KEY FINDINGS OF PERCEPTION STUDY

More than 50% of the respondents in three cities were within the age group of 18–31 years. Compared to this, only 16% of the female population in the State falls within the age category of 18–31years as per Census 2011. Of those interviewed in the age group of 18–24 years, 72% were students. Among the women surveyed, 12% were above the age of 45 years, as opposed to 31% in the state. This shows that women within the age group 8–31 venture out more than the others.

In terms of educational background, most women participants (29%) had education till undergraduate degree or up to 12th standard (21%). In Trivandrum, 38% of the participants had undergraduate degrees, and 22% had education up to 12th standard. Similar results were observed in both Kozhikode and Ernakulam cities. Among the survey respondents, the top three primary occupations are regular salaried employment (28%), students (23%) and homemakers (17%).

In terms of travel in public transport, the mode share for private buses and public buses is the same, i.e., 43%. However, variation in the use of buses can be observed while comparing cities. In Trivandrum, 74% of respondents use public buses while only 20% use private buses. However, in Kozhikode and Ernakulam, twice the number of women use private buses as compared to public buses. *This is mainly due to the limited presence of public buses in Kochi and Kozhikode- further necessitating the need for regulated and safer journeys in private buses.*

Most women travel for work (61%), followed by purposes of education (18%), and

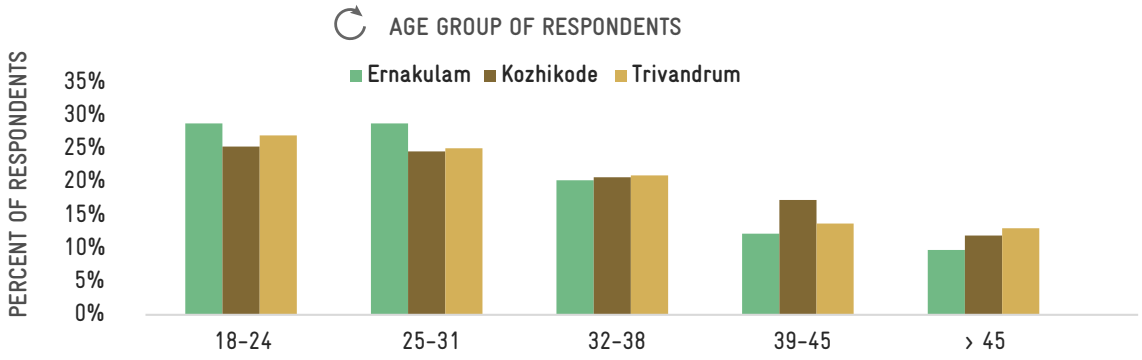


Figure 5: Age group of the respondents

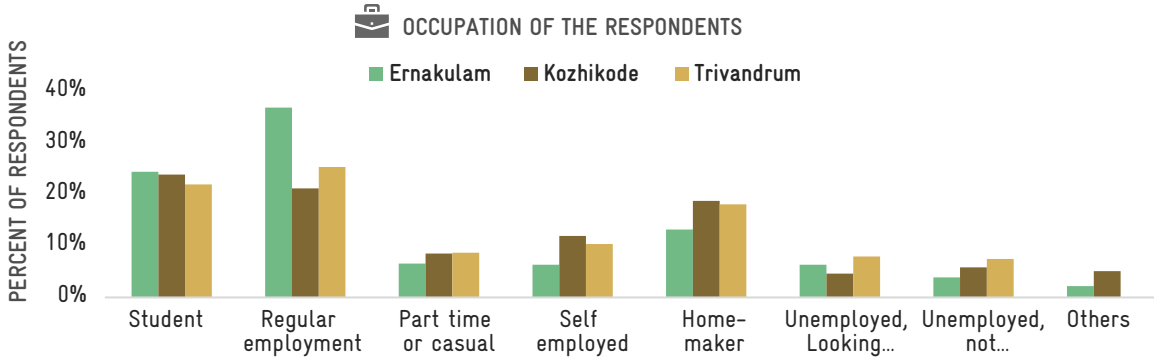
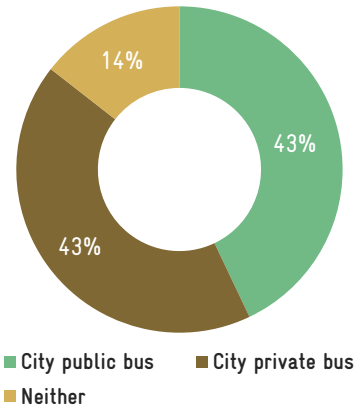


Figure 6: Occupation of the respondents



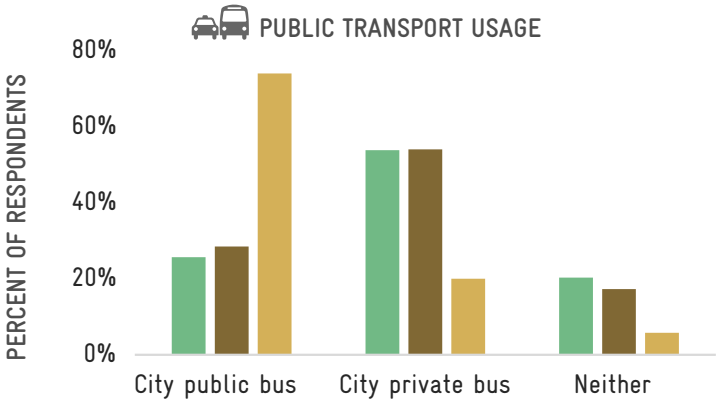


Figure 7: Overall public transport usage

Figure 8: City-wise public transport usage

household and care- giving work (16%).[3] In Trivandrum, 69% of respondents travel for work, 14% of respondents travel for education, and 18% travel for household care work. In terms of the first and last mile connectivity, the majority of the respondents (83%) walked to the bus stops, followed by rickshaws. Similar results were seen for all three cities.

Across the cities, 68% of the female respondents reported facing sexual harassment, with those in the age group of 18–24 years (74%) being the most vulnerable. In Trivandrum, 92% of women have faced sexual harassment, followed by Ernakulam (61%) and Kozhikode (50%). Further, while 18% of all women faced sexual harassment daily or once a week, in the age groups of 18–24 years, 27% reported the same. Frequent harassment was observed to be more in Trivandrum than in the other two cities.

63% of the female respondents stated that they avoid travelling by themselves at night. Of these, 15% said they *always* avoided, 18% said they *frequently* avoided, and 30% said they *sometimes* avoided travelling by themselves at night. However, it is disturbing to note that around half the number of women in Kozhikode (46%) and Trivandrum (54%) do so after 7 pm. This implies that an estimated 1.26 million women, constituting 43% of those in the prime working-age groups of 18–59 years across the 3 cities, avoid travelling by themselves after 7 pm.[4]

When compared across age groups, 40% of women in the age group of 18–24 years and 36% of women of 45 years and above restrict their independent mobility in the

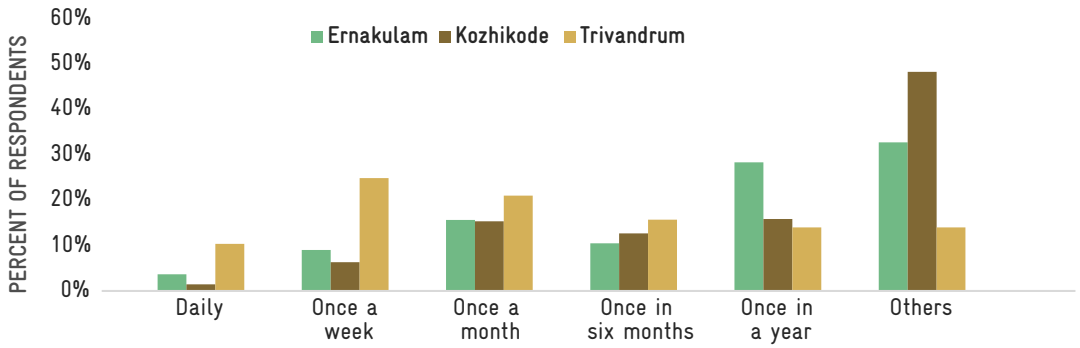


Figure 9: Frequency of harassment faced

[3] The travel purpose data is a bit suspect as students have also reported travelling for work. They could have interpreted the questions as their 'own work'.

[4] Assuming a growth rate of 4.91% over 2011–2020 and a similar ratio of women in the respective cities. This is projected for all women (and not only 18–59 years).

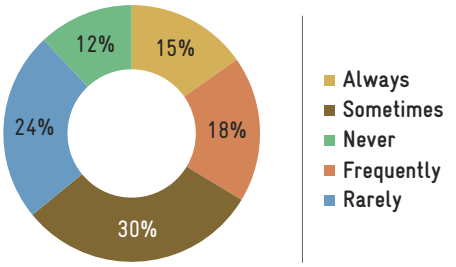


Figure 10: Frequency of restrictions on mobility

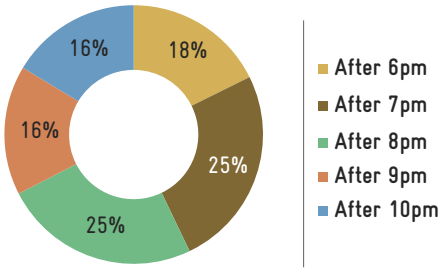


Figure 11: Time-based restriction

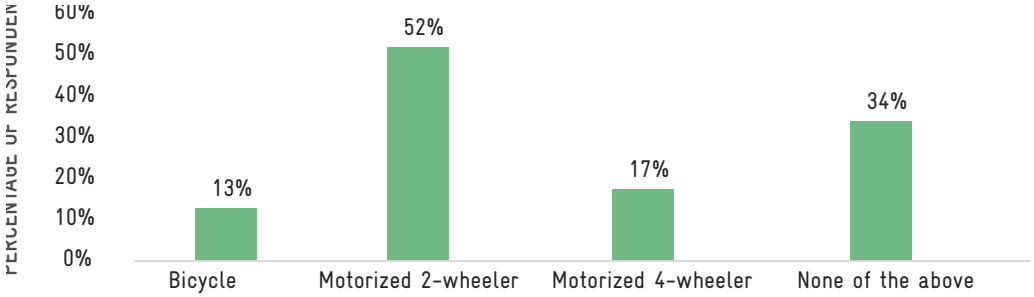


Figure 12: Access to private vehicle

night, with close to half of each group doing so after 7 pm.

More than three-fourths of all the respondents (76%) stated they would use public transport if it were safer, with around one-third being captive users, i.e., without any access to a personal vehicle.

3.2.1 Perception of Safety

In this section, women's perception of safety is discussed for the overall bus journey, and along three stages of the journey, i.e., travel to and from the bus stop, waiting at the bus stop, and while boarding, alighting and travelling in the bus. 18% of respondents who deem buses to be unsafe during the daytime report travelling by buses. Moreover, 5% of respondents who use bus-based transport during the day and deem it unsafe do not have access to a private vehicle.

Overall perception

Close to 80% of women feel safe in their bus journey during the day, compared to only 15% at night, and only 9% respondents in the age group of 18–24 years. In Ernakulam, 75% of women feel safe during the day compared to only 9% at night. However, in Kozhikode, 78% of women feel safe during the day compared to only 16% of women who feel safe at night. Lastly, in Trivandrum, 84% of women feel safe during the day compared to only 16% of women who feel safe at night.

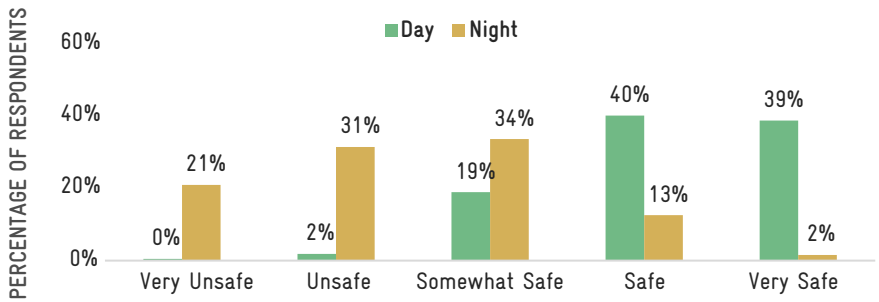


Figure 13: Perception of safety over the entire journey

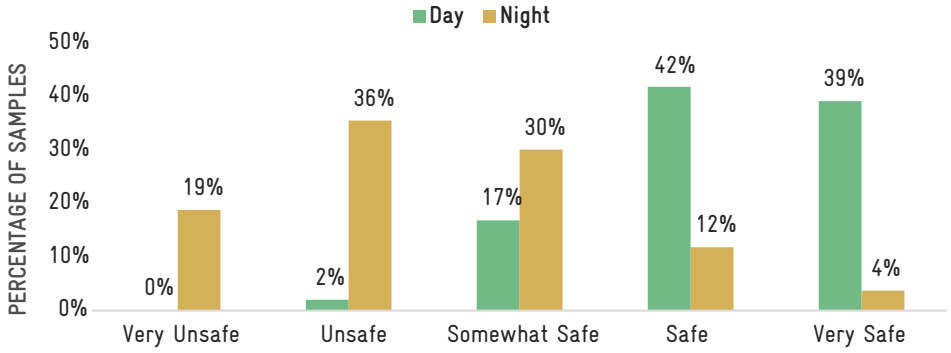


Figure 14:Perception of safety while travelling to and from bus stop

Travel to and from the bus stop

Perception of safety for travel to and from the bus stop indicates that 81% of women feel safe during their bus journey during the day compared to only 16% at night. Among the three cities, Ernakulam is perceived to be the least safe throughout the day.

Waiting at the bus stop

Among women waiting at the bus stops, 74% feel safe in the daytime, compared to 11% at night, and only 7% of those in the age group of 18–24 years. This is also the most vulnerable stage of the public transport journey, as women feel the most unsafe while waiting for buses. Among the three cities, Ernakulam is perceived to be the least safe in the day and in the night.

Boarding, alighting and travelling in the bus

While travelling in buses during the day 73% of women feel safe, compared to only 18% at night, and 14% of those in the age groups of 18–24 years.

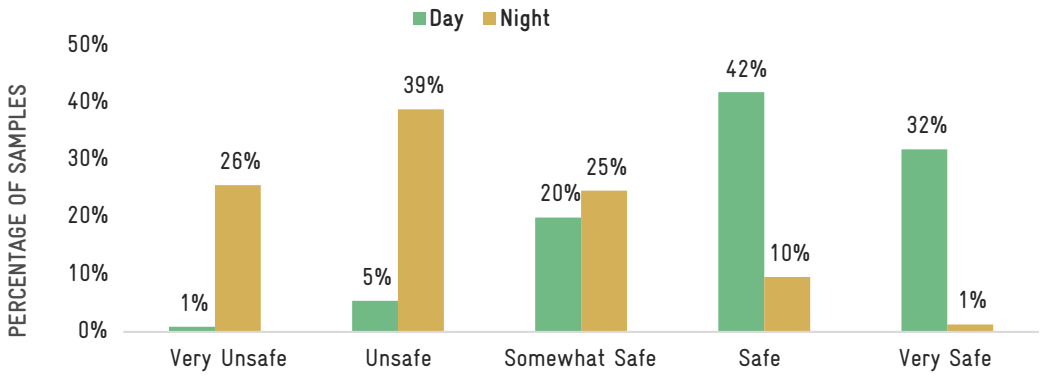


Figure 15: Perception of safety while waiting at bus stop

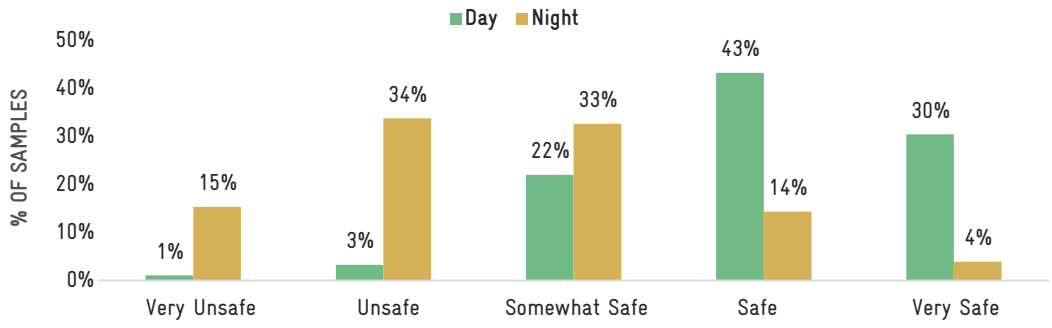


Figure 16:Perception of safety while boarding, alighting the vehicle and travelling inside the vehicle

3.2.2 Prioritizing Actions to Improve Women's Safety in Public Transport

Female respondents were asked to rank the top three priorities within each stage of the public transport journey and their perceptions of the quality on a scale of 1 (Very poor) to 5 (Excellent). The methodology to derive the Importance-Satisfaction (IS) rating is as follows:

- Highest percentage of respondents who have ranked each factor under Priority 1, 2 and 3
- Multiply with (1 – The sum of percentage of respondents who rated the factor as Good and Excellent)
- Shortlisting those with an IS score of more than 0.2.

Overall, IS ranking prioritize the following factors for improvements

1. Well-lit bus stops with CCTV
2. Reduced crowding during peak hours
3. Trained female conductors
4. Boarding gates designated exclusively for women
5. Real-time information
6. Reliable buses
7. Frequent patrolling at night
8. Female auto drivers
9. Display of helpline numbers in buses and at bus stops
10. Low floor buses

Figure 18 shows the top priorities and their Importance-Satisfaction rating at each leg of the journey. The higher the IS rating, higher will be the dissatisfaction with a particular service quality attribute.

3.3 SUMMARY OF THE RESULTS FROM FGDS AND PERCEPTION SURVEYS

In terms of methodology, the FDGs and on-site surveys have provided a good basis for analysis. Online surveys, on the other hand, do not seem to be the appropriate method to obtain sufficient and valid responses to a rather extensive questionnaire.

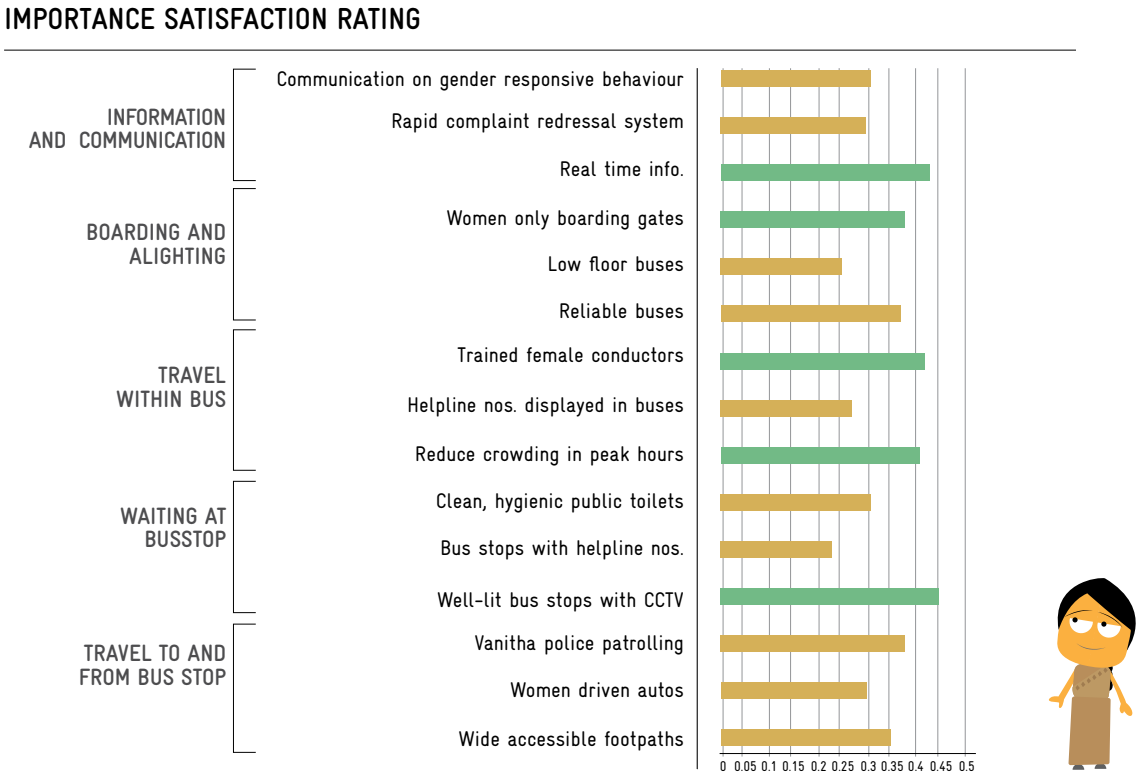


Figure 17: Priority actions for improving woman's safety as per importance-satisfaction rating

The FGDs identified the need for improvement in the travel experience with respect to the first and last mile journey, bus system infrastructure, crowd management and the behaviour of the private-bus frontline staff.

The perception survey has revealed that 90% of these women depend on bus system (either public or private), and 80% of these women walk to the bus stops. A majority of the women using public transport fall within the age group of 18–31. The perception survey also divulged that less than 20% of the respondents feel safe at night while travelling to and from the bus stop, waiting at the bus stop and travelling in the vehicle at night, and that 68% of the respondents have faced harassment in public transport vehicles.

The respondents prioritized the actions, as shown in Figure 19, in order to improve their safety quotient.

It was also found that women in the age group of 18–24 years (most of whom were students) are most vulnerable to sexual harassment and feel the most unsafe while travelling by public transport, especially at night. Targeted efforts to improve their experience and perception of safety must be undertaken as this age group is also the most active bus user. –

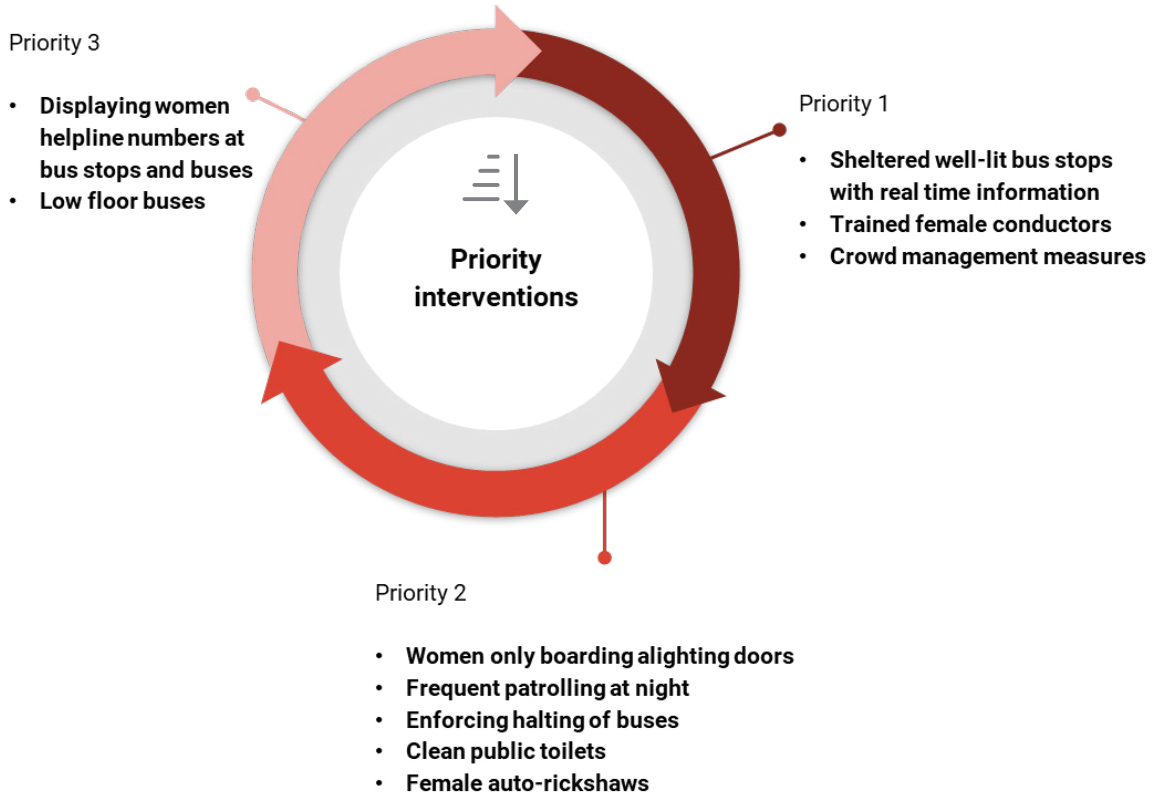
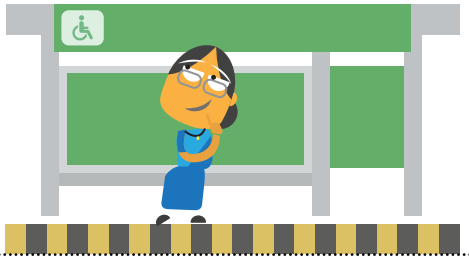


Figure 18:Top priorities for improving woman's safety




MALABAR

4

INFRASTRUCTURE ASSESSMENT

Infrastructure such as bus, bus stops and bus terminals have been examined with a gender lens.

4.1 BUS INFRASTRUCTURE

4.1.1 Buses

The urban, suburban and regional bus routes in the state of Kerala are managed by KSRTC, one of the oldest operated and managed public transport systems of India. The corporation manages daily kilometres of around 1,422,546 km using approximately 6,241 buses. There are also parallel bus services provided by private bus operators managed by Kerala MVD and Kerala Urban Road Transport Corporation (KURTC). KURTC operates more than 500 low-floor buses (AC and non-AC) in Kerala. The corporation was formed in 2014 to operate low-floor buses which are procured with financial assistance from the Jawaharlal Nehru National Urban Renewal Mission (JNNURM). Apart from the 500 buses operated under KURTC, the buses operating in the state are high floors, which becomes difficult to alight for women, senior citizens, women with kids/ luggage. Women in Kerala, traditionally, drape sarees and this obstructs their movement while boarding or alighting the high floor buses. Further, there is no provision for ramps. The gangway is too narrow for 2 passengers to pass comfortably, which paves the way for harassment. The shutter windows are not transparent and do not provide visibility. The buses have two doors—the rear door is meant for boarding, while the front door is for alighting. However, the seats reserved for women are in the front. Reaching the reserved seats requires women to traverse the entire bus length. Further, the door width and gangway are too narrow. The berths for luggage are above the seats, which is not comfortable for women (average height of Indian women being shorter). There is no space for wheelchairs or strollers.

A few of the specifications of the buses operating in these cities are as given below:

1. Bus floor height: 1,150 mm
2. Minimum gangway: 400 mm
3. Two doors; one each in the front and rear, with minimum clear width of 650 mm

4.1.2 Route Planning and Scheduling

The scheduling of buses is done in an ad-hoc manner. The new routes are decided by the Depot Inspector subject to the requirement and his judgment. Demand-based assessment for scheduling of buses and frequency is not followed. Gender segregated data is not analysed for service planning. Further, no perception survey or data on women's travel patterns through CMP is collected to understand the requirements of women.

KSRTC buses

KURTC buses

4.1.3 Bus Stop

The typical bus stop design in all the cities in Kerala and the key observations towards their design is as given below:

Typical bus stop design

1. The backside of the bus stops is not covered, thus limiting protection during monsoons.
2. Absence of vending of hawking zones near bus stops/ deserted streets
3. Absence of proper lighting and CCTV cameras
4. Uncomfortable cylindrical seats
5. Absence of lowered curbs for better accessibility for differently abled people, passengers with luggage, etc.

4.1.4 Terminals and Stations:

A metro station and four bus stations were surveyed to examine the infrastructure elements.

Bus terminals

Table 1 showcases the parameters on which the bus terminals were assessed.

From Table 1, it can be seen that most of the terminals need infrastructure upgradation like bus bays, safe pedestrian movement, drop-off facilities, drinking water facilities, well-maintained toilets, passenger information systems and crime-preventing elements like retail shops, CCTV cameras, vendors, etc.

Vytilla Mobilityhub

East fort

Kaloor bus stand

Kozhikode mofussil bus stand

Comfortable level boarding alighting in metro system

Nursing pods at metro stations (Source: KMRL)

TABLE 1: PARAMETERS FOR ASSESSMENT OF BUS TERMINALS

	EAST FORT, TRIVANDRUM	THAMPANOOR, TRIVANDRUM	VYTILLA MOBILITY HUB, KOCHI	KALOOR BUS STAND, KOCHI KOZHIKODE MOFUSSIL BUS STAND
Segregated pedestrian zones	No separate bus bays or pedestrian zone; terminal on the main road itself	Separate bus bays for arrival and departure, a segregated pedestrian walkway for entry and exit		No
Space for drop off		Yes	Yes	No
Parking space for 2-wheeler	No	Yes	Yes	No
Parking for auto-rickshaws	No	Pre-paid auto stands	Yes	No
Well-maintained toilets	Separate toilets are present, but not maintained	Yes	Maintained by Kudumbasree	Not -well-maintained
Drinking water facilities	No	Yes	Yes	Yes
Nursing rooms	No	No	No	No
Separate waiting rooms for women	Small area for seating	Night shelter facility present	No	No
Crime-preventing activities	On-street vendors, presence of auto-rickshaws	Commercial shops	Cafeteria, refreshment kiosks. Commercial and entertainment zone proposed in phase-II	No
Police aid post	No	Yes	Yes, Security by Kudumbasree	Yes
CCTV cameras	No	No	Yes	No
Passenger information system	No	No	No	No
Night stay facilities	No	Yes	No	No

Metro system

Metro stations in Kochi have proper infrastructure for access and egress, lighting, clean and secure platforms, passenger information system, well-maintained toilets, drinking water facility, nursing pods at major stations, retail outlets, CCTV cameras and security guards for crime prevention. The metro has level boarding and alighting, and even has separate coaches reserved for women.

4.2 FIRST AND LAST MILE INFRASTRUCTURE

The cities of Kerala are known for their narrow streets. Within the city road networks, very few are major roads or arterial roads (connecting urban centres); most of them connector streets (streets connecting different residential areas with arterial roads) or internal streets (streets connecting residential areas). The City Development Plan and the Comprehensive Mobility Plans reveal that in the three cities— Kochi, Trivandrum, and Kozhikode—around 70% of the streets have a width of less than 12 metres, and only around 10–15% of the streets have proper footpaths. A part of the safety audit undertaken in Trivandrum and Kochi in 2017 by Safetipin is documented in Table 2.

For all the three cities, segregated land use is observed in the Development Plans, with commercial or institutional land use on major streets and the rest with residential development. The land-use plan does not identify mix-use areas. Mixed use areas would help to create a busy street life which leads to more safety.

The major roads have proper footpaths. However, the secondary streets, which connect to the residential areas with the main streets, have narrow streets and have stormwater drains as footpaths. The street lacks lighting with proper luminescence. Since most of the roads are very narrow, street vendors and hawkers are seen only on major streets. Furthermore, after dark very few people in Kerala are seen on the streets, and women ever fewer, making the streets only deserted, which is perceived to be unsafe for women.

The residential complexes and bungalows generally have high compound walls. These factors negate the concept of eyes on the streets for the first and last mile journey and generally make women insecure after sundown.

The Development Control Regulations focus only on aspects such as zoning regulations, floor area ratio and transfer development rights. Aspects such as street design guidelines or building designs that can facilitate visibility are not covered. However, Kochi Municipal Corporation with the support from GIZ is preparing street design guidelines covering narrow streets as well. The corporation also undertakes the activity of registration and certification of vendors and identifying vending zones under the Street Vendors Act, 2014 (Protection of Livelihood and Regulation of Street Vending). There is also a need to identify vendor zones that can aid in women's safety.

The Development Plans of Trivandrum and Kozhikode have identified roads for widening. Kochi has additionally identified non-motorised transportation (NMT) plans with recommendations for the development of cycling infrastructure and footpaths However, regulations for developing these streets or widening these streets are not provided.

4.3 KEY OBSERVATIONS

Infrastructure systems like buses, bus stops and bus terminals were found to lack women's perspective. Absence of facilities

TABLE 2: RESULTS OF SAFETY AUDIT CONDUCTED BY SAFETIPIN IN 2017

PARAMETERS	TRIVANDRUM	KOCHI
People	58% public spaces - deserted	-
Gender Usage	83% - no gender diversity	90%- not diverse
Feeling of safety	77% - Uncomfortable	83%- uncomfortable
Lighting	26% - Some or poor light	36%- some or poor light
Security based on police station/ patrol access	93% - none or minimal	96%- none or minimal

Source: (Dis)Connected Infrastructure and Violence Against Women, King's College London

Tube light as street light

Narrow internal roads

Compound walls

Storm water drains used as foothpaths

such as passenger information system, CCTV cameras, comfortable seating, low floor height buses, inadequate patrols, crime-preventing elements (like retails shops, street vendors, low compound walls in residential areas), adequate lighting, crowd control, low women presence, etc. make women feel insecure and vulnerable.

Bus terminals need infrastructure upgrades such as well-maintained and well-lit toilets, nursing rooms, drinking water facilities, passenger information system, segregated pedestrian walkways, retail stores promoting crime prevention and better visibility. The buses also need to be replaced with urban bus specification (UBS-II) compliant buses, which are framed considering women's needs and requirements.

The perception survey has revealed that women do not feel safe while waiting at the bus stop and walking the first and last mile because of deserted streets during late hours. Further, the streets of the cities in Kerala were found to lack adequate security, lighting, gender presence and crowd. Suitable interventions need to be taken to make the streets women-friendly and safe.

5

GOOD PRACTICES

This section documents the initiatives the cities have undertaken to safeguard women in transportation systems. Good practices reflecting initiatives towards 1) Overall planning for inclusive transportation systems, 2) Safer first and last mile, 3) Data collection for women-centric planning of transportation system, and 4) Women inclusion in transportation systems have been studied and documented.

5.1 TRANSPORT FOR LONDON (TFL) ACTIONS ON EQUALITY

To achieve the vision of an equal and inclusive public transport system for London by 2016–20, TfL initiated an annual diversity and inclusion survey to improve: 1) Customer experience throughout the journey, 2) Accessibility to all age groups, 3) Safety and Security, and 4) Workforce Diversity. Big data analytics is also used by TfL for analysing the data generated through smart cards and contactless cards/ mobile tickets, to map customer journeys, managing unexpected events and providing personalized travel information.

Towards gender equality, TfL has taken several actions. The key actions taken can be seen in Figure 20

TfL has also worked with the Metropolitan Police and British Police to take up campaigns and awareness programmes supporting zero tolerance towards harassment (Safer Travel at Night Campaign and Project Guardian). Continuous campaigns and deployment of safer transport teams at specific transit hubs have helped in the reduction of harassment cases. The use of mobile and web for registering complaints has further helped in encouraging women to report cases. Engagements with local councils were also undertaken to improve street lighting and promote safer routes for first and last mile.

5.2 SAFER FIRST AND LAST MILE IN BOGOTA, COLOMBIA

In 2016, with the help of Safetipin,[5] Bogota assessed the safety of 230 km of the road network which also comprised bike lanes. The objective of this assessment was to identify the unsafe spots and take suitable actions and plan land use such that the

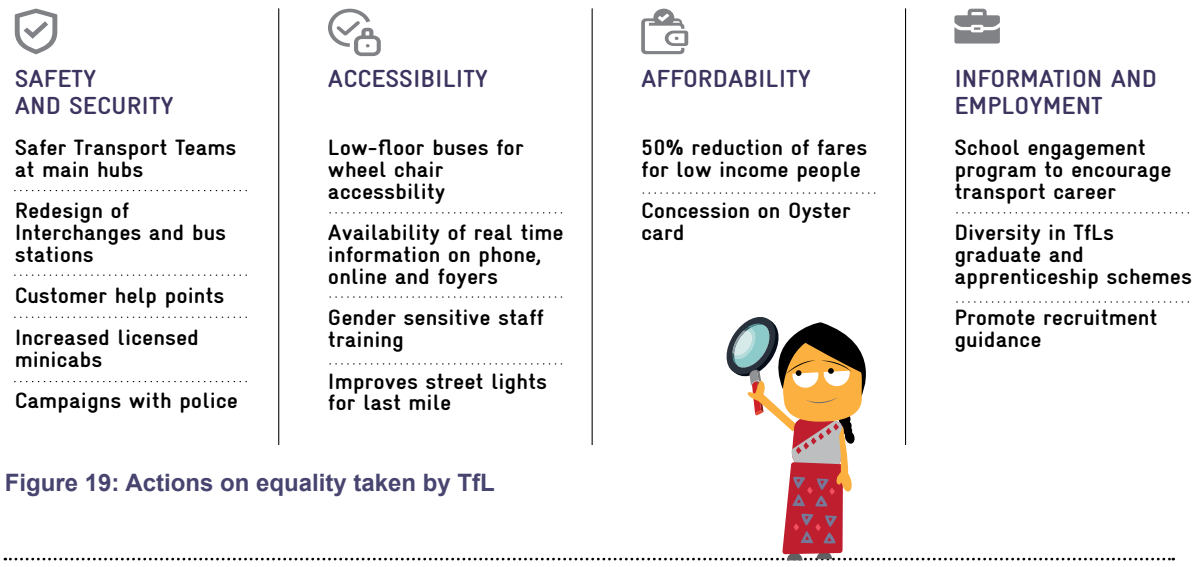


Figure 19: Actions on equality taken by TfL

[5] Safetipin is a social organisation working with a wide range of urban stakeholders including governments to make public spaces safer and more inclusive for women. They collect data using our three mobile phone applications (My Safetipin, Safetipin Nite and Safetipin Site) and present this to relevant stakeholders with recommendations.

Results of safety audit conducted in Bogota *Source: Bogota, A Safety Analysis Report*

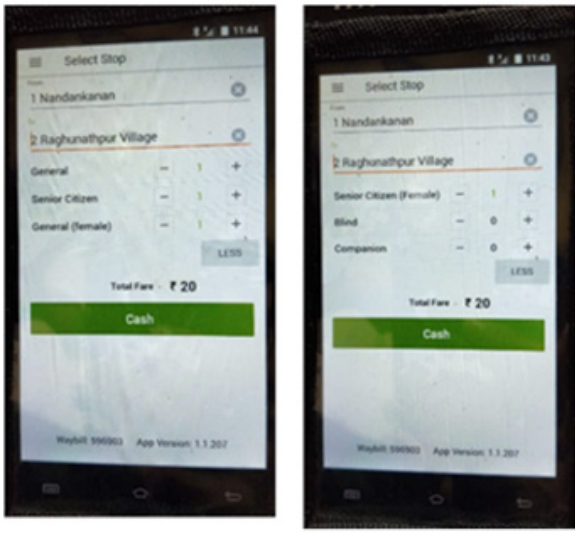
issues could be mitigated. With the help of the biking community and the Safetipin apps, the safety of the road network was assessed on the following parameters: 1) lighting, 2) openness, 3) visibility, 4) crowd, 5) security, 6) walk path, 7) availability of public transport and 8) gender diversity. The information gathered was used for prioritization of local and municipal investments in infrastructure, specifically lighting in parks, installing CCTV cameras, rebuilding pathways for better access, bus stop relocation, etc. The information collected was also shared with the respective authorities in charge of the city development.

The 19 urban localities that compose the city of Bogota have the obligation of developing a local plan for the security of women. The information gathered has been used in making the city's public policy, specifically in public space designs, land use planning and city's overall security plans. Night sessions under the slogan 'Women taking the night' were carried out at sites closest to the areas identified as unsafe for women.

5.3 CAPITAL REGION URBAN TRANSPORT (CRUT), BHUBANESWAR, INDIA

CRUT is responsible for providing city bus service in the city of Bhubaneswar. CRUT has recently initiated the process of collecting gender-based data through ETMs. The process followed is as given below:

1. For each passenger, as the trip begins, the conductor enters the route name, route number and the direction of travel from the drop-down list.
2. S/he enters the origin and destination of the trip.



Ticket screens of ETMs

3. Suitable modifications were made by CRUT to include categories like general (female), senior citizen (female) to facilitate gendered data collection.
4. The user, accordingly, selects the number of tickets for each category and makes payment as per the fare chart.

The ticketing data is generated, stored and downloaded from the Automated Fare Collection System (AFCS). The gender-segregated data can be made available from the ETM transaction receipts and can be used for analysing the travel pattern of female passengers across the city. Based on the purpose, additional data can be generated related to female boarding and alighting, trip-wise female ridership, route-wise ridership, etc. Analysis of such data can be used for infrastructure development and for deploying special services which can be made sustainable.

5.4 DELHI TRANSPORT CORPORATION (DTC), DELHI, INDIA

The DTC has taken the following proactive measures to include women as bus drivers.

1. Training of women with commercial Light Motor Vehicle (LMV) license to drive buses for six months, and thereafter support them to get the Heavy Motor Vehicle (HMV) license from the Transport Department.
2. Reduction of minimum height criteria for women to 5.2 feet, as compared to the requirement of 5.6 feet for men.
3. Increase of the maximum age limit to 40 compared to 35 for men.
4. In addition, DTC had also made efforts with their original equipment manufacturers (OEMs) to make suitable design changes in the drivers' seat in a manner that women drivers with an average height of 5.2 ft do not face any problem.

5.5 KEY LEARNINGS

The key learnings from the literature review are:

PUBLIC TRANSPORT INFRASTRUCTURE

1. Public Transport infrastructure needs to be seen in totality considering the entire travel journey, which is the first and last mile, waiting at bus stops/terminals and travelling inside the vehicles. Upgrading the infrastructure such as streets, bus stops and terminals with elements of eyes

on streets can help enhance the safety of any public space.

2. Design of infrastructure considering women's comfort, such as procurement of low floor buses, space for luggage/ stroller, terminals with well-maintained and well-lit toilet facilities, nursing rooms, and retail shops, etc. can go a long way in ensuring women's safety and comfort.

INFORMATION AND COMMUNICATIONS

1. Regular user perception surveys can help understand women's issues, perception towards safety, expectations towards service delivery and assessment of ongoing initiatives.
2. Safety audits can help in identifying unsafe areas in the city and can act as an input for land use planning and infrastructure development.
3. Offline/online campaigns can be used to promote zero tolerance towards harassment, and the consequences one may face while indulging in such acts. This may also encourage women to report harassment cases. Use of mobile applications/ websites/ complaint boxes for filing complaints are also found to be some effective ways to encourage women ensuring that their identity is not disclosed and safety is guaranteed.
4. The collection of gendered data can be used for effective planning of services and in the development of infrastructure.

GENDER BALANCE IN EMPLOYMENT

1. There is a need to include women in the transport sector, which is generally under-represented. This can be done through initiating internships, training programmes with targeted advertisements. This can help in the sensitization of the agency as a whole towards women's requirements.
2. There is also a need to promote the hiring of women candidates for senior-level positions, which can bring about behavioural changes in the entire organization.
3. Sensitization of drivers and conductors needs to be undertaken to improve their conduct towards women, and to make them aware of the process to be followed in case of any harassment cases.

INCREASING AWARENESS AND INFLUENCING MINDSETS

1. Community engagement can be a necessary tool to assess the level of safety and surveillance required and to undertake measures accordingly.
2. Statutory plans such as Development Plan, Development Regulations and Comprehensive Mobility Plans which guide the development of a city should be strategized considering women's travel pattern and perception towards the current infrastructure system.


KSRTC
FAST PASSENGER
ASHOK LEYLAND
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6

RECOMMENDATIONS

6.1 KEY ISSUES AND AREAS OF REFORM

Based on the above assessment, issues with regard to institutional framework, infrastructure and women's inclusion in the transport sector have been identified. Figure 21 showcases the issues identified and the possible areas of reform.

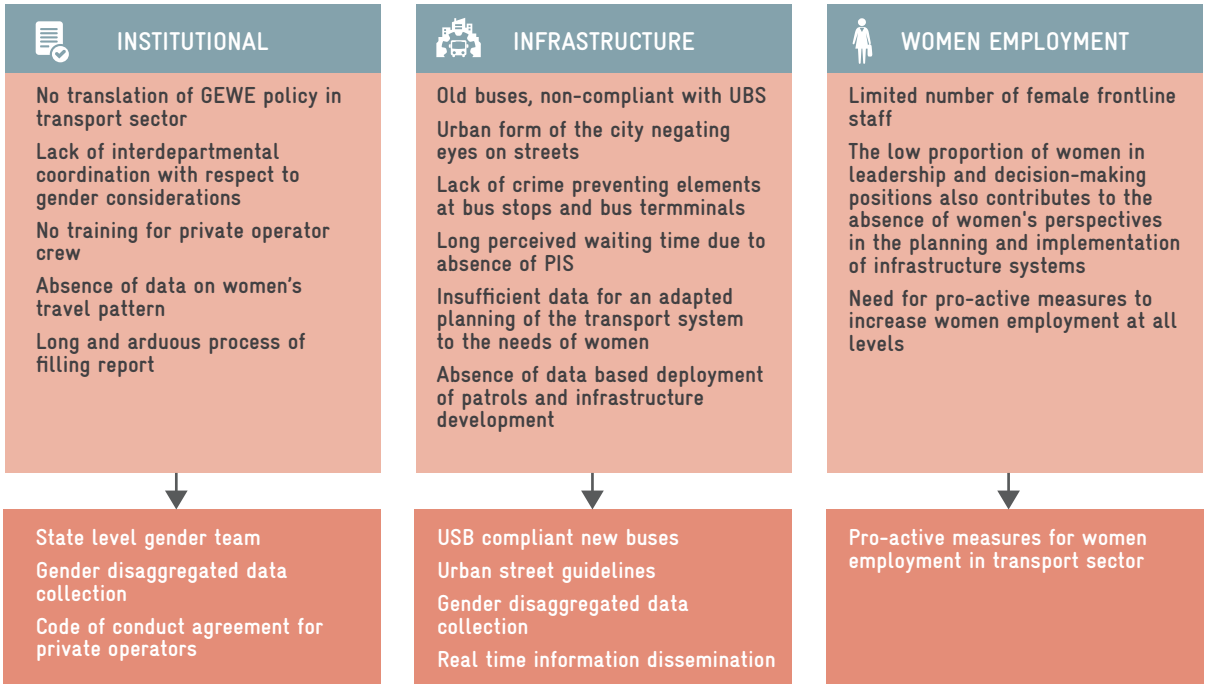

Figure 20: Key issues identified

Considering the above-mentioned issues, the reforms suggested for the Transport Department, GoK, are as given below:

1. Metropolitan Transport Authorities (MTAs) to act as nodal agencies for gender mainstreaming in the transport sector
2. Gender disaggregated data collection
3. Women inclusion in the transport sector
4. Developing gender-responsive infrastructure
5. Gender sensitization through training and awareness programmes

The Kerala Government has framed several policies, and taken institutional and infrastructural initiatives to improve women's safety in the transport systems, and to include women as frontline workers in this sector. However, there is still a need to take coordinated actions towards developing plans and infrastructure systems, considering women's perspectives, taking data-driven actions and regulating the operation of private buses. Working towards these key reforms can help achieve women-centric public transportation systems. The following section details out these reforms.

6.2 REFORM 1: METROPOLITAN TRANSPORT AUTHORITIES AS THE NODAL AGENCY FOR GENDER MAINSTREAMING IN THE TRANSPORT SECTOR

The GEWE Policy was framed to streamline the process of gender inclusion in all

sectors, in project planning, designing and implementation. A GAC has already been formed, comprising officials from the KSJD, High Court, Kerala Police and the Education Department. However, the policy objectives have not been replicated in the transport sector. For this purpose, a nodal agency has been appointed to coordinate and monitor all activities related to gender, and even coordinate with the GAC.

The Kerala Metropolitan Transport Authority Act mandates the formation of Metropolitan Transport Authorities for Kochi, Trivandrum and Kozhikode for the planning, coordination, development and regulation of urban transport in the urban areas. Based on this, KMTA was formed in November 2020. The Authority comprises the transport agencies, municipal corporation, the police and experts in the field of urban and transportation planning. Given the role, mandate and involvement of the various agencies in KMTA, the authority is well suited to take up the role as a nodal agency in Kochi to take up the responsibility of monitoring, coordinating and evaluating interventions towards gender mainstreaming. This can be duplicated in other cities, upon formation of MTA. The responsibilities envisaged for MTA towards gender mainstreaming are as given below:

1. Coordinate with various agencies for gender-disaggregated data collection
2. Evaluation of data collected on an annual basis for framing strategies
3. Inclusion of a section on gender statistics in the annual report (with key data and interventions taken for women by KMTA)
4. Discuss and mandate the agencies to take up proactive actions towards women employment in the transport sector
5. Inclusion of gender disaggregated data collection framework for proposed comprehensive mobility plans for Kochi city, with one special section on women mobility highlighting their issues and recommendations
6. Set targets for transport agencies for women employment for the next 5–10 years
7. Coordinate with the GAC and agencies such as the Police, KSRTC and MVD as and when required for undertaking awareness programmes, trainings, etc.
8. Undertake safety audits
9. Coordination with agencies such as the Municipal Corporation and the Town Planning Department towards the preparation of Master Plans and the development of infrastructure ensuring inclusion of women's perspective
10. Monitor and evaluate the progress of the department at regular intervals with respect to the above-mentioned aspects

6.3 REFORM 2: GENDER DISAGGREGATED DATA COLLECTION FRAMEWORK

The paucity of data related to women's travel patterns deters the transport agencies in developing transport systems and services which can cater to the travel requirements of women and ensure their safety. London undertook extensive perception surveys for improving women experience in public transport and uses data analytics to ensure customer satisfaction; and Bogota undertook safety audits of the cycle tracks to take up infrastructure upgradations, and CRUT-Bhubaneswar undertook disaggregated ticketing data for better planning of bus services for all, including women riders. This section talks about gender disaggregated data collection framework which can be used by transit and other planning agencies of the State such as the KMTA, KSRTC, KMVD, KSTWD, etc. for undertaking data collection and analysis which can help them in undertaking decisions regarding the improvement of public transport and safety and security.

There are several agencies in Kerala working towards women's safety in the transportation sector. These agencies record different data

sets pertaining to women's travel patterns, initiatives towards enforcement and female employment. However, a concerted effort is required to improve women's safety in public transports, for which there is an urgent need to collate and analyse data on these aspects. Data in the transportation sector is collected through four sources: 1) Ticketing systems, 2) Comprehensive Mobility Plans (CMPs), 3) Infrastructure components and 4) women employment records.

A detailed framework with indicators and the mode of data management and analysis can be developed and monitored by the MTAs, based on which specific actions can be taken. Assessment of ticketing data will help in 1) Planning of 'women only' bus service for certain routes or reservation of women seats (if required) and 2) deployment of patrols on specific routes and bus stops based on footfalls at certain times. Studies have shown trends in locations and timings at which harassment occurs in public places. Comprehensive record of harassment cases can help in identifying such trends. Assessment of streets within 500 metres of the major bus stands can help in improving the last mile connectivity. Improvements in terms of footpaths, street lights, vending zones, etc. can be undertaken. A record of all bus stops and terminals that have been improved can help in assessing the future infrastructure investment requirement. Safety at bus stops and terminals can be improved with components such as helpline numbers, CCTV cameras, PIS, vendors, lighting, dustbins, etc. Analysis of data collected under CMP at a disaggregated level can generate information on female mode share, trip purpose, trip length, travel cost, and key trip generators and attractions. Figure 22 showcases the data sets and indicators that can be collected and monitored by MTAs. The detailed data collection framework is attached as Annexure-I.

6.4 REFORM 3: WOMEN INCLUSION IN THE TRANSPORT SECTOR

There has always been a sincere push from the government for gender mainstreaming

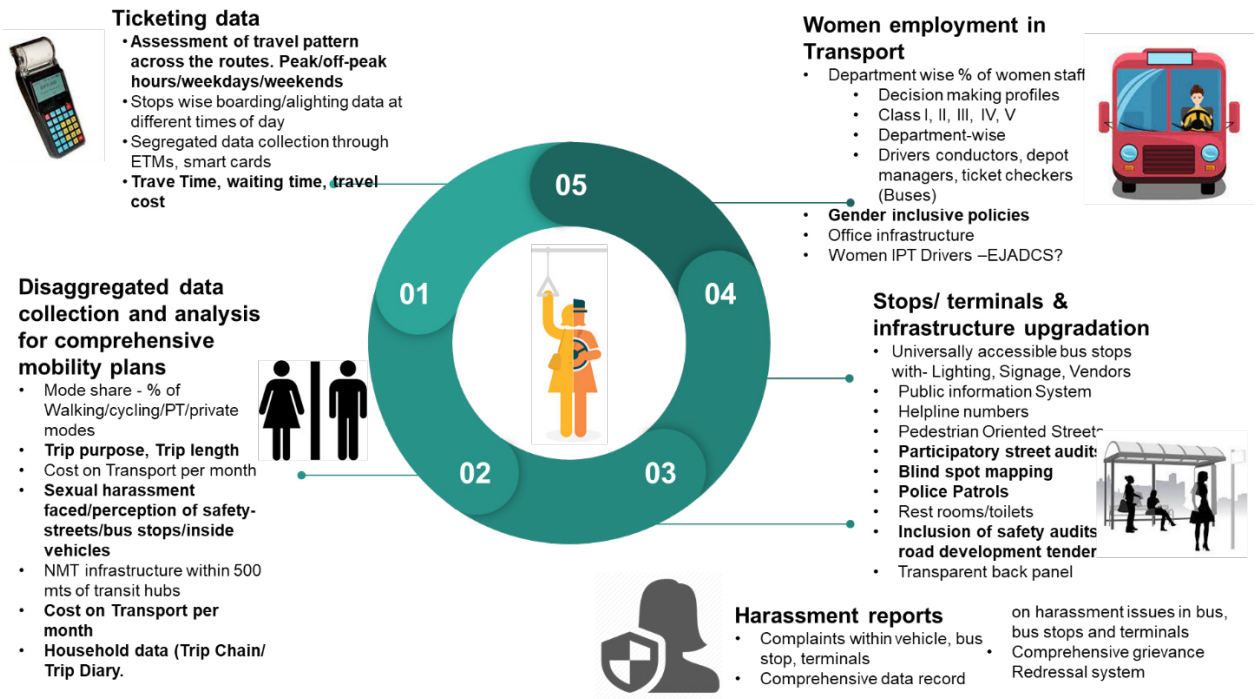

Figure 21: Gender disaggregated data framework

and increasing the employment opportunities for women in the transportation sector. However, despite many success stories, the State still needs concerted efforts for the required policy changes to increase employment opportunities for women in the transportation sector across different hierarchies and different transport mediums.

KEY RECOMMENDATIONS TO INCREASE WOMEN EMPLOYMENT IN THE TRANSPORTATION SECTOR

1. Employment of women as conductors in KSRTC, KURTC and with private operators.

- KSRTC can collaborate with agencies like Kudumbasree and other self-help groups for the recruitment of women as conductors with the provision of suitable training.
- Similarly, for each private operator, MVD can mandate for a certain percentage of women conductors. For this also, collaboration with Kudumbasree or organizations such as SEWA, Sakhi, etc. can be explored. Suitable clauses can be added to the conditions of the agreement between the MVD and the private operators.

2. *Employment of women as drivers in KSRTC, KURTC and with private operators.*

For the post of a driver of a passenger vehicle, the Kerala Motor Vehicles Act mandates a heavy motor vehicle license. While there is no experience requirement specified in the Act, preference is given to candidates with two to three years of experience. Considering that women rarely may have heavy motor vehicle licenses, women inclusion as drivers will require proactive measures with respect to their training and developing an environment that is conducive for women.

A training programme can be introduced by KSRTC for increasing women's participation as drivers**.** A similar initiative has been taken up by the Bangalore Metropolitan Transport Corporation, which is now providing free training and support for obtaining heavy motor vehicle licenses to achieve their target of 33% women drivers. The following initiative can be taken up by KSRTC.

- Interested women holding a light motor vehicles license could be trained by KSRTC for six months and then be supported for obtaining a heavy motor vehicle license.
- Existing women conductors holding a light motor vehicle license can also be encouraged to undertake the training.
- Collaboration with the Social Justice Department and Kudumbasree can be explored for identifying interested women candidates.
- Having hydraulic seats and steering in the newly procured buses can make driving comfortable for women.
- The Social Justice Department and Kudumbasree in collaboration with KSRTC can train certain interested women for driving heavy vehicles or train the existing women conductors. These women can then pursue their careers as bus drivers for KSRTC or for private operators.
- MVD can make it mandatory for private operators to hire a certain percentage of women drivers.

3. Equal opportunities for women as auto drivers in cities of Kerala for urban and suburban operations:

Kudumbasree and KSJD currently provide training to women for driving autos and taxi, and facilitate bank loans to buy cars and autos. Ernakulam Jilla Auto-Rickshaw Drivers' Co-operative Society (EJADCS), formed in 2019, is now planning to procure electric autos with the support of SMART-SUT. For this purpose, a Joint Declaration Intent (JDI) has also been signed with the Kochi Municipal Corporation, which specifies that a certain number of autos shall be driven by women. In the long term, the Society can even assist women in applying for loans towards the purchase of auto-rickshaws, and provide training to women for driving autos and assist them in getting license and registration of the vehicle.

4. Women participation in different

fields across different hierarchies of the transportation sector:

Very few women were observed in the transport sector at the mid-management and higher levels, especially in departments such as operations, vigilance, maintenance and workshops. The following interventions are proposed to increase the employment opportunities for women.

- The State and city transport corporations and agencies can provide internship programmes and additionally register in The Urban Learning Internship Programme (TULIP) to offer internships. While the Cochin and Trivandrum Smart Mission Limited, and Trivandrum and Kozhikode Municipal Corporations are already registered with TULIP, the KSRTC, KMRL, Kochi Municipal Corporation are also suggested registering for TULIP with emphasis on women interns, for the field of operations, maintenance, workshops, vigilance and planning.
- The development of the course content and dissemination in the local Industrial Training Institutes (ITI) to promote skill set and ensure women participation in different fields of the transport sector and across different departments in the transport corporations and agencies.
- Recruitment and promotion campaigns keeping women in focus: This includes customization of strategies to approach female audiences for advertised jobs, and lowering barriers for women in a way that they apply for the positions advertised. Special job fairs and recruitment drives for women shall also be organized to address the gender gap in the transportation sector.
- The current recruitment process within the transport corporations are required to be thoroughly examined towards recognition of any conscious or unconscious biases in the recruitment process.
- Training sessions for recruiters to instil better gender sensitization, so that the drafted requirements are made to fit both genders.
- Setting up of hiring targets and quotas: To give the required push to increase the gender hiring across all levels in transportation agencies, it is suggested to set up targets or quotas for the percentage of women hired or shortlisted during the recruitment process. This can include both operational and management positions. For example, at the operations level KSRTC could set up a target of a minimum 20% new hiring for women conductors and drivers in the next five years, which can be increased to 30% in the next 10 years.
- On-job coaching and mentoring programmes: Once shortlisted and selected for the position, women must be retained on the job by providing a conducive environment. Job training and coaching may help them to showcase their strengths in the new environment.
- A suitable strategy shall also be adopted by transit agencies under which they shall promote female role models to increase women's share of employment by showcasing possible career aspects that are available to them.
- Suitable strategies shall also be adopted to remove the gender pay gap across all levels; this can be achieved through proper reporting by creating suitable reporting methods between organizations. The transparent pay ranges shall be adopted across each profession and role. This can be achieved by attaining a better gender balance across the highest pay scales.
- Suitable strategy can be followed by allowing flexible part-time working arrangements like reduced working hours or home office provisions especially for mid-management and senior management roles across organizations.
- Suitable strategies/policies shall be laid out for improving the provision of maternity leaves which may include increased leaves, part-time working during pregnancy, arrangement of less stressful work, arrangement of transition phases in and out of maternity.
- Zero Tolerance policy shall be adopted

against harassment and molestation complaints made by women on job locations.

6.5 REFORM 4: GENDER-RESPONSIVE INFRASTRUCTURE

The Transport Department envisions a transformation of the State's transport system with the transition to low carbon fuel buses and the use of technology for data collection and dissemination. Women considerations in this transformation can result in safe transportation systems without any additional investment.

BUS DESIGN

Procurement of low carbon fuels, with tender clauses specifying the design elements from UBS-II approved by the Ministry and Housing and Urban Affairs, can make women's travel comfortable and safer (Slide 1 (mohua.gov.in). Some of the specifications that should be included are:

- Floor height: 400/650 mm
- Hydraulic power steering with adjustable height and angle
- Minimum door aperture: 1200 mm
- Minimum clear door width: 1000 mm
- Ramps for wheelchair at gates wherever required
- Minimum gangway: 700 mm
- Passenger area lighting: >100 lux and <150 lux
- Minimum height of window: >950 mm
- Panic buttons to communicate to control room
- Two-way communication of driver with control room

BUS STOP DESIGN

As seen earlier, the bus stop design of Kerala is uncomfortable and unsafe for women. Certain modifications can make it safer for women such as:

1. Comfortable seating structure with benches
2. Transparent backside or low compound wall behind the bus stops
3. Sufficient area for boarding, alighting and queuing
4. Space for passenger information system (PIS) and installation of the PIS
5. Proper lighting system with a minimum illumination of 60 lux in waiting, boarding and alighting area. The uniformity ratio (average intensity/ minimum intensity) should be 2.
6. Stable, anti-skid flooring
7. No gates
8. Ramps at one side for differently abled people and strollers
9. CCTV cameras
10. Helpline numbers displayed
11. Map showing pedestrian walkways within 500 m radius
12. Vending spaces in the vicinity of the bus stop but placement should not obstruct the movement of pedestrians
13. Priority seating

BUS TERMINALS

The three cities have terminals with different functionalities connecting multiple modes, such as metro, ferry, inter-city and intracity bus service. For each terminal, a more detailed inventory should be made based on the requirements, and planning should be initiated considering space availability. The key parameters to be considered while planning a terminal should include the following:

1. Well-maintained, well-lit and well-positioned toilets
2. Separate waiting lounge, nursing room for women
3. CCTV cameras
4. Signages
5. Space for drop-off, and parking of vehicles and autos

6. Dedicated space for entry and exit of pedestrians
7. Adequate lighting
8. Separate bus bays for arrival and departure
9. Easy access and transfer to other modes. Creating level difference for different modes may also be explored
10. Passenger information system
11. Retail shops
12. Night shelter facilities for women and children for inter-city bus services

TECHNOLOGY UPGRADATIONS

KSRTC is currently in the process of procuring and installing Vehicle Location Tracking Systems in all the buses, and developing a control centre, which will provide real-time information of all buses. Disseminating this real-time information of buses and disruptions to the services to passengers through an application, website or messaging service can help the passengers plan their journey better. This can also help in the reduction of the waiting time at the bus stops.

The Raksha App, an application developed by the Kerala Police can be upgraded to record anonymous complaints regarding sexual harassment in the public place, with the location, time, bus route and bus stop/ terminal. Establishing a comprehensive recording mechanism of these complaints and its analysis can help the Police, KSRTC and KMRL in taking targeted action towards improving safety and security.

URBAN PLANNING

The safety audit of the streets conducted by Safetipin in 2017 revealed issues in terms of the following parameters: security (police presence), presence of a crowd, gender presence, people usage and feeling of safety. These issues have led to the restricted movement of women, especially at night. Adoption of street design guidelines can lead to the development of safe and secure streets with adequate lighting, footpaths, vendors/hawkers, lower compound walls and active spaces which support the concept of eyes on streets. GIZ is currently supporting Kochi Municipal Corporation in preparing the street design guidelines for Fort Kochi and has submitted a draft for the same.

In addition to street development, one also needs to look at land-use planning. Concepts such as mixed-use planning and compact neighbourhoods, which support short trip lengths and pedestrian movements, induces a sense of safety. Mandating lower compound walls or streets with vendors/ hawkers also supports eyes on streets. One also needs to consider the location and spread of the police stations/ chowkis while planning a city. Well-spread locations of the police chowkis/ stations or frequent patrols can create a sense of security amongst women. Initiating night walks for the deserted area also helps in creating a sense of safety.

6.6 REFORM 5: GENDER SENSITIZATION THROUGH TRAINING AND AWARENESS PROGRAMMES

TRAINING PROGRAMMES

Code of conduct agreement between MVD and private operators: There is a mandatory training of drivers and conductors in KSRTC towards gender sensitization. However, there is no compulsory training for the staff of the private operators. Towards this, MVD can have code of conduct regulations for the behaviour towards transport passengers by the conductors and drivers, and set protocols to be followed in case of any harassment cases, as part of the agreement between the private operator and the MVD. This can develop accountability and response protocol in case of any report of harassment.

Mandatory gender sensitization training during the renewal of driving license or obtaining a driving license shall also be in

place. This will ensure the training of the private operator's staff as well. Trainings modules about gender sensitization, roles and responsibilities towards safe mobility of passengers, legal aspects towards the culprit in case of harassment and SOP to be followed in case of any incident on coach should be framed. Collaborations with Social Justice Department/ Kudumbasree can be explored for combined training of the KSRTC, private operator staff and the police officials.

AWARENESS PROGRAMMES

The lack of awareness in men and women, related to helplines, procedures for reporting of incidents, rights of women etc., makes it difficult to implement gender mainstreaming in the overall planning of the city. Awareness programmes towards zero tolerance for sexual harassment, encouraging reporting of harassment, night walks encouraging women to take up employment opportunities should be thought of.

6.7 IMPLEMENTATION PLAN

Figure 23 showcases the timeline that can be looked at for the implementation of the measures discussed above.

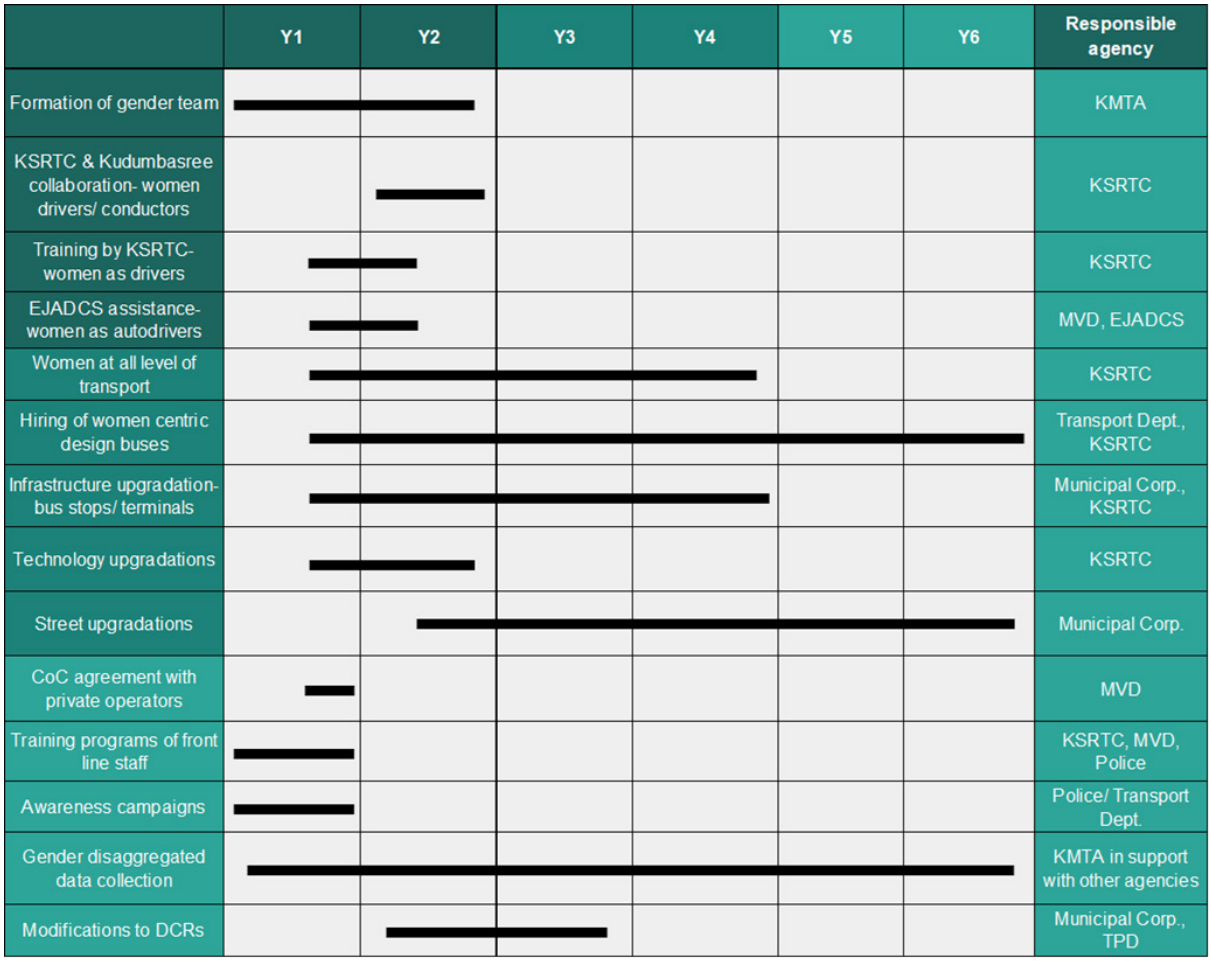

Figure 22: Suggested implementation plan


KSRTC
KL 15 8224

7

CONCLUSION

Unsafe public transportation systems have impacted women's mobility and their opportunities. Social and cultural norms, multiple agencies working in silos, under-representation of women, paucity of data and the absence of women's consideration while designing infrastructure systems are found to be the issues making transportation systems unsafe for women.

The Kerala Government has taken up several initiatives to improve the public transport service and to ensure a safer journey for women, be it the first and last mile or travel inside the vehicles. This is mainly through reservation of seats for women and deploying of police patrols within the bus and along major routes, and employing women as frontline workers. However, these are short-term solutions. There is a need to develop a complementary strategy to bring about evidence-based interventions, inculcate a behavioural change in the society and frontline staff, and prepare statutory plans considering women's needs and requirements.

The State Transport Department is working towards transforming the urban transport systems with the formation of Metropolitan Transport Authorities, using technology for data collection, analysis and dissemination, and moving towards low carbon transportation systems. In this transformation, the MTAs have the potential to take up the role of a nodal agency for gender mainstreaming in transport sector, given the role and mandate it needs to take up as per the Kerala Metropolitan Transport Authority Act. The MTAs formed can take up initiatives such as 1) coordinate with agencies for collection and analysis of gendered data, 2) regular monitoring and evaluation of the data collected for strategizing actions, 3) coordination with agencies for developing women centric plans and infrastructure, 4) women's participation in transport sector at different levels, 5) developing conducive environment for women to work in transport sector, 6) regular trainings and awareness programs towards gender sensitization, and 7) coordinate with agencies such as Municipal Corporations, Police for preparation of statutory plans and regulations for city development with gender considerations. While the MTAs can play the role of coordination and monitoring, a concerted effort from various agencies would be required for planning and implementation of measures.

There is a need to acknowledge the issues women face, and its impact. Planning and implementation of women friendly solutions leads to not only to safety of women, but safety and convenience of all. Measures such as improved accessibility, lighting, visibility, openness, proper footpaths, crowd and gender presence goes a long way in creating a sense of safety amongst women. Further planning and implementation of these measures from the start are not cost-intensive.

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ANNEXURE

1. GENDER-RESPONSIVE MOBILITY INDICATORS AND DATA COLLECTION FRAMEWORK

There are several agencies working towards the safety of women in the transport sector. Their names are given below:

1. Kerala State Transport Department
2. Kerala State Road Transport Corporation (KSRTC)
3. Kerala Motor Vehicles Department (KMVD)
4. Kochi Municipal Corporation (KMC)
5. Kochi Metropolitan Transport Authority (KMTA)
6. Kerala Police
7. Kerala Social Justice Department

These agencies record different data sets pertaining to women's travel pattern, enforcement initiatives, and women employment. However, a concerted effort is required to improve women's safety in public transport. For which, there is an urgent need to collate and analyse data on these aspects. Data in the transportation sector is collected through three sources: 1) Ticketing systems, 2) Comprehensive Mobility Plans (CMP), and 3) Infrastructure and employee records with the different agencies. The data through the Integrated Transportation Management Systems (ITMS) is recorded by KSRTC. The CMP is prepared by the KMC, and is now within the mandate of the newly formed KMTA.

The objective of this document is to create a data framework, which can be used by the State Transport Department or the KMTA for collating and analyzing data sources which can help in developing women-centric transportation systems, and monitoring the progress

The data sets have been created for:

1. Assessing and planning public transportation system
2. Assessing and planning first and last mile
3. Women employment in transport sector
4. Outcome indicators of mobility plans

1.1 ASSESSING AND PLANNING PUBLIC TRANSPORT SYSTEM

The services of public transportation systems are assessed in terms of various parameters. The major data sources used for the assessment is the ticketing data and surveys from the comprehensive mobility plan. Currently the ticketing data and data collected from the comprehensive mobility plans is not gender segregated. However, suitable modifications in the collection systems can make segregated data available, which can help the authorities to take decisions regarding infrastructure development and deployment of special services for women.

Ticketing system in KSRTC: Currently, Electronic Ticketing Machines (ETMs) are used by KSRTC for ticketing which records the stage-wise boarding-alighting data, which is not gender-segregated. The ETMs allows categorization of tickets on various parameters such as senior citizens, differently abled, children, etc. Suitable programming in the ETMs enables the collection of gender-segregated data as well.

Ticketing system in KMRL: Three modes of ticketing: 1) paper or token based, 2) Kochi1 card, and 3) QR code payment through mobile. The Kochi1 card is a personalized card, whose registration requires input details related to sex and age. Disaggregated data for all transactions from the Kochi1 card can be collated. Suitable programming can also facilitate collection of gender-segregated data through paper or token-based ticketing.

Ticketing system in private buses: Kochi has several private bus operators. Seven of these have been organized under the Kochi Metropolitan Transport Cooperative Society Ltd (KMTCS). The buses within the society, apart from the

paper-based tickets, use the Kochi1 card. Some of the private companies also use ETMs for ticketing.

Table 1 evaluates the availability, crowd, perception and quality of bus travel, which includes the infrastructure, vehicles and institutional framework for coordination and capacity development.

TABLE 3: INDICATORS FOR BUS-BASED PUBLIC TRANSPORT

INDICATOR	MEASURE	MEASUREMENT SOURCE	ADDITIONAL AGENCIES	NEED FOR THE DATA	STATUS AND ACTION PLAN
OVERALL SYSTEM					
1. Availability of buses	• Number of equivalent standard buses per lakh population in the city (considering public and private buses) • Percentage of buses as per urban bus specification II – Space for persons on wheelchairs and strollers – Lower grab bars – Minimum 700 mm gangway – Doors with a clear width of at least 1000 mm – Women-only doors – Transparent windows – Low-floor – CCTV cameras – Adjustable seat height (to cater to female drivers)	Data on intra-city buses	• KSRTC • KURTC • KSPBOF • Private buses	• Assess sufficiency of the existing number of buses • Evaluate the level of comfort and accessibility provided in buses for people of all abilities	Collation and assessment required **Short term**
2. Women's travel pattern	Overall system-level and route-wise assessment of women, girls, elderly, and other genders' use of public transport: • Boarding and alighting, bus stops with high and low footfalls • Travel in the peak and off-peak hours, weekdays, and weekends • Time of travel in public transport • Trip distances by public transport • Women-only doors When preparing route rationalization plans, it is recommended that increased travel time, waiting and travel costs be disaggregated by sex and income	Ticket data Format: XLS and maps	• KSRTC • KURTC • KMRL • Private operators/MVD	Assess the number of seats to be reserved for women (and other genders), ladies' special buses, assigning female and trans drivers and conductors on routes with higher ridership of women and other genders, fare concessions for students, senior citizens, and persons with disabilities Assess the need for increasing number of buses along routes with high overall and female loads and crowding Assess the need to include specific amelioration strategies for women and girls due to route rationalization of bus services	KSRTC: This data is collected through ETMs. The ETMs can be programmed to collect information on gender, students, senior citizens, and persons with disabilities Private buses: The extension of the Kochi1 card and use of ETMs for all private buses can facilitate collection of disaggregated data KMRL: Kochi1 card collects data on gender and age as well. The tickets/ tokens issued needs to be categorized in the system based on sex. **Medium term**

INDICATOR	MEASURE	MEASUREMENT SOURCE	ADDITIONAL AGENCIES	NEED FOR THE DATA	STATUS AND ACTION PLAN
3. Information and communication	Percentage of bus stops with • Real time information, • Bus schedule • helpline numbers and emergency numbers • Percentage of public transport fleet with • Real time audio • Helpline numbers and emergency numbers	Primary assessment along road stretches and buses	• DA • ROA • MC	Evaluate improvement in the travel experience of passengers, assess the reduction in the perceived waiting time of passengers	Transport Department is in the process of installing PIS on bus stops and vehicles. Incremental updating can be done based on the infrastructure upgradation. **Long term**
4. Terminal / metro station infrastructure	Facilities provided for women, girls, persons with disabilities, and other genders; utilization and perception of these facilities. This includes staff/ personnel and passengers • Free public toilets • Resting lounge • Nursing rooms • Free drinking water • Other amenities Messages on increasing awareness on sexual harassment reporting	KSRTC	• KSRTC • KMRL	Assess the utilization and quality of facilities provided.	**Short term**
5. Universally accessible, well-lit bus shelters	Safety audits of bus stops. Percentage of sheltered bus stops with • Lighting • Transparent back panels • Seating • Signage • Vendors • Dustbins	Primary assessment along road stretches Format: XLS	• DA • ROA • MC	Assess accessibility and safety of bus stops for women, other genders, and people of all abilities.	This data can be collected when preparing the CMP or public transportation plans **Long term**
7. Feedback, complaints reporting, and redressal system	Complaints within vehicle or on bus stop/ terminals • Bus stop/ station/ terminal name • Time • Route number • Gender • Age	• KSRTC • KMRL Format: XLS	• KSRTC • KMRL	Assess the route numbers, bus stops with higher complaints, and deploy suitable service/ infrastructure such as CCTV cameras, patrols	Data only partially available currently. **Medium term**

Source: Adapted from Shah and Rajiv (2020); Shah, Viswanath, et al. (2017).

1.2 ASSESSING AND PLANNING THE FIRST AND LAST MILE

These indicators aim to evaluate the quality of walking and cycling infrastructure, lighting, spaces allocated for street vendors, and availability of public toilets for women. While some of this data is already collected as part of the CMP, additional gender-specific data can be collected on a project basis to ensure that street re-design projects consider the needs of women, girls, and other genders. We would also recommend regular street audits to identify unsafe areas, and unsafe bus stops.

Street network and pedestrian infrastructure

TABLE 4: INDICATORS FOR STREET NETWORK AND PEDESTRIAN INFRASTRUCTURE

INDICATOR	DEFINITION	MEASUREMENT SOURCE	AGENCY	NEED FOR THE DATA	STATUS AND ACTION PLAN
PEDESTRIAN INFRASTRUCTURE					
1. Pedestrian-oriented streets and nodes	Percentage of road stretches with a right of way of 12 m and above with universally accessible, shaded footpaths with minimum 3.0 m width (or LOS B as per IRC:103-2012, whichever is more), and <12 m Percentage of roads 24 m and above with well-drained, uniform, dedicated cycle tracks[1]. Assessing the area within 500 mts of major bus stations/ metro stations for pedestrian footpaths and accessibility	Primary assessment of road stretches/ CMP Format: XLS and maps	• DA • ROA • MC	Assess road safety and the quality of pedestrian infrastructure	This data is collected as part of the CMP and DP. It needs to be categorized and collated for this purpose **Short term**
3. Unsafe spaces	Participatory street audits and mapping of blind spots, dead and unsafe spaces on streets in the day and night*	Primary assessment of road stretches with groups of women, girls and other genders Format: XLS and maps	• DA • ROA • MC • WCD	Identify unsafe spaces at the local level and how these can be addressed to create safer streets	This data can be collected incrementally on a project basis **Medium term**
4. Street vendors and public space workers	Spaces allocated for street vendors, disaggregated by sex Public space workers, disaggregated by sex	Primary assessment of road stretches Format: XLS and maps	• ROA • MC with inputs from the TVC and Kudumbashree	Assess gender diversity on streets, perception of safety on streets through informal surveillance by vendors	Survey and registration of all street vendors is compulsory as per the Kerala Street Vendors Livelihood and Regulation & Street Vendors Act. However, the survey and registration are not yet complete. Once registration is made compulsory, all details will be available with the ULB **Medium term**

1 If a public bicycle sharing system is implemented, the safety of the stations should be assessed through safety audits. The location of the sharing stations should be assessed to ensure they serve trips made by women and girls. The cycles should be designed considering women's height, and include space for carrying bags etc.

INDICATOR	DEFINITION	MEASUREMENT SOURCE	AGENCY	NEED FOR THE DATA	STATUS AND ACTION PLAN
5. Public toilets	Public toilets are available, easily accessible, with water, electricity and supplies, childcare facilities, and ensure privacy, dignity, safety, and menstrual hygiene management, with norms as per SBM (U)	Primary assessment Format: XLS and maps	• DA • MC • SW	Provision of hygienic public toilets with all the necessary facilities will encourage the movement, productivity, and participation of women and other genders in public life	The list of public toilets will be available with the ULB. It will have to be collated from ward offices and mapped **Short term**
6. Vanitha police patrols	The number of patrols along public transport and IPT corridors in the day and night, and the project stretch	Number and mapping of the patrols along PT and IPT routes Format: XLS and maps	• HD • TD	Assess if the patrols need to be increased along PT and IPT corridors to address sexual harassment faced by women	This data will be available with the Police Department and needs to be collated and mapped **Short term**

Source: Adapted from Shah and Rajiv (2020); Shah, Viswanath, et al. (2017); GIZ India (2016).

**** Blind spots***

Blind spots are are stretches where the view ahead is obstructed. The lack of visual access to such spaces can create fear and a sense of insecurity.

Dead spaces

Dead spaces are locations that have little to no activity. These deserted spaces are also often isolated and, thus, are considered unsafe.

1.3 WOMEN EMPLOYMENT IN THE TRANSPORT SECTOR

These sets of indicators show women participation in the transport sector at different levels. Based on the progress of this indicator, suitable policy recommendations can be initiated to increase women participation. These data sets also look into the policy-level initiatives and the level of supporting infrastructure provided in the office.

TABLE 5: INDICATORS TO ASSESS WOMEN EMPLOYMENT

1. Employment	Percentage of employment of women, other genders, and PWD in public transport agencies • Classes I, II, III, IV, V • Department-wise • Drivers (in the metro rail) • Drivers, conductors, depot managers, ticket checkers (buses)	Data on employment	• MVD • TD • KSRTC • KURTC • KSPBOF • KMRL • Traffic police	Assess the need to increase employment for women, PWDs, and other genders by grade, department or as front-line personnel	Administrative department or HR department **Short term**
2. Office infrastructure	Facilities provided for women, girls, persons with disabilities, and other genders • Toilets • Resting lounge • Creche, nursing rooms • Canteens with subsidized meals • Other amenities	• KSRTC • KMRL	• KSRTC • KMRL	Assess the type and quality of infrastructure provided for employees/ staff/ personnel	**Short term**

1. Gender-inclusive human resource policies	Human resource policies to create a safe, gender equitable environment Perception survey by sex and age amongst different classes of staff to assess the sufficiency and quality of infrastructure provided as well as opportunities for growth and promotion	• KSRTC • KMRL	• KSRTC • KMRL	Assess organizational policies and measures undertaken to create a safe and gender equitable work environment	This is compiled annually by STUs and metro rail agencies. The framework for data collection will need to be created. **Short term**

1.4 OUTCOME INDICATORS FOR MOBILITY PLANS

These outcome indicators aim to assess if an urban transport system is responsive to the needs of women, girls, and other genders in terms of their accessibility, affordability, time poverty, experience of safety, and sexual harassment. Since the CMP for GCR has been prepared, a section can be added to focus on gender and social equity. Since CMP collects travel behaviour data at the household level, it can be disaggregated by sex, age and income. Additionally, a CMP also includes information on public transport routes, headways, road networks, which can be used to understand public transport connectivity and median block parameters. Finally, it is recommended that the section on gender and social equity be situated within a larger context of women, girls, marginalized groups status and access to economic, educational opportunities.

TABLE 6: OUTCOME INDICATORS

INDICATOR	MEASURE	MEASUREMENT SOURCE	AGENCY	NEED FOR THE DATA	STATUS AND ACTION PLAN
2. Mode shares, disaggregated by sex, age, and income	Percentage of walking, cycling, public transport (buses, train, and metro rail separately), intermediate public transport	Travel surveys/ CMP Format: XLS	• DA • MC	Assess women's use of different modes of transport and purpose, and monitor future targets	**Short term**
3. Median non-motorized trip time, disaggregated by sex, age, and income	Median walking and cycling trip time	Travel surveys/ CMP Format: XLS	• DA • MC	Assess women's time poverty due to lack of access to cycling, PT and IPT	**Short term**
4. Cost on transport per month	Individual monthly expenditure, disaggregated by sex and income; household monthly expenditure on transport, disaggregated by income groups	Travel surveys/ CMP Format: XLS	• DA • MC	Assess affordability of transportation	**Short term**
5. Sexual harassment faced and perception of safety	Sexual harassment faced by women, girls and other genders on the streets, waiting for buses and IPT, boarding and alighting, and traveling inside the vehicles Women's, girls' and other genders' perception of safety in public spaces, accessing and using public transport in the day and night	Perception surveys by public transport authorities, travel surveys in the CMP Format: XLS	• DA • MC • WCD • TD – KSRTC – KURTC – KMRL – MVD • HD • ROA	Baseline to understand the extent and type of sexual harassment faced by women, perception of safety, security, and restricted mobility	GIZ has conducted a survey of the perception and experience of safety and security in public transport in three cities in Kerala in 2020. The findings can be used as a baseline. Over a period, this survey can be extended to other genders **Short term**

Source: Adapted from Shah and Rajiv (2020); Shah, Viswanath, et al. (2017).


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