December 2024

WE2: Path Forward to Increase Women's Use and Uptake of Electric Two-Wheelers

THE URBAN CATALYSTS

HIGH VOLUME TRANSPORT APPLIED RESEARCH

UK International Development
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DT Global

Source: *Azad Foundation*

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ACKNOWLEDGEMENTS

We are grateful to Shri Sudhendu J. Sinha, Adviser (Infrastructure Connectivity and Electric Mobility, NITI Aayog, Government of India) for his support and guidance throughout the research.

We sincerely acknowledge the guidance and valuable feedback provided by our advisory group members during the course of our research. The working group members include Abhinav Soman, Dr. Laghu Parashar, Kirsty Rowan Marcus, Monika Saxena, and Rohan Modi. Their inputs were invaluable in shaping the outcomes of this study.

We also extend our appreciation to the key informants, some of whom are Aayushi Jain, Amegh Gopinath, Bhavya Sharma, Lalit Kumar, Meera Sundararajan, Nehal Gupta, and Rubina Aziz, among others.

The DT Global Team provided us support throughout the research. We appreciate the technical reviews by Holger Dalkmann, leadership by Neil Ebenezer and project management support by Rita Mc-Intyre Pantz and Mihaela Vocila.

Core Team Members: Sonal Shah, Manisha Sharma, Lakshmi R, Adithya D, Shradha Gupta, Sutanu Pati, Priyadarshi Singh, Namrata Daniel

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Suggested Citation

The Urban Catalysts. (2024). *WE2: Path Forward to Increase Women's Use and Uptake of Electric Two- Wheelers.* The Urban Catalysts: Mumbai.

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***Source**: Azad Foundation*

List of Abbreviations

CIBIL	Credit Information Bureau (India) Limited
CPO	Charging Point Operators
E2W	Electric Two-Wheeler
E3W	Electric Three-Wheeler
LTV	Loan To Value
MHI	Ministry of Heavy Industries
MoP	Ministry of Power
MoRTH	Ministry of Road Transport and Highways
NBFC	Non-Banking Financial Corporation
NITI	National Institution for Transforming India
OEMs	Original Equipment Manufacturers
PCS	Public Charging Station
SIAM	Society of Indian Automobile Manufacturers
TCO	Total Cost of Ownership

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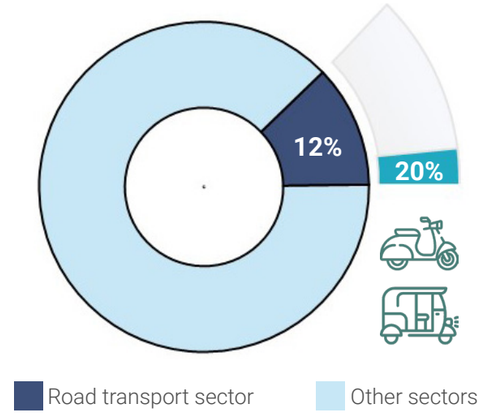
NEED FOR THE STUDY

Figure 1: CO_2 emission by two and three-wheelers in 2021



The transition to electric two-wheelers (E2Ws) is essential for advancing low-carbon transport in India. India's road transport sector is responsible for 12% of the country's energy-related emissions (280 million tonnes), with two- and three-wheelers contributing 20% of this (Figure 1) (1).

Figure 2: Share of two-wheelers in total vehicles registration as of September 2024

As of September 2024, two-wheelers represent 73% of the registered vehicle fleet (Figure 2) (2) and 62% of electric vehicle (EV) sales from September 2023-24 (Figure 3), yet EV penetration is below 6%.

Figure 3: Share of E2Ws among total electric vehicles sold between September 2023-34

Figure 4: Driving licences issued to women up to March 2020

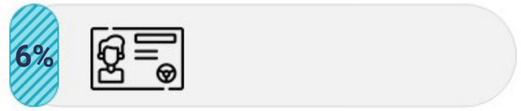
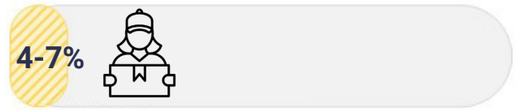


Figure 5: Female delivery drivers in India in 2021



Women are under-represented as drivers, delivery partners and as two-wheeler owners. The gig economy, particularly in last-mile delivery, is projected to grow by $165.6 billion between 2022 and 2027 (which could be driven by Internal Combustion Engine (ICE) or electric two-wheelers) (3).

Women in India form a small fraction of drivers, constituting only 6.3% of the total driving licences issued as of March 2020 (Figure 4). However, the share of driving licences issued to women has increased at a Compound Annual Growth Rate (CAGR) of 9.3%. In 2019-20, 12% of all driving licences were issued to women (4). Yet, only 4-7% of delivery drivers were women in 2021 (Figure 5) (5). Addressing this gender gap is vital for ensuring low carbon transport and employment pathways.

RESEARCH METHODOLOGY

This research focused on understanding the gender differences in the use of E2Ws in India; identify the barriers that restrict and opportunities that enable women's use of E2Ws. The cities of Chennai and Delhi were taken as case examples.

Feedback on research methodology and tools from advisory group

1 Literature review

- *Review of literature on women and E2Ws*
- *Landscape assessment of organisations working to increase women's access and use of EVs*
- *Institutional analysis of the electric mobility ecosystem*
- *Gendered analysis of state EV policies*
- *Develop primary research tools*

2 Data collection and analysis

- *Focus group discussions with ICE and electric two-wheeler users*
- *Key informant interviews with E2W industry players, including Original Equipment Manufacturers (OEMs), Charging Point Operators (CPOs), platform companies, financing institutions government stakeholders*
- *Primary surveys with both men and women using ICE and electric two-wheelers*
- *Infrastructural audit of E2W charging points in Delhi and Chennai*

Data analysis presentation to key informants and advisory group

3 Path forward

- *Recommendations for central and state governments, and for EV industry*

Feedback by advisory group on recommendations

The process was guided by a multi-stakeholder advisory group, including government representatives, development finance institutions and cooperation agencies and from the private sector.

KEY FINDINGS

Our research identifies five key entry points -vehicle design, financing, driver training and licencing, charging infrastructure and institutional support. Institutional support is central to addressing the barriers women face across all key entry points.

01

Driver training and licencing

Women often rely on family members to learn how to drive, which may be attributed to the limited availability of female driving instructors. There is a significant lack of awareness among users regarding the online licencing process and the documentation required to obtain a driving licence.

As a result, many individuals resort to using agents, incurring costs that are approximately 2.5 to 2.7 times higher than the government prescribed fees (Figure 6).

> ***Despite needing a two-wheeler for my job, I faced challenges in obtaining a loan due to a low CIBIL Score, which is difficult to improve without employment. However, my sister with her strong CIBIL score from employment, extended her support by taking the loan for me.***
>
> ***- A female commercial EV user, Chennai***

02

Financing

The Total Cost of Ownership (TCO) of E2W, for an ownership period of 10 years, is 1.2 to 1.7 times higher for women than men (Figure 7), largely due to lower usage patterns influenced by women's care work. Close to half (46%) of female respondents who obtained loans doing so in the name of a male relative. These barriers are due to low or no CIBIL[1] scores, higher down payments and interest rates, the requirement for male co-signatories, and overall low levels of financial literacy among women.

Figure 6: Cost of obtaining a driving licence

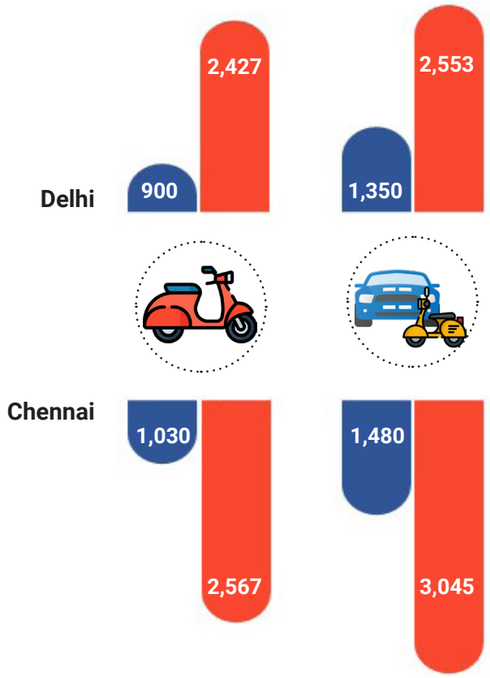
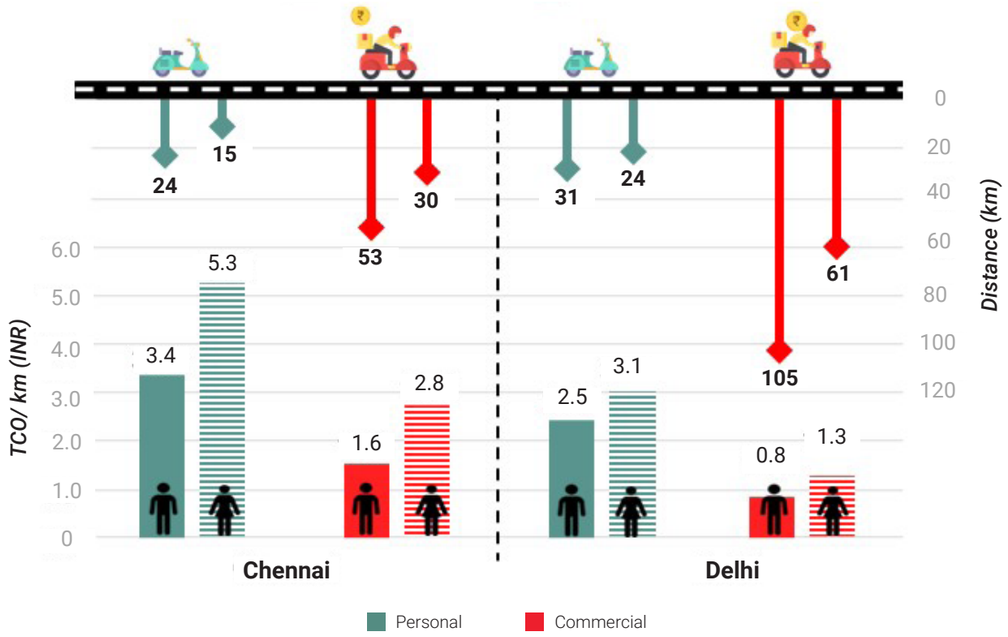


Figure 7: Gender difference in travel distance and TCO of E2W by type of users



Note: *TCO is calculated over a 10-year ownership period and includes the cost of battery replacement. Additionally, it factors in the Delhi state subsidy of INR 5,000 per kWh and an INR 10,000 subsidy for Electric Mobility Promotion Scheme 2024. Individuals who have a fixed place of employment and travel from home to their workplace are considered as personal users. Individuals without a fixed place of employment who make multiple trips throughout the day are classified as commercial users. For example, a Swiggy delivery personnel falls under this category.*

03

Design of E2W

The existing users expressed concerns regarding vehicle stability and skidding at higher speeds, battery safety issues during monsoons, long vehicle service times at Original Equipment Manufacturers (OEM) service centres, fewer authorised service centres with trained mechanics and limited availability of spare parts in local market. Post-sales service emerged as a major concern due to a limited number of skilled E2W technicians. Women, in particular, highlighted the concerns around insufficient knowledge of the integrated digital tools available in E2Ws and prioritise reverse and hill assist.

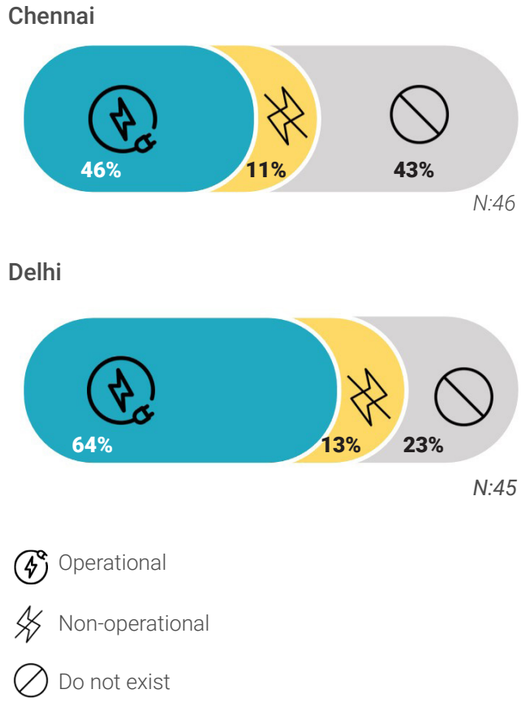
04

Charging infrastructure

While E2W users primarily rely on home charging, women often restrict their travel due to range anxiety. As of August 2024, Chennai has 151 public charging points (6), whereas Delhi has 2,452 charging points (7). Our audits of charging points indicate that only, 46% and 64% of the charging points are operational in Chennai and Delhi respectively (Figure 8 and 9).

This translates to one charging point for every 103 EVs in Delhi and one charging point for every 455 EVs in Chennai, in comparison to 6-20 EVs for one public charger globally (8).

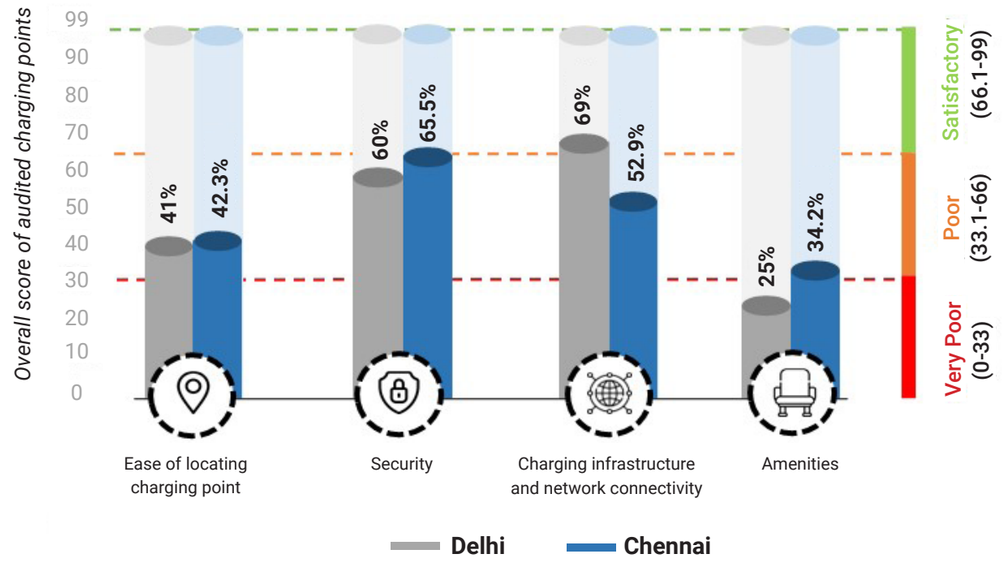
Figure 8: Findings from audited charging points in Chennai and Delhi in 2024



From a user perspective, key challenges faced by women while accessing charging infrastructure include, outdated information on charging point locations, unsafe environments, a lack of clear guidance on how to use charging facilities, a limited availability of fast charging options, and insufficient basic amenities during wait times.

> ***Chennai is a flood-prone area, especially my locality. I am genuinely concerned about my EV scooter and the risk of electrical malfunction if water enters critical components.***
>
> ***-A female personal EV user, Chennai***

Figure 9: Average score of audited charging stations in Chennai and Delhi[2]



05

Institutional support

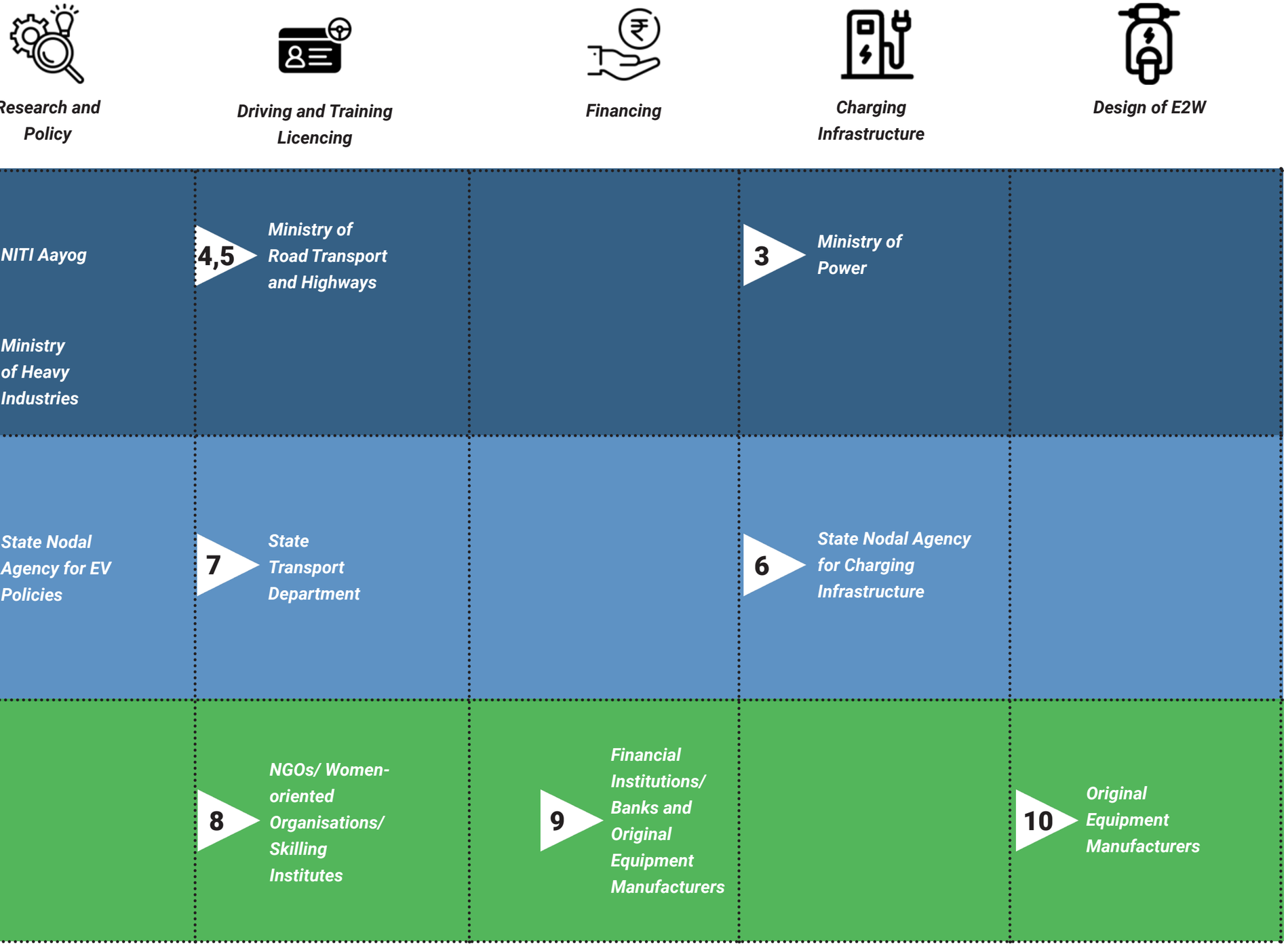
Institutional support to women is provided by women-oriented organisations and platform companies for employment such as cab drivers, delivery personnel and in wellness and beauty services. Organisations face challenges in mobilising and onboarding women as delivery partners due to several factors, including household concerns about women's mobility and perceptions of delivery work. High dropout rates during or after training are often attributed to limited family support. The shortage of female driving instructors, lack of clear information on the online licencing process, and limited access to smart phones/computers and the internet for completing applications pose additional concerns.

Post-sales support is a major area of improvement. The existing E2W users mentioned waiting for 2-3 days to submit their vehicles for service with turnaround times ranging from 3 to 6 months. There is a shortage of skilled EV technicians for the repair and maintenance of E2Ws.

> ***One day, my two-wheeler charge was very low, so I decided to take my two-wheeler to a nearby mall, planning to charge it while I roamed around. However, upon arrival, I realised that the charging port did not suit my vehicle. I became really scared as my two-wheeler started blinking due to the low battery. Somehow, I managed to make it back home, but it was a nightmare for me.***
>
> ***- A female personal EV user, Chennai***

Source: *Azad Foundation*

THE PATH FORWARD



THE PATH FORWARD

The central government, through its various ministries and departments, regulates and oversees the electric mobility ecosystem in India. Through a comprehensive framework of legislation, rules, policies, and guidelines such as Faster Adoption and Manufacturing of Electric Vehicles (FAME), EV charging standards, delicencing of EV charging services, capping of EV tariff for charging infrastructure, model Development Control Regulations (DCR) and building codes for EV charging, and green licence plates for EVs, central government have supported the EV ecosystem at national level. Therefore, we call for coordinated national-level actions involving NITI Aayog, the Ministry of Heavy Industries (MHI), and other relevant stakeholders to ensure that the transition to electric mobility is both inclusive and equitable.

1 Conduct research on the gender differences and similarities in the ownership and use of E2Ws in India

Numerous studies have examined how vehicle specifications—such as speed, range, maintenance, reliability, and cost—affect consumer behaviour regarding the adoption of E2Ws (9). Our research has highlighted the gender differences in travel behaviour and the use of E2Ws, financial literacy and access to finance, perception and quality of charging infrastructure, and the need for institutional support (especially for female commercial workers).

NITI Aayog[3] can lead research to understand women's ownership[4] of E2Ws, the gendered regional differences impacting the uptake of E2Ws and how the ecosystem could address the barriers faced by women. This could be in partnership with the Ministry of Heavy Industries, Ministry of Power (MOP) and Ministry of Road Transport and Highways (MoRTH).

2 Create a roadmap for a gender-just transition to electric mobility systems

In 2023, MHI was identified as the nodal agency for formulating business rules related to electric mobility. It created a multi-stakeholder EV Taskforce to address different aspects of the transition to electric mobility. It is recommended that MHI convene a Working Group focused on a gender-just transition to electric vehicles with a focus on employment in the EV and Electric Vehicle Supply Equipment (EVSE) value chain and increasing women's uptake of electric vehicles.

3 Develop a gender-sensitive checklist for assessing and approval of charging points

The Ministry of Power issued revised Guidelines for Installation and Operation of EV Charging Infrastructure (GIOEVCI)- 2024[5] in September 2024. The Urban Catalysts developed a framework for assessing the quality of charging points to improve the user experience, with a focus on women. This framework can be used to provide a checklist that the CPOs could use to self-certify their charging point at the time of obtaining approval.

4 Track and publish annual data on registration of electric (and ICE) vehicles by gender

There is no gender-disaggregated data on the registration of vehicles, both ICE and EV. The Vahan database offers information on the total number of registered vehicles categorized by fuel type at both the state and Regional Transport Office (RTO) levels. Access to gender-disaggregated data is essential for understanding vehicle-asset ownership rates among women and for implementing evidence-based measures to enhance the gender responsiveness of the EV ecosystem. Stockholm (Sweden) is one such example which collects and publishes gender-disaggregated vehicle registration data since 2010 (10).

FORM 20

[See Rule 47]

APPLICATION FOR REGISTRATION OF A MOTOR VEHICLE

(To be made in duplicate if the vehicle is held under an agreement of Hire-Purchase/Lease/Hypothecation and duplicate copy with the endorsement of the Registering Authority to be returned to the Financier simultaneously on Registration of motor vehicle)

To

The Registering Authority,

.....

1. Full name of person to be registered as Registered owner : .....

   Son / Wife / Daughter of : .....
2. Age of person to be registered as Registered owner : .....
3. Permanent address : .....
   (Electoral Roll / Life Insurance Policy / Passport / Pay Slip issued by any office of the Central Government/State Government or a local body/Any other document or documents as may be prescribed by the State Government/Affidavit sworn before an Executive Magistrate or a First Class Judicial Magistrate or a Notary Public to be enclosed) .....
4. Temporary address/Official address, if any : .....

Therefore, Form 20 - filled at the time of vehicle registration[6], should be updated to collect gender information of vehicle owners. Since Form 20 is standardized across all states in India, MoRTH will have to update the form.

> ***Even if I go to the mall for charging, the charging points are located in the parking area where there are no lights, security, or other people around. It's challenging to stand alone there while charging***
>
> ***- A female personal EV user***

The state transport department is responsible to ensure that RTOs adopt the updated form. The gender-disaggregated data should be collected at the time of registration for the following types of vehicles (Table 1), as specified by MoRTH:

Table 1: Types of motor vehicles as per MoRTH

Non-Transport Vehicles	Transport Vehicles
• Motorcycle with or without sidecar for personal use	• Motor cycle use for hire
• Moped and motorized cycle	• 3-wheelers public/ private service vehicle
• Motor car	• Public service vehicles

***Source**: (11)*

5 Strengthen the licencing process

MoRTH has developed the SARTHI portal to digitise the licencing process across all states. This unified platform enables individuals from any state to apply for a driving licence. Our recommendations aim to address multiple broken links in the process of obtaining a two-wheeler licence.

Implement an automated video proctoring[7] during the online learner's licence test

When applying for a learner's licence, a photo verification is conducted prior to the online test to confirm the individual's identity. However, there is no video monitoring during the test, which could create opportunities for others to take the test on the applicant's behalf. Implementing video proctoring would enable real-time monitoring of applicants and reduce the instances of impersonation. This measure is also important for road safety, as two-wheelers were involved in 40% of vehicle collision accidents in Delhi and 62% in Tamil Nadu in 2022 (12).

Update the tutorial for learner's licence

The current tutorial video for the learner's licence in Delhi lacks information on road signage and traffic rules. It should be modified to include information on road crash deaths and their impact on households, traffic rules and signage in English and local languages. A prompt can be provided for learners to confirm having watched the video before taking the learner's licence test.

***Source**: Even Cargo*

Provide an option to apply for and take the learner's licence test at the RTO[8]

As per the National Family Health Survey 2019-21, only 19% of urban and 4% of rural households owned a computer.

Selected RTOs in cities can provide computer systems and time slots at the office where an individual may apply for the learner's licence and/ or take the online learner's licence test for a nominal fee.

6 Review and revise state EV policies

With transportation being a concurrent subject, states have policy and implementation levers needed to catalyse the transition to electric mobility. State EV policies have been adopted to increase EV adoption and stimulate the manufacturing of EVs and their components. Our recommendations at the sub-national level focus on revising EV policies and improving the licencing processes.

***Source**: Azad Foundation*

Develop gender-responsive vision, goals and set targets for adoption of E2Ws amongst women in state EV policies

The analysis of Delhi and Tamil Nadu EV policies indicate that both policies did not account the differential risks, vulnerabilities, and barriers women face in electric mobility systems as users, service providers (such as drivers, mechanics, etc.), and decision-makers, including the socio-cultural and economic realities and power relations that exist.

Provide an additional purchase subsidy to women for electric two-wheelers

The purchase subsidies are aimed at providing a parity in the acquisition costs for electric two-wheelers amongst men and women. For example, an additional[10] subsidy of INR 3,000/kWh, up to a maximum of INR 10,000/ vehicle in Delhi could reduce the TCO for women by 15% to 29% depending on whether the use is commercial[11] or personal[12] purposes. Similarly, an additional subsidy of INR 10,000 per vehicle in Chennai, Tamil Nadu, could reduce TCO for women by 16% to 39%[13].

***Source**: Even Cargo*

Box 1 **Illustrations of gender-responsive vision and goals**

Existing vision of Tamil Nadu EV policy:

The Government of Tamil Nadu has a vision of attracting Rs. 50,000 crore worth of investments in EV manufacturing, creation of 1.5 lakhs new jobs during the policy period.

Indicative example of gender-responsive vision:

"The Government of Tamil Nadu seeks to attract ₹50,000 crore worth of investments in EV manufacturing and create 1.5 lakhs new jobs during the policy period, with at least 40%[9] women in these jobs."

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Box 2 Case examples of financial support provided by different states

Amma Two-Wheeler Scheme for Working Women- Tamil Nadu

Tamil Nadu's Department of Social Welfare and Women Empowerment implemented the "Amma Two-Wheeler Scheme for Working Women" in 2018 to support 100,000 women in purchasing two-wheelers[14] by offering a 50% subsidy, up to INR 25,000 (13).

Mission Shakti Scooter Yojna- Odisha

In 2023, the Government of Odisha launched the "Mission Shakti Scooter Yojna" for a duration of one year. The scheme, implemented by the Department of Mission Shakti, offers an interest-free loan of up to INR 1 lakh to women working as Mission Shakti Federation Leaders[15] and community support staff (14).

Provide a training-to-employment subsidy for women EV technicians and driving instructors in empanelled private institutes

The primary survey with users underlined the need for local mechanics for EV repairs and maintenance and driving instructors. Courses for EV technicians offered by private institutes[16] in Delhi have a duration of 1 to 2 months and have a training fee of INR 20,000-25,000 per participant. The curriculum covers key topics such as the fundamentals of electric vehicle systems, servicing and maintenance of E2Ws and E3Ws, fault diagnosis and troubleshooting, battery management systems, EV wiring, lithium-ion battery testing, battery fitting, and replacement procedures. Typically, these short-term courses do not offer placement guarantee but instead provide information on job vacancies. Based on secondary information, few women typically participate in these courses and these institutions do not specifically target women as students for this program. The proposed subsidy[17] aims to encourage skilling institutes to forge partnerships with OEMs and other stakeholders to offer learning to earning courses for EV technicians and driving instructors and attract women to these roles.

***Source**: Azad Foundation*

Box 3 Case examples of skilling initiatives for EV technicians

Government initiative: Tamil Nadu

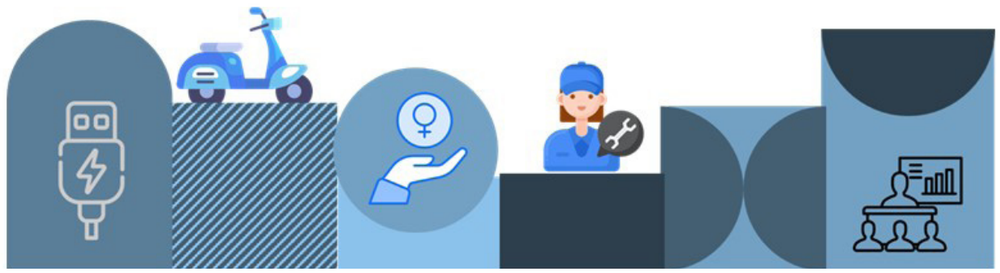
Under its EV policy, Tamil Nadu offers an allowance aimed at building a skilled EV workforce. The policy provides a training subsidy of INR 4,000 per worker per month for six months to automotive companies transitioning from ICE to EV manufacturing. For women, transgender employees, individuals with benchmarked disabilities, and persons from SC/ST communities, the training subsidy increases to INR 6,000 per worker per month for the same duration.

Private Initiatives- Don Bosco Training Centre, Pune

Don Bosco Training Centre collaborated with Schaeffler India through its CSR initiative to provide a 6-month EVs- including 2Ws, 3Ws and 4Ws- maintenance course for 180 underprivileged individuals (of aged 18-24) in Pune, Maharashtra (15). The National Skill Development Corporation accredit the program. Female students receive free training, uniforms, and essential accessories.

Private Initiatives- Tata Indian Institute of Skills, Ahmedabad

Tata Indian Institute of Skills (TIIS) has partnered with Ather Energy to provide a course for E2W technicians (16). Ather Energy will develop detailed training modules focused on technical areas, including battery systems, electric motors, power electronics, charging infrastructure, and vehicle safety protocols. The curriculum will incorporate practical training on EV maintenance, repair, diagnostics, and include soft skills development in communication, teamwork, and problem-solving. The OEM will also provide vehicles, motors, batteries, and other key hardware to EV laboratories at Tata IIS facilities. Furthermore, Ather Energy will conduct training sessions for Tata IIS instructors at its own manufacturing plants and R&D centres.



Include driving instructor and E2W technician courses in Industrial Training Institutes (ITIs) and collaborate with OEMs for placement support

There are 20 ITIs in Delhi. Their course duration is of 1-2 years, a comparatively lower fee structure than private institutions; and female students are required to pay only half of the admission fee, with no subsequent fees charged thereafter (17). However, ITIs do not offer courses for E2W technicians. It is recommended that such a course be introduced by the Directorate of Training and Technical Education (DTTE) in collaboration with OEMs. The DTTE can further explore existing industrial collaborations (18) with companies like Hero MotoCorp Ltd. and TVS Motors Ltd. which have previously supported ITIs in Delhi by facilitating training programs in two-wheeler trades.

In Chennai, two ITIs—Guindy and North Chennai ITIs—offer a two-year course on EV mechanics (19). This course includes both practical and theoretical classes, along with a mandatory 150 days of on-the-job training. The curriculum covers key areas such as the tools required for EV maintenance, vehicle specifications, components of EVs and internal combustion engine vehicles, electronic systems, diagnosis, repair, and performance evaluation of EVs. It also focuses on troubleshooting electrical components, understanding battery pack components and monitoring, as well as testing and troubleshooting accessory and auxiliary components, including those for E2Ws, E3Ws, and E4Ws.The course fee information is not available online.

Ensure CPOs self-certify that their charging stations are compliant

State Nodal Agencies (SNA) have to ensure that CPOs self-certify that their charging points comply with safety, location, amenities and network connectivity standards at the time of obtaining an electricity connection (for stations on private land) or as a part of the revenue-sharing agreement with land-owning agency for public land. The Transport Department of Delhi and Guidance in Tamil Nadu- as nodal agencies- have to ensure this compliance in coordination with DISCOMs and land-owning agencies.

Include gender experts in state EV cells

Both Tamil Nadu and Delhi's EV policies mandate the establishment of an EV Cell or Task Force to assist the SNA in policy implementation. The role of the gender experts (with expertise in mobility, finance and community engagement) will be to support the SNA such as Transport Department in Delhi and the EV Task Force within Guidance in Tamil Nadu in increasing women's uptake of EVs in the state, and increase women's employment in the EV value chain.

7 Strengthen the licencing process

Raise awareness on the online process of obtaining a licence

An online application process to apply for a driving licence process is available for all Indian states, including Delhi and Tamil Nadu. Applicants can submit the relevant documents, take the learner's test, and book a slot for the practical test through the online portal. However, there was limited awareness amongst our respondents on this process.

The Transport Departments in Tamil Nadu[18] and Delhi could launch an awareness campaign through multimedia channels and targeted outreach in colleges through partnerships with industry such as platform aggregators, delivery companies, the Federation of Automobile Dealers Association (FADA) and the Society of Indian Automobiles Association (SIAM). The messages include step-by-step instructions on required documents, copies, expected time frames for obtaining and renewing a two-wheeler licence. These can be uploaded on the RTO website, at the offices and shared through community channels such as YouTube, as advertisements on television and at movie theatres.

***Source**: Azad Foundation*

Pilot-test women priority services

Women priority services maybe pilot tested to ease the process of obtaining licences by women and to encourage them to handle the process (rather than their male family members, friends or relatives). This may include but is not limited to having a resource list of (legitimate driving schools with) female two-wheeler driving instructors, waiving the two-wheeler licence fee for women and introducing women priority services. This includes addressing queries by women and men alternatively, irrespective of where a woman is in the queue, priority time slots for women to take the online learner's test at the RTO and the physical driving test.

8 Institutional support

Mobilisation of women

Gender-responsive mobilisation strategies can be used to enrol women in driving training and the potential use of E2Ws. These strategies include deploying female mobilisers for outreach, communication and serve as a point of contact for women and their household members. They can provide information on the benefits of participating as platform partners, asset ownership, available support services and existing grievance redress mechanisms.

Women's membership-based organisations may serve as a channel to seek out potential participants. Male commercial workers can be encouraged to refer their female relatives, friends and family members. Women commercial workers can be celebrated as Sheroes and community champions. Simultaneously, their household members need to be recognized and felicitated as allies and supporters.

New participants can be twinned with experienced women workers in the initial period. A network could be created with regular community meetings between Sheroes, women and their household members to share experiences. This will enable peer learning and create role models who exemplify success (especially in non-traditional livelihoods). Engaging household members can also facilitate discussions around the benefits of E2Ws and the importance of women's economic empowerment.

Driver training

Currently, organisations engaged in providing driving training to women include the following: driving 2Ws[19], self-defence, soft skills along with any additional training required for employment such as digital literacy to use online platforms and for online transactions.

Furthermore, some organisations emphasize gender rights[20] and legal rights, and English language proficiency. The driving training could also include E2Ws, understand and operating their digital tools[21], information on various financing options with their respective pros and cons, and repair and maintenance of E2Ws.

Driving licence for 2Ws

The primary surveys with women two-wheeler drivers and key informant interviews with supporting organisations revealed several challenges in obtaining a driver's licence. These include understanding the required documents, accessing RTOs, and navigating the RTO processes. However, all surveyed respondents had obtained their licences 6-9 years prior. The application process for driving licences has transitioned online in all states in India since 2023 (20), but primary survey indicates a lack of information regarding this change amongst the participants, including women.

Women with lower education and limited access to devices such as smartphones or laptops may require support in accessing the online portal and completing the online test for the learner's licence. According to the National Family Health Survey 2019-21, only 33% of women[22] in India have ever used internet as compared to 51% of men.

Women require support on multiple fronts, including assistance with applying for a licence, passing the online learner's licence test, and accessing E2Ws for the driving test. Furthermore, women from resource-constrained backgrounds may require targeted assistance to navigate the digital application processes effectively.

***Source**: Azad Foundation*

Box 4

Institutional support provided in E2W and E3W driving training and licences for women

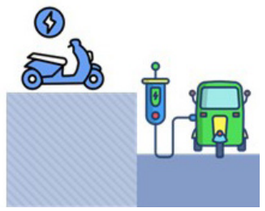
Even Cargo *is a social enterprise that employs resource-poor women as last-mile logistics personnel. To address high drop-out rates among women, Even Cargo is trying to build a community among women working by organising regular meetings, professional development sessions, and seminars on stress management and work-life balance (21). It provides a minimum wage to women delivery partners to support them during the initial two months of their work and places newly trained women with more experienced partners (22).*

A pilot test for EWEE scheme- SIDBI

SIDBI implemented the EWEE[23] (Empowering Women and Enhancing their Business through E-Mobility) scheme in partnership with SEWA, National Resources Defense Council, OEMs, and AMU leasing - a Non-banking Financial Corporations (NBFCs). It conducted a study with rural women of Rajasthan and Gujarat affiliated with SEWA. The participants were women who owned ICE 2Ws, travelled long distances (200-350 km per week), and spent 20-40% of their family income to fuel and maintenance costs (23). The objective was to reduce these expenses by transitioning to E2Ws. As part of the pilot, women were given an extended demo of E2Ws for 6-7 months, allowing them to make an informed decision about purchasing an E2W. They were also provided with loans at affordable rates, reducing the acquisition cost of an E2W by 6%.

Namma Yatri- Bengaluru

Namma Yatri, an auto service aggregator, launched the Mahila Shakti program in collaboration with the Bengaluru City Police and the Dr. B R Ambedkar Health and Education Foundation (BRAHEF) to onboard 1,000 female auto drivers (24). The initiative seeks to promote economic independence for women aged 25-45 by providing opportunities for higher income and flexible working hours. The program offers one year of free training covering practical driving, traffic laws, safety, vehicle maintenance, smartphone usage, and customer service skills. BRAHEF assists participants in obtaining a learner's licence. To facilitate access to vehicles, Namma Yatri provides electric autos on a daily rental basis and supports vehicle ownership through low-interest financing options. Currently, around 100 female electric auto drivers are onboarded on the Namma Yatri platform and are actively working in the city (25).



9 Enable asset ownership

For asset ownership, the institutional support required includes: (i) providing information to female users on available E2Ws and their functionalities; (ii) increasing their financial literacy; (iii) creating women oriented financial products; and (iv) assisting users throughout the loan or lease application process. The key recommendations to provide support to women are outlined below.

Provide targeted information to female users on E2Ws and their functionalities

OEMs should adopt gender-inclusive advertising that highlight women riders and emphasize key benefits of E2Ws for women, such as ease of use, safety, and environmental impact. These include the weight of the E2W, the ease of parking, seat width, storage capacity and how their digital tools ease the process of navigation in plains, driving on hilly terrain and slopes.

The information on the number of charging points or battery swapping stations, interoperability and availability on a travel navigation application may address range anxiety. Finally, clearly outlining a responsive grievance redress mechanism may be beneficial and ease concerns around emergency situations. Hero MotoCorp's *"Ab Jaana Ho Jahan"* campaign highlights its SOS button[24]. This will enable women to make informed decisions regarding E2W ownership and use. OEMs can collaborate with women-oriented organisations to raise awareness about E2Ws.

Additionally, facilitated women-only E2W user groups can create a safe environment to share experiences and serve as valuable networks for peer learning and support. Referral programs that offer higher incentives (either monetary or service benefits) for women can be explored.

Increase women's financial literacy on credit access for purchasing E2Ws

The primary survey and key informant interviews highlight a significant gap in women's financial literacy, particularly in areas such as credit assessment, customised financial products, loan and lease schemes, required documentation, and repayment terms. This knowledge gap limits their ability to make financial decisions regarding the purchase of an E2W.

This information could be disseminated by bank business correspondents (BCs) at E2W showrooms. Additionally, banks could deploy female representatives at the showrooms/retail shops of OEMs who are trained to understand and address the unique needs of women consumers.

Create women oriented financial products and support women throughout the loan application process

NBFCs in India have funded around 64% of the E2W market, in contrast to the 30% provided by commercial banks (26). Women receive credit for only 27% of the deposits they make, compared to 52% for men (27). Generally, the down payment required for E2Ws is higher (25%) than ICE two-wheelers (10%) (26). However, primary surveys conducted with E2W users reveal that women are making higher down payments (Loan to Value: 32%) as compared to men (Loan to Value: 26%). Co-applicants are requested and higher interest rates are charged when applicants have a zero or low CIBIL score.

There are some examples such as the BC Sakhis under the National Rural Livelihoods Mission, which can be adapted for resource poor settlements in urban areas or peer-to-peer credit platforms (28).

Since an E2W can serve as a collateral, the requirement of a CIBIL score and a guarantor or co-applicant can be reviewed if a woman has a letter of employment or engagement. Financial institutions could consider recruiting more female business correspondents to provide essential information related to financial loan processes, products and support throughout the process.

***Source**: Azad Foundation*

Box 5 **Institutional support in increasing access to credit for purchasing E2W amongst women**

Mufin[25]

Mufin, a NBFC providing loans for E2Ws and E3Ws since 2016, currently has around 12% female borrowers. In an effort to promote financial inclusivity and expand the number of women borrowers in its portfolio, Mufin has developed a tailored financial product at a reduced interest rate of 9.9%, compared to the its standard electric vehicle loan rates of 14-18%. Additional advantages include a waiver of processing fees, and providing loans to borrowers without a CIBIL score. The loan approval process takes 1-2 days, with repayment terms ranging from 18 to 24 months. The income-to-obligation[26] ratio is generally not assessed, as the vehicle is considered an income-generating asset.

10 Provide effective post-sales support

Post-sales support is a major area of improvement. Respondents mentioned waiting for 2-3 days to submit their vehicles for service with turnaround times ranging from 3 to 6 months. There is a shortage of skilled EV technicians for the repair and maintenance of E2Ws.

***Source**: Motor World India*

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To further support users during the early months of ownership, OEMs should offer pickup services for E2Ws that fail to start due to battery drainage or any other issues. Although such services are typically chargeable, OEMs should consider offering them at a nominal fee to improve customer experience.

OEMs can also think of creating an Interactive Voice Response (IVR) system to assist users during vehicle breakdowns, offering guidance on resolving common issues. The IVR could provide troubleshooting guidance for common issues and offer escalation options for on-site repairs, towing, or battery replacement services when necessary. These services may be offered on a chargeable basis, depending on the nature of the issue and the customer's location.

Several E2W brands have incorporated SOS buttons into their mobile applications. However, integrating an SOS button directly on the E2W can enhance user safety. Some E2W models already include this feature in the vehicle itself, allowing users to send a pre-programmed SOS message to designated emergency contacts with a single press.

This eliminates the need for users to download an additional application for emergency situations, streamlining the response process and ensuring quicker access to help when needed. The SOS button could be configured to send the vehicle's location to the OEM or aggregator with the option of including the user's emergency contacts to ensure prompt assistance in case of an emergency.

***Source**: AI Generated*

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ENDNOTES

1. 'CIBIL score' are often used synonymously with 'credit score' and refer to a three-digit score between 300 and 900. CIBIL stands for Credit Information Bureau India Limited, an Indian credit rating bureau that collects and maintains credit information on individuals and businesses.
2. The Urban Catalysts developed a gender-responsive Charging Infrastructure Assessment Framework designed to evaluate charging points from a user perspective. The framework is structured around four key indicators, with 23 associated attributes. These indicators include: (i) ease of locating charging stations, (ii) security, (iii) charging infrastructure and network connectivity, and (iv) available amenities.
3. Public policy think tank of the Government of India.
4. The Ministry of Road Transport and Highways (MoRTH) maintains the VAHAN portal, which provides vehicle registration data categorized by fuel type at both the state and RTO levels. However, gender-disaggregated data on vehicle ownership is not available on the VAHAN dashboard.
5. It includes recommendations provided by The Urban Catalysts in Functionality and User Experience checklist (Checklist B- Annex II) for CPOs and in Section 11 (4), which focuses on placement of charging stations. However, there are additional areas of improvement, which could be included by the Ministry of Power and state nodal agencies.
6. The vehicle registration process, including the completion of Form 20, is typically handled by the dealer.
7. Video proctoring is a use of technology to monitor and supervise online exams. It involves using cameras and software to record and analyse a test-takers' behaviour during an exam.
8. MoRTH recently announced that applicants could take driving tests at private accredited testing centres and need not come to the RTO (31) .
9. As per the Annual Industries Survey 2018-2019, a 40% of total workers directly employed in manufacturing in Tamil Nadu are women (33).
10. Along with Delhi state subsidy of INR 5,000 per kWh and an INR 10,000 subsidy for Electric Mobility Promotion Scheme 2024.
11. Users who are involved in commercial activities, requiring multiple daily trips, are either registered on delivery platforms or employed by organizations for parcel and order distribution.
12. Users who use their E2W to commute to a fixed employment location without the need for multiple daily trips.
13. Since two-wheelers in Tamil Nadu are currently not registered in commercial category, the state EV subsidy is not being disbursed. It is proposed that the same subsidy could be disbursed to women users.
14. Maximum engine capacity of 125cc.
15. A Federation is a network of SHGs consisting of representatives from different geographical setting & levels- block & district levels. Its functions include providing support through need-based products and services, facilitating training and capacity building, conducting regular evaluations of SHG activities, and engaging in lobbying and advocacy (32). All SHGs are required to register or affiliate with a local federation in accordance with the Society Registration Act, 1860.
16. DG Institute of E-Mobility (accredited by Automotive Skill Development Council), Care Skill Academy.
17. The amount of which would need to be finalized.
18. Known as the Commissionerate of Transport and Road Safety.
19. In some cases, an E2W in partnership with an OEM.
20. Gender roles, rights and empower women to assert their positions within the household and advocate for themselves.
21. Even Cargo trains women on E2Ws.
22. Delhi: 64% (W), 85%(M); Tamil Nadu: 47% (W), 70% (M).
23. In 2024, SIDBI launched the EWEE (Empowering Women and Enhancing their Business through E-Mobility) scheme with the aim of increasing EV adoption in rural areas and improving women's access to finance. The scheme provides a blended finance facility, supported by NBFCs, to help women transition to EVs and reduce operational costs.
24. It does not provide information on the support process.
25. This information is obtained during the Key Informant Interview with the Mufin officials.
26. The income-to-obligation ratio is a metric used by lenders to assess a borrower's loan repayment capacity by comparing their income to fixed financial obligations. This ratio helps assess the borrower's financial capacity and risk level before approving a loan.

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Disclaimer: This study was funded by UKAID through the UK Foreign, Commonwealth & Development Office under the High-Volume Transport Applied Research Programme, managed by DT Global. The views expressed in this technical note do not necessarily reflect the UK government's official policies.