

WAY FORWARD FOR STREAMLINED E-RICKSHAW OPERATIONS — LEARNINGS FROM DELHI



In association with

SGA sustainable
mobility
solutions

Contributer



Acknowledgement: ICLEI South Asia would like to express its sincere gratitude to the officials from the Ministry of Road Transport and Highways (MoRTH), Ministry of Housing and Urban Affairs (MoHUA), Delhi EV Cell and the team of WRI, with whom the team interacted during the development of this report.

Submitted to: Climate Works Foundation

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People's Research Centre (PRC)

Year of Publishing: 2022

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1. Background

E-Rickshaws are a form of paratransit transport mode, operating as shared vehicles mostly on fixed routes between residential areas and public transport access points. Powered by four rechargeable lead-acid batteries¹ with power outputs ranging between 250-850W, these vehicles are allowed to run on smaller and less busy roads such as collector and local roads as the absence of a protective shell raises the risk of injury in the event of an accident (Figure 1).

E-rickshaws are allowed to carry a maximum of five people (including the driver), with a maximum luggage load of 40 kilograms. They need to be charged daily for 6-12 hours, which gives them a range of 80-110 km, depending on the life and condition of the battery (CapaCITIES 2018).



Figure 1: E-Rickshaw

As per a Centre of Civil Society (CCS) report, the number of e-rickshaws in Delhi has risen from 4000 in 2010 to more than one lakh today, while VAHAN data reveals that Delhi has 1.16 lakh registered e-rickshaws, of which 74,000 were registered in the last six years. The drivers/owners were reportedly earning Rs. 1000-1200 per day, according to a survey (Suthar 2017). However, many e-rickshaws are reportedly operating without any regulatory oversight. We know from primary surveys (discussed in the following sections) that 38% are 2-4 years old, 21% are 4-6 years old and 5% more than six years old, and that 14% are unregistered. This means that there are about 86,000 to 1,35,000 e-rickshaws in the city (an exact figure is not available as there are a large number of unregistered and illegal e-rickshaws that have not been approved by ARAI/ICAT). These vehicles are providing an essential zero-emission, low-cost and convenient transport mode, critical to ensuring mobility security for the people.

¹ The new generation of E- Rickshaw models are equipped with Lithium-Ion Batteries.



Figure 2: E-Rickshaw benefits for the driver

1.1. Comparison with other modes

E- rickshaws have become an integral part of the transport ecosystem in Delhi (Harding 2014). These **e-rickshaws are estimated to make 70 lakh passenger trips** daily (Figure 3) as compared to **42.6 lakh passenger trips** by the Delhi Metro (The Hindu 2022) and **42 Lakh passenger trips by DTC buses** (The Times of India 2022), as represented in Figure 4. Interactions with authorised e-rickshaw scrap dealers (Annexure-1) suggest that the number of e-rickshaws scrapped till date through authorised vendors may not even be in double digit numbers. However, our interactions with informal or unregulated e-rickshaw repair shop owners suggest that older e-rickshaws (more than 6-8 years old) may still be getting scrapped and their parts recycled (by local repair shops and individual operators) in the open market. However, the core finding is that the scrapping of ageing e-rickshaws has little impact on the known e-rickshaw (Figure 4) numbers in the city, and their numbers are expected to be close to 100,000 in the city.

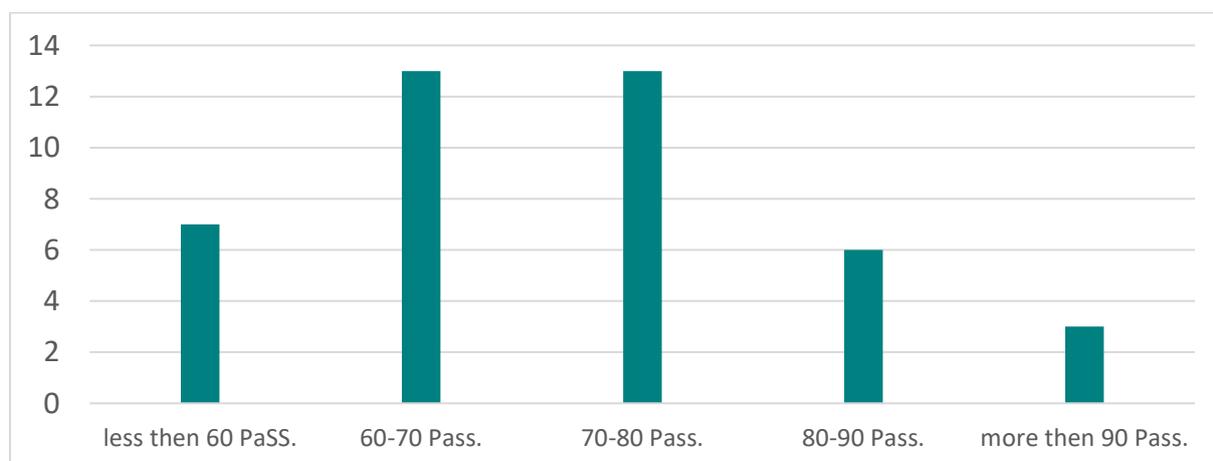


Figure 3: Passengers trips per e-rickshaw per day
(Source: primary survey by SGA, 2022)

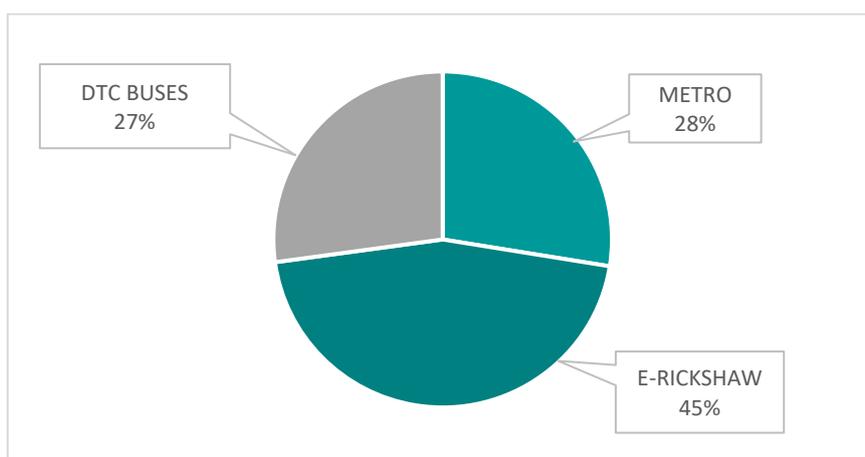


Figure 4: E-rickshaw trips versus other modes of transport
Source: SGA, 2022

1.2. History

Indigenous development of e-rickshaws started in India in the late 1990s with the goal of improving manual rickshaws. In 2010, e-rickshaws assembled with low-cost Chinese parts started being used in various urban and semi-urban areas of UP, Bihar and West Bengal and in the cities of some other states. They were launched in Delhi with the objective of phasing out conventional cycle rickshaws, but the plan changed when e-rickshaws were excluded from the non-motorised transport (NMT) category and included in Motor Vehicles Act (Govt. of India 2014b) as a last-mile connectivity modal option. E-rickshaws have since become a mode on their own, co-existing with cycle rickshaws in many cities.

E-rickshaws were introduced in Delhi during the 2010 Commonwealth Games for providing last-mile connectivity in residential areas. They were planned to be taxed by the government after the sporting event. Their numbers grew from 4000 in 2010 to close to 1,00,000 in 2014. The timeline of e-rickshaw regulations in Delhi is presented in Figure 5.

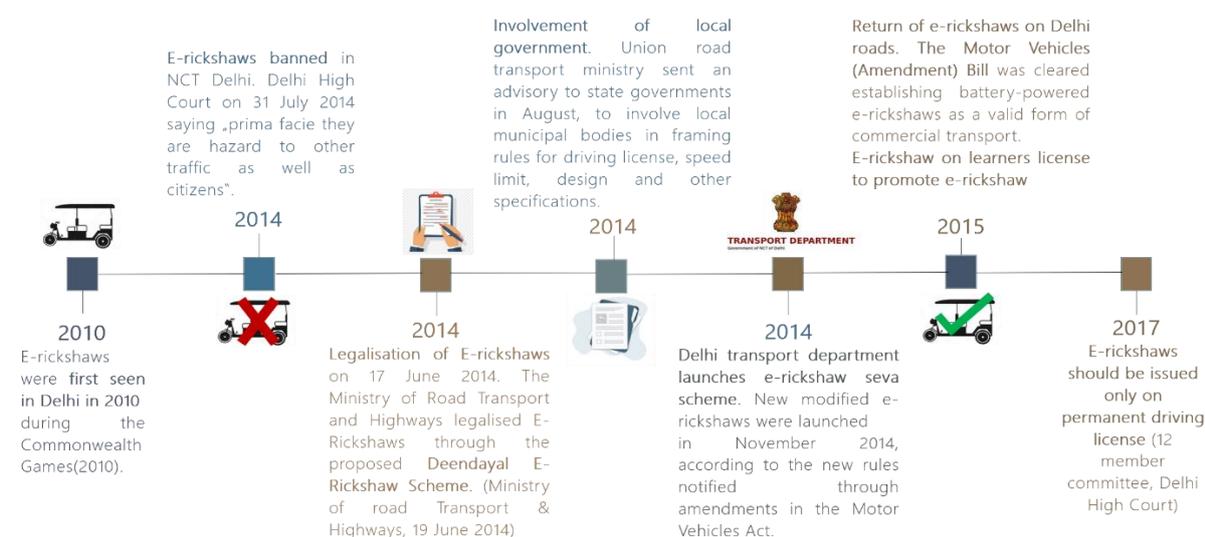


Figure 5: Timeline of E-rickshaw regulations in Delhi

1.3. Existing Policies and Schemes

The Central and the state governments have formulated several supporting/incentivising schemes and policies to promote sustainable transport through e-rickshaws and to regulate their functioning in Delhi. These include

1. **Electric Vehicle Initiative (EVI)**- It is a government policy forum, established in 2009 under the Clean Energy Ministerial (CEM), which is dedicated to accelerating the adoption of electric vehicles worldwide. India joined the 16-member forum in 2014.
2. **E-Rickshaw Sewa Scheme**- The scheme permits vehicles bought before October 2014 to get a certificate of road worthiness from their manufacturer or registered e-rickshaw association, and allows plying of e-rickshaws in the NCT of Delhi, provided they comply with certain specified conditions (GNCTD 2014).
3. **National Electric Mobility Mission Plan (NEMMP 2020)**- It was launched in 2013 to achieve national fuel security by promoting hybrid and electric vehicles.
4. **Motor Vehicles (Amendment) Act, 2014**- This notification was issued on 8 October, 2014, by the Ministry of Road Transport and Highways, Government of India. This is also known as the Central Motor Vehicles Sixteenth Amendment (Govt. of India 2014a) Rules. It defines e-rickshaws and provides their specifications as:

“E-rickshaw” means a special purpose battery-operated vehicle having three wheels and intended to provide last-mile connectivity for the transport of passengers for hire or reward, provided:

 - (i) Such vehicle is constructed or adapted to carry not more than four passengers, excluding the driver, and not more than 40 kilograms of luggage in total.
 - (ii) The net power of its motor is not more than 2000 watt.
 - (iii) The maximum speed of the vehicle is not more than 25 kilometres per hour.

It also stated that the driving license issued or renewed by the licensing authority for the operation of e-rickshaws will be valid only for three years or till its expiry date, whichever is earlier.
5. **Central Motor Vehicles Rules (CMVR Amendment, 2015) (Ministry of Law and Justice, 2015)**- It can also be referred to as The Motor Vehicles Amendment Act, 2015. It stated that e-rickshaw models must be approved by the International Centre for Automotive Technology (ICAT) at Manesar, Vehicle Research and Development Establishment (VRDE) Ahmednagar, Automotive Research Association of India (ARAI) in Pune or the Indian Institute of Petroleum (IIP) in Dehradun. CMVR (Amendment) 2015 was implemented on January 7, 2015 to clarify the procedure for obtaining driving licenses, related permits and other formalities required to drive an e-rickshaw, and provide the definition of e-rickshaws. It also stated that the specifications for the speed and dimensions can be regulated through rules that can be made under The Motor Vehicles Act, 1998.
6. **Pradhan Mantri Mudra Yojana (PMMY)**- The scheme was launched by the GoI² on April 8, 2015 with an aim to “fund the unfunded”, enabling small borrowers to take loans from PSUs³ and to return the amount within five years at very low rates of interest. There were three categories of loans - “Shishu” (up to Rs 50,000), “Kishor” (from Rs 50,000 to Rs 5 lakh) and “Tarun” (from Rs 5 lakhs to Rs 10 lakh) (Micro Units Development and Refinance Agency Limited, 2015)
7. **Central Taxi Policy**- This policy allows e-rickshaws to promote urban mobility and says that states should allow e-rickshaws to ply on city roads to provide last-mile connectivity to major public transport modes as they are a low-cost and zero-pollution option. The states may restrict the movement of e-rickshaws in certain areas in view of traffic conditions or their differential speeds.
8. **Subsidy scheme (2016)**- The Delhi Government has launched a scheme that provides Rs.15000 as subsidy to a total of 6000 owners of registered e-rickshaws; the amount is Rs 30000 for registered e-rickshaws bought after 2016. The subsidy is provided by the Delhi Pollution Control Committee, an autonomous body under the administrative control of the Department of Environment, GNCT Delhi.

² GoI: Government of India

³ PSUs: Public Sector Undertakings

2. Need of the study and its scope

Even though the e-rickshaw is an essential part of the mobility network in the city, there has been a very slight effort to understand or address the gaps in its performance, service quality, efficiency and safety. Such issues, if addressed properly, can significantly improve passenger and driver safety, comfort and economic well-being. To this end, ICLEI South Asia, in collaboration with SGA, has initiated this study to document the gaps and the pathways for addressing them for the benefit of both passengers and operators.

2.1. Aim

This study aims to develop a roadmap towards regularising e-rickshaw operations in Delhi in order to make them safer, more efficient, and beneficial for drivers/ single owners⁴ and passengers. It provides recommendations at the city level as well state level, in concurrence with the national government and the private sector for creating an enabling environment for e-rickshaws operations.

2.2. Objective

The objective of this study is to i develop effective policy interventions for e-rickshaws in Delhi. To address the same, the study focuses on identifying the existing gaps in e-rickshaw operations/services and potential mitigation of the strategies. The study outcomes intent to influence operational strategies and improve access to financing schemes(funding and subsidies) leading to acceleration of the infrastructure provisions (such as charging) in order to better organize the e-rickshaw mobility space. This will contribute to the growth of the e-mobility sector in Delhi.

2.3. Scope of the study

The study revolves around policy and regulatory assessment of operations of e-rickshaws in Delhi. The scope of work for the study included the following:

1. Identification and mapping of relevant stakeholders related to e-rickshaw operations.
2. Identification of various bottlenecks and barriers that deter e-rickshaw drivers from complying with government safety and operational parameters/ standards.
3. Study and assessment of various rules and regulations related to e-rickshaws in Indian cities. This included assessment of e-rickshaw notifications as part of the Motor Vehicle Acts and rules and a comparison of the rules and regulations regarding e-rickshaws.
4. Identification of various concerns and safety challenges of e-rickshaws.
5. Assessment and review of charging infrastructure and the existing e-rickshaw ecosystem operations undertaken by the government and private entities⁵.
6. Assessment of the impact of electricity pricing/ tariffs on the economic viability of charging stations.
7. Development of a policy framework to enable regularization of e-rickshaws.

2.4. Study Area

The study area is Delhi, but the outcomes obtained from the study can be applicable in other regions in the country. The details of the study area as well its map is provided in Chapter 0.

⁴Single owner refers to an individual owing the e- rickshaw.

⁵Private entities refer to private e- rickshaws owners/agencies

3. Approach & Methodology

The project team followed a five-step methodology in a sequential manner for the study. This included literature review on e-rickshaws, followed by consultation with e-rickshaw drivers, operators, maintenance units, local assemblers and charging infrastructure providers. Based on the data gathered from the primary and secondary sources, the study team hypothesized and prepared recommendations regarding e-rickshaws operations. These recommendations were escalated to the government and discussed through stakeholder interactions. Figure 6 presents the five-step methodology adopted for the study and the following sections elaborate each step of the methodology

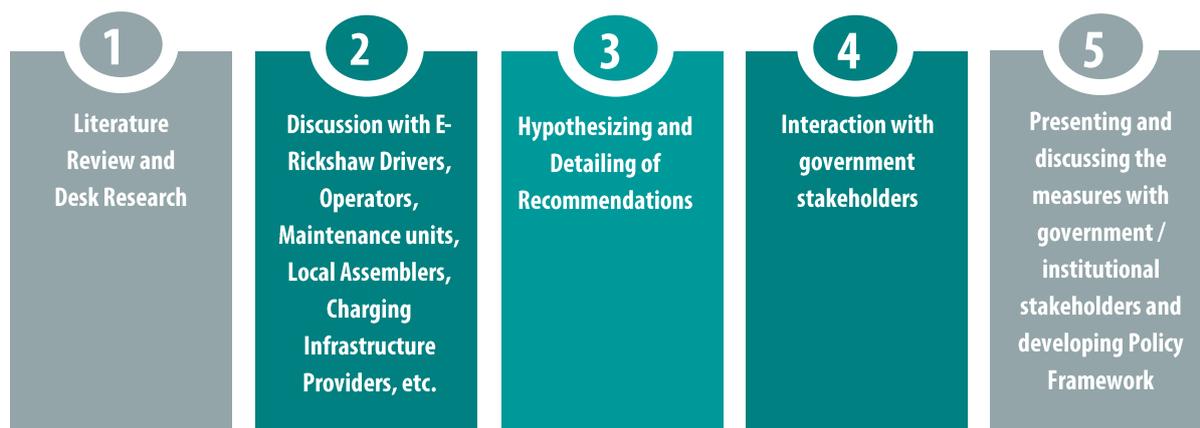


Figure 6: Methodology

4. Literature Review

This section of the document highlights the information collected about the existing e-rickshaw models and operations through desk research and covers the following:

1. Life cycle of an e-rickshaw
2. Standards for manufacturing e-rickshaws
3. Regulatory bodies involved in e-rickshaw operations

4.1. E-rickshaw life cycle

The life of an e-rickshaw covers five phases, as represented in Figure 7.

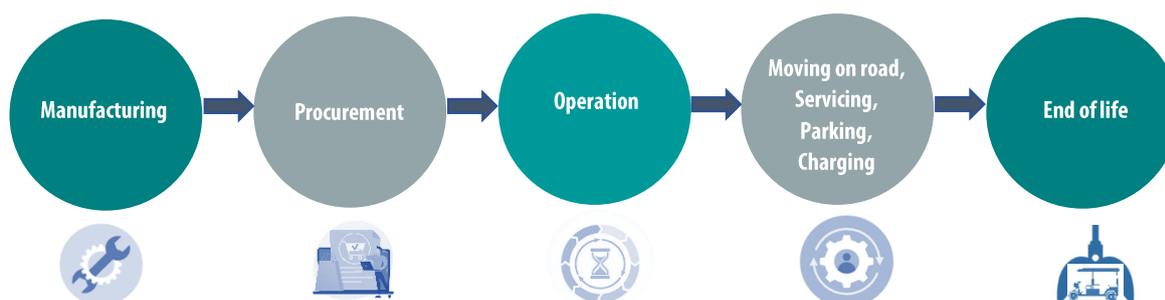


Figure 7: Life of an E-rickshaw

- a) **Manufacturing** - E-rickshaws are extremely lightweight and have a mild steel tubular chassis, consisting of three wheels. They use a brushless direct current motor, which is usually manufactured in China and India. The chassis in the Chinese version usually consists of very thin iron or aluminium sheets. Fibre versions are very popular in India owing to their endurance and low maintenance costs. The size and seating capacity of the vehicle varies from vendor to vendor, and some of them offer customisation as per the consumer's requirement. Thus, e-rickshaw designs can vary all the way from having no roof to a full body with windshield and other facilities for the driver and passengers (Syndicate Motors 2018). In India, authorized firms such as Saarthi and Syndicate Motors manufacture the chassis and parts that are assembled and sold by them. Unauthorised vehicles are locally assembled by unlicensed entities, using parts imported from different (usually unrecognised) manufacturers.
- b) **Procurement** – E-rickshaws are purchased by owners/ operators either through loans (annual/monthly instalments) or cash payment. However, with the boom of the electric vehicle industry in India, a lot of local manufacturers and dealers are providing loan assistance to customers. For procuring and operating e-rickshaws, the operator needs to follow the process presented in Figure 8.

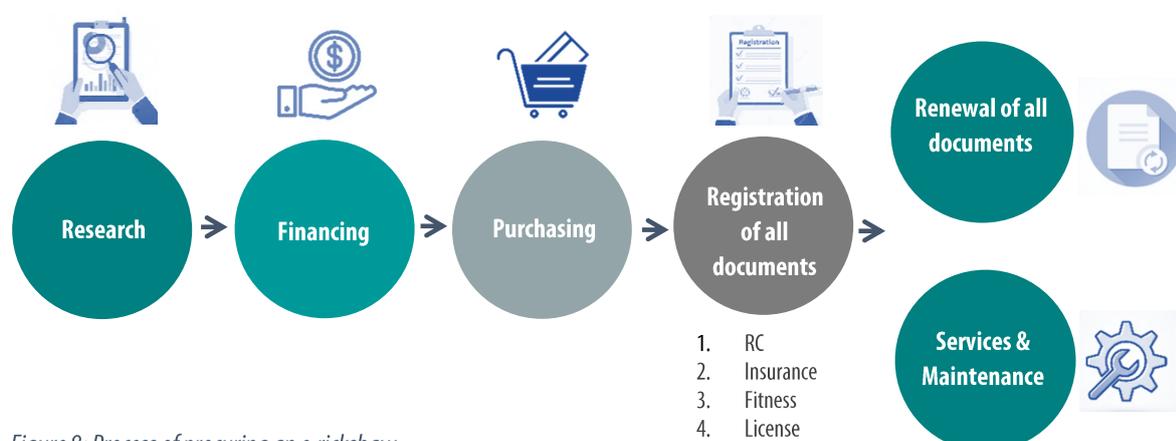


Figure 8: Process of procuring an e-rickshaw.

As in the case of other motor vehicles, e-rickshaws also have to be registered. The documents required for their registration and for getting a permit are listed in Figure 9.

Documents required for the grant/renewal of registration, certificate of fitness and permit

- Application for registration of a motor vehicle
- Sale Certificate, as applicable.
- Certificate of Roadworthiness, as applicable.
- Application for a Contract Carriage Permit
- Manufacturer's Invoice for initial registration
- Sale Invoice
- Copy of Certificate of fitness
- Valid Insurance Certificate; and
- Original Letter of Intent (LOI) - wherever applicable.



Figure 9: Documents required for registration, certificate of fitness and permit

- c) **Operation** – Mostly single owners operate e-rickshaws because the permits are issued on an individual basis. However, some operators buy multiple e-rickshaws in the names of their family members, creating a larger fleet. They may rent out the vehicles on a monthly or daily basis to other operators. Those who own several e-rickshaws also hire drivers, who are paid salaries, to run the vehicles. The operator needs to comply with a set of parameters to operate an e-rickshaw, as presented in Figure 10

PARAMETERS TO BE CHECKED

REGISTRATION CERTIFICATE	REGULATORY BODIES
LICENSE , UNIFORM	GOVERNING POLICIES
INSURANCE	TAXES
FITNESS	TRIP LENGTH
OWNERSHIP	AREA ALLOWED/ ROUTES

Figure 10: Parameters to be checked and complied with for operating an e-rickshaw.

E-rickshaw operators also require specific documents and certificates such as licenses and authorized registration that can be obtained through various processes and criteria, as described in Figure 11

<p>Grant of learner’s license to the drivers:</p> <p>The licensing authority in the area of their residence. Documents: the physical fitness declaration, medical certificate, proof of residence, age proof (>20 years of age). The driver has to pass a test for obtaining the learner's license.</p>
<p>Grant of permanent license to the driver:</p> <p>After 30 days of issue of learner's license or before its expiry. Documents: Certificate with a unique serial number, issued by a registered e-rickshaw 15 or e-cart association or a manufacturer stating that the person has undergone a training.</p>
<p>Registration of New E-rickshaw(sold after 8/10/2014):</p> <p>Licensing authority in the area. Documents: application form, sale certificate (issued by the manufacturer/dealer), certificate of roadworthiness from manufacturer, manufacture's and dealer's invoice, residence proof, insurance certificate, vehicle verification by Police, driving license to drive e-rickshaw, PSV badge, one time road tax and MCD parking fee (if applicable).</p>
<p>Registration for in-use/existing e-rickshaw (Sold before 8/10/2014):</p> <p>The license authority with the documents as mentioned for the new rickshaws, except the sale certificate and invoice, not required for older rickshaws. Model type approved from designated testing agency and registered within 90 days from the date of approval certificate.</p>
<p>Authorisation to drive transport vehicle (PSV badge):</p> <p>The licensing authority with the documents the form of issue of badge, residence proof, learner's license copies and verification certificate by the police department. The badge is issued only after antecedents and character verification has been completed by the police department.</p>

Figure 11: Procedures and documents required for various certificates

- d) **On-road operational requirements** –The e-rickshaw operator needs to perform three basic activities: parking, charging and servicing of the vehicle. The e-rickshaws can be charged at the driver’s residence or at commercial charging locations. They can be parked in the operators’ homes, in garages and shops or on streets. Their service and maintenance can be done either at authorised service centres or in local shops. Most drivers/operators of e-rickshaws are from the lower income bracket and live in informal

settlements, which means they are dependent on commercial establishments (usually informally operated) for parking and charging their vehicles.

- e) **End of life** – End-of-life e-rickshaws are either resold (used again after their servicing) or scrapped after their spare parts such as batteries, motor and tyres, are resold or recycled. The recycling is usually undertaken by the operators/ owners themselves (it is usually very easy to assemble and disassemble the e-rickshaw) or by local mechanics.

4.2. Standards and specifications

The major components of the e-rickshaw (Figure 12) are required to be approved by International Centre for Automotive Technology (ICAT) and Automotive R&D and Certification Institute (ARAI).

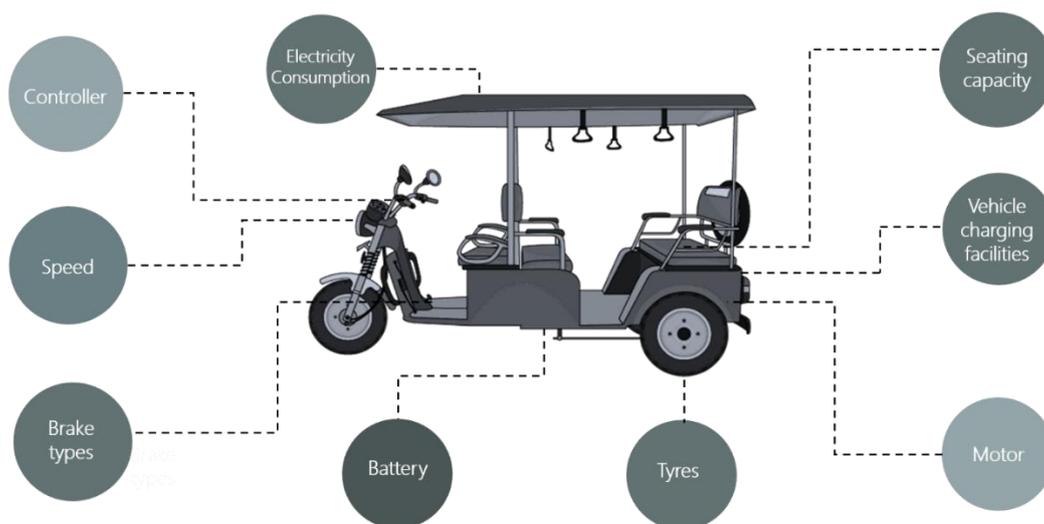


Figure 12: Components of an e-rickshaw

The different components, including the size of the e-rickshaw, need to adhere to ICAT/ARAI standards in order to ensure the safety of the passengers and drivers. Some of the ICAT/ARAI standards applicable in this context, along with observed operational parameters/norms, are presented in Figure 13.

- Vehicle dimensions**
2700 x 1000x 1750 mm (Max width 1000mm and max length of 2800mm)
- Capacity**
4 passengers + 1 driver and load capacity of 450kg
- Battery Specifications**
4 batteries | 100 Ah or more battery capacity| Lead acid
- Speed**
Speed restriction of maximum 25kmph
- Electricity consumption**
6-7 units per day
- Routes**
Not allowed on some arterial roads specified by the traffic department of Delhi

Figure 13: Standards specified by ICAT/ARAI and other norms/regulations for operations

4.3. Regulatory bodies

E-rickshaw operations are regulated by multiple bodies at different levels. The regional transport office takes care of their registration, while the safety standards are as per ARAI/ICAT norms and certification. The regulations, policies and subsidies are controlled by the State Transport Department and central ministries such as the Ministry of Road Transport and Highways (MoRTH), Ministry of Housing and Urban Affairs (MoHUA) and the Department of Heavy Industries. The traffic police manage the enforcement of regulations and permits for e-rickshaws and imposes challans on defaulters along with the state transport department. Local urban bodies like municipal corporations/ authorities/ council are responsible for the infrastructure provisions (Figure 14).

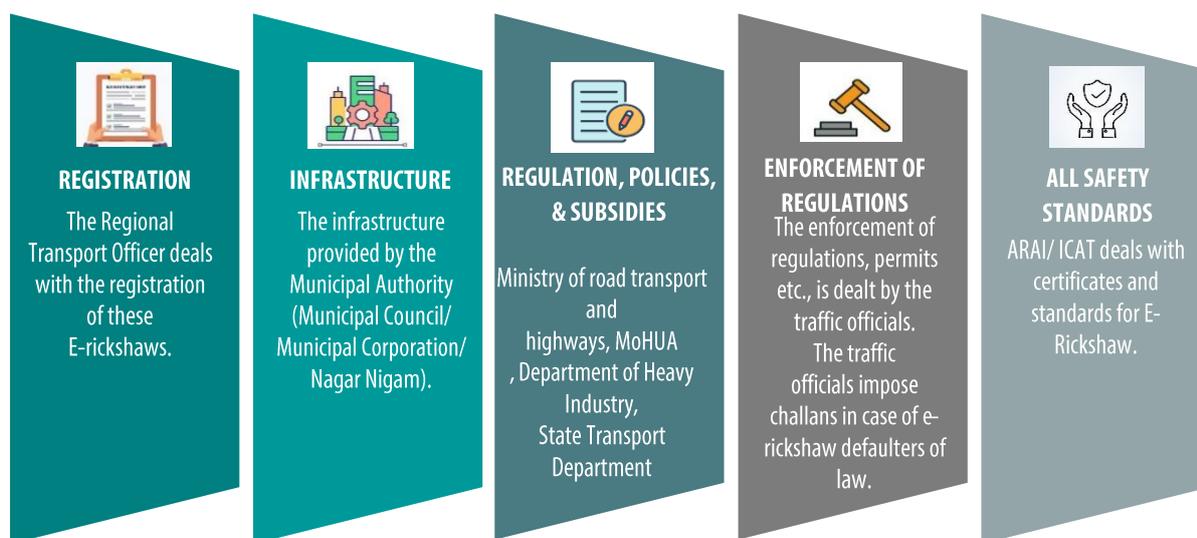


Figure 14: Different regulatory bodies and their functions

5. Primary Survey

As part of the study, interviews, surveys and focused group discussions were held with different stakeholders, who were:

- E-rickshaw drivers
- Representatives of e-rickshaw unions
- Owners of local repair shops
- Owners of private charging stations and parking areas

To get an unbiased and holistic picture and a better understanding of the ground situation, three Delhi areas were selected for the survey, involving focused group discussions and one-on-one interviews (Figure 15): Harkesh Nagar in South Delhi, Nangloi in North-West Delhi, and Bawana in North Delhi (Figure 16). The list of the drivers or owners involved in the survey is presented in Annexure 7. The survey covered:

- Driver Details
- Operational Details
- Subsidy
- Maintenance
- Trip characteristics
- Insurance
- Battery
- Enforcement



Figure 15: Pictures of FGDs and surveys

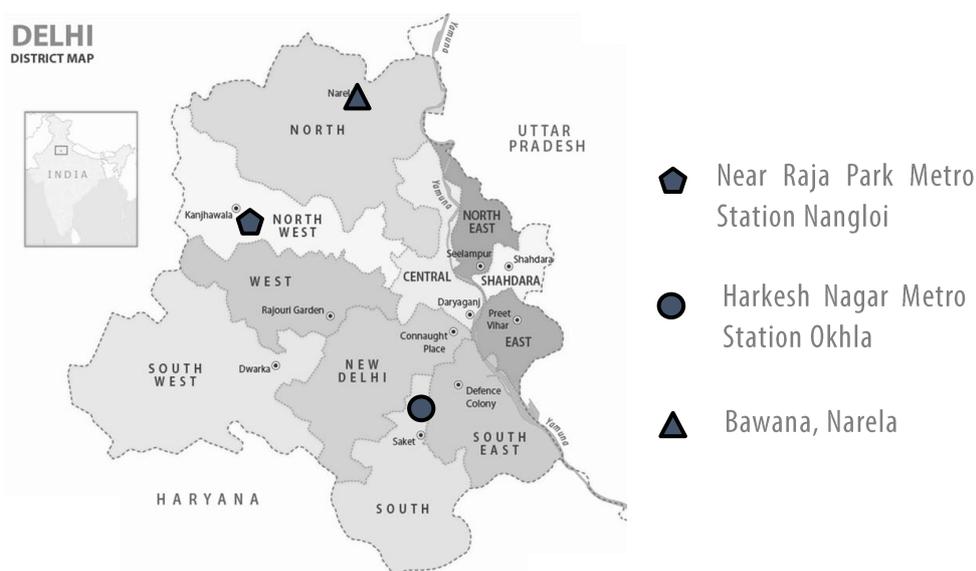


Figure 16: Location of FGDs, surveys and interviews

6. Gap Assessment Finding

Based on literature view, primary surveys and interviews with various stakeholders, including e-rickshaw drivers and associations / union members, the gaps in achieving safe, efficient, and financially viable e-rickshaw operations were identified. Meetings were held with officials from MoRTH and EV Cell- Transport Department Delhi to discuss the findings. The detailed minutes of these meetings are presented in Annexures 5 and 6, while the six heads under which the findings are categorized are presented in Figure 17. The findings are described in greater detail in the following sections:

MANUFACTURING	REGULATIONS & POLICY	INFRASTRUCTURE OPERATIONS	MAINTENANCE	VEHICLE DESIGN	ENFORCEMENT
<ul style="list-style-type: none"> • Registration • E-Rickshaw Models 	<ul style="list-style-type: none"> • Driving License • Subsidies • Ownership • Taxes and Route Flexibility • Cap on E-Rickshaw numbers 	<ul style="list-style-type: none"> • Infrastructure • Mobility Pattern (Routes) 	<ul style="list-style-type: none"> • Insurance • Fitness Certificate 	<ul style="list-style-type: none"> • Battery Types • Motor Protections • Seating Capacity 	<ul style="list-style-type: none"> • Law Enforcement

Figure 17: Gaps assessment findings

6.1. Manufacturing

There are two broad categories of e-rickshaws in terms of how they are manufactured. E-rickshaws manufactured and assembled in approved plants, such as those by Mahindra Motor Co. Ltd., follow specified norms for safety and durability (ARAI and ICAT norms) and are approved for sale and use in the city. Currently, 340 e-rickshaw manufacturers (Government of NCT of Delhi 2015) have ARAI/ICAT standard-compliant models (TERI 2017). The models of registered e-rickshaws, as per the primary survey, are shown in Figure 19. The other category has e-rickshaws that are locally assembled (by either the operator or the local repair shop) using individual parts. These do not comply with any norms and are therefore considered unsafe. These are, therefore, not approved for sale and use in the city. However, the current survey shows that 14% of the e-rickshaws in the city are still unregistered (Figure 18) and thus unsafe for use. Although this number is reducing, secondary data suggests that 21% of the e-rickshaws in the city were unregistered in 2018 (CapaCITIES 2018). This points to both lack of enforcement on part of the authorities and lack of awareness on the part of the operators.

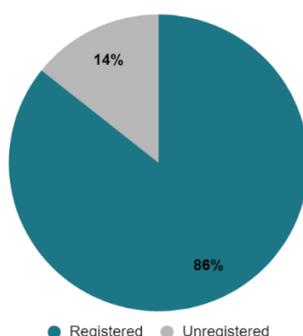


Figure 18: Registration of E-rickshaws⁶

⁶ Fourteen percent of the e-rickshaws on the road are unregistered. These are mostly self-assembled and have not been sold by an authorised manufacturer/dealer.

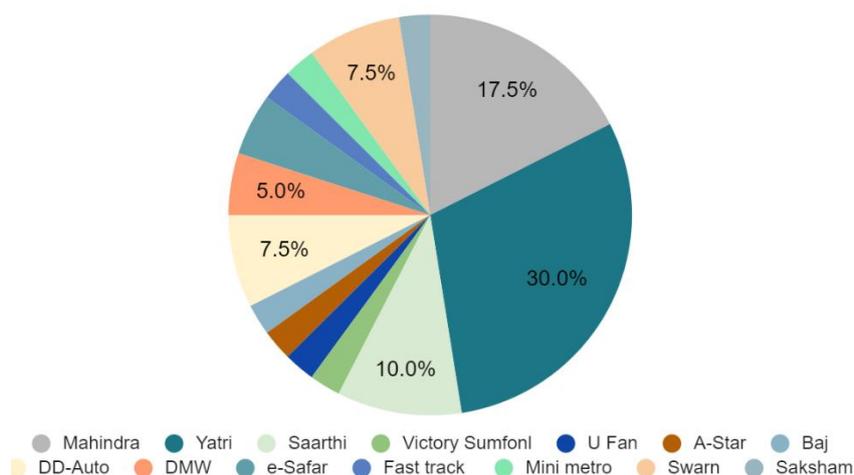


Figure 19: Models of registered e-rickshaws

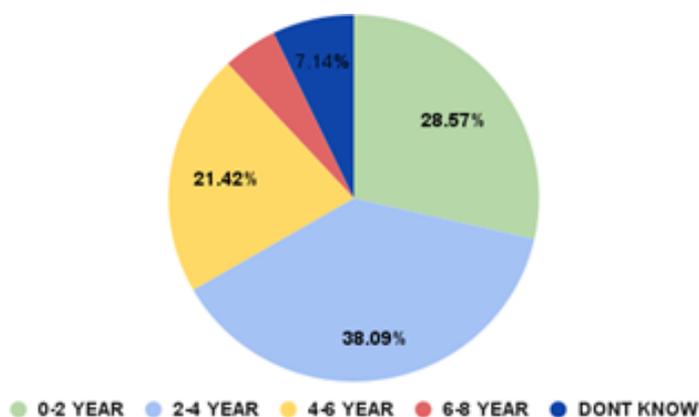


Figure 20: Age of registered e-rickshaws

6.2. Regulations & Policy

The gaps identified in the regulations and policies regarding e-rickshaws can be classified under the following heads: licensing, subsidy, ownership, taxation and capping of numbers, and are elaborated in the following sections.

6.2.1. Driving License

The Government of Delhi has relaxed the licencing guidelines for e-rickshaw ownership. As per current regulations, no minimum educational qualification has been specified for driving an e-rickshaw (Figure 22); the applicant just needs to pass a competence test. According to a provision introduced by the transport department in 2015 to promote eco-friendly last-mile connectivity in the Capital, e-rickshaws can be registered against the learner’s licence of the owner and a permanent license is not a must. The learner’s license must be renewed every six months. However, even with these relaxed norms, the primary survey found that almost one-third of the e-rickshaw drivers do not have a valid license (Figure 21), although 95% are aware that it is mandatory to have one (Figure 23).

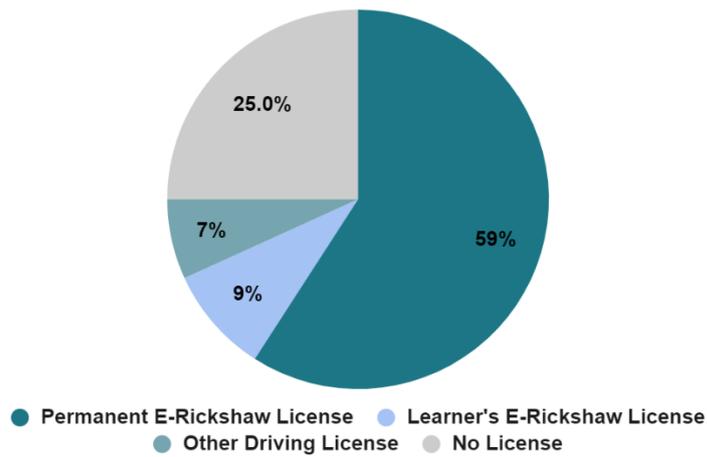


Figure 21: E-rickshaw drivers who have/ do not have a driving license

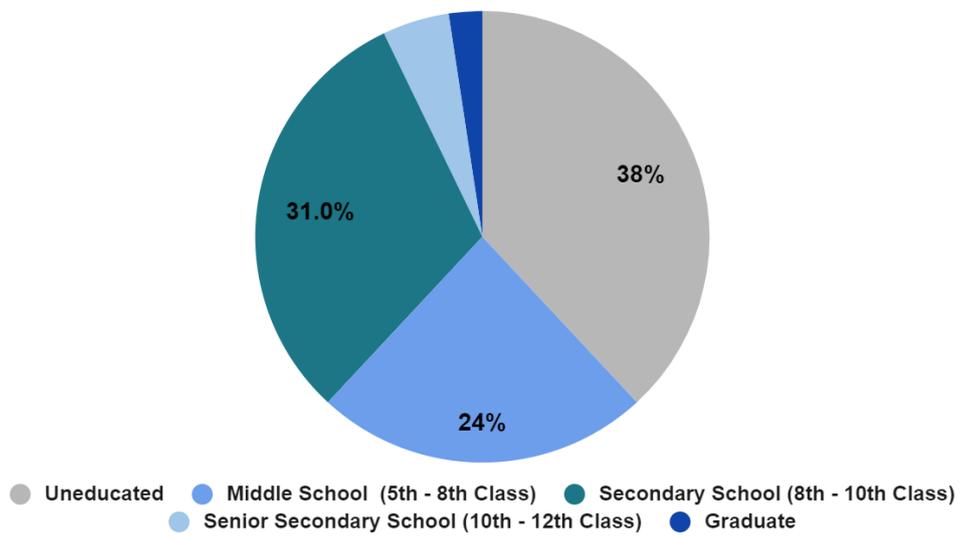


Figure 22: Educational qualification of drivers who do not have a driving license

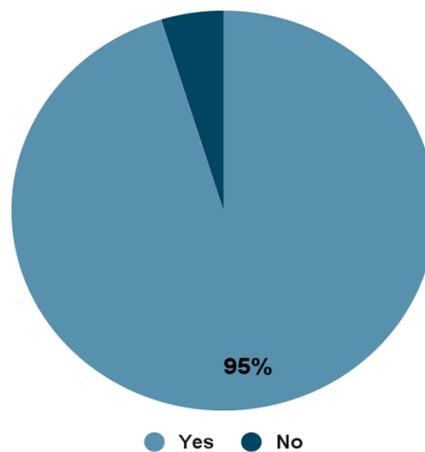


Figure 23: Awareness regarding mandatory requirement of a driving license for operating an e-rickshaw

Gaps Identified

It is evident that even though operators know about the mandatory requirement of e-rickshaw driver’s license, some of them are not clear about the process and regulations involved in renewing a licence or for getting a permanent licence. There are also some who do not feel that it is necessary to get a permanent licence as enforcement is poor, and it doesn’t hinder them from buying the vehicle.

6.2.2. Subsidies

The Delhi government announced a subsidy scheme that provided fiscal incentives amounting to Rs. 15,000 to owners of e-rickshaws registered up to 2015. The incentive was increased to Rs. 30,000 for the first 6000 owners of registered e-rickshaws bought after 2016. However, following a serious accident involving an e-rickshaw in 2019, a motor accident claims tribunal (MACT) in the city directed the Delhi government to delay the release of the subsidy for the purchase of e-rickshaws till the owners are granted a valid driving license⁷. The vehicles can still be purchased by those holding a learner’s license.

The survey found that 36% of the owners did not receive any subsidy (Figure 26) and of these vehicles, 12% were unregistered vehicles (Figure 27), 8% were second-hand rickshaws (Figure 28) and about 5% did not have a permanent license (Figure 29). These issues automatically eliminated 25% of the e-rickshaw owners from the subsidy scheme. Thus only 11% of deserving candidates have not received any subsidy, probably because they were not among the first 6000 applicants for the subsidy scheme. This is validated from an analysis of the fleet age of the vehicles of the respondents: 83% who received subsidies (64% of all respondents) did so 2.5-7 years ago (Figure 30), while the majority of respondents (78%) who did not receive subsidies (11% of all respondents) purchased their vehicle in the last three years (Figure 31). This points to the efficiency and transparency in the disbursement of subsidies.

E-rickshaw owners/operators are also eligible to receive loans from banking and non-banking corporations. However, due to the highly unaffordable rate of interest (Figure 25), only 24% of all respondents have availed some form of loans (Figure 24).

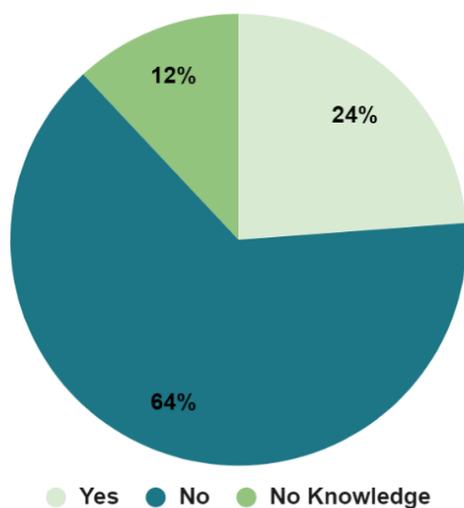


Figure 24: E-rickshaw drivers who took/ did not take bank loans

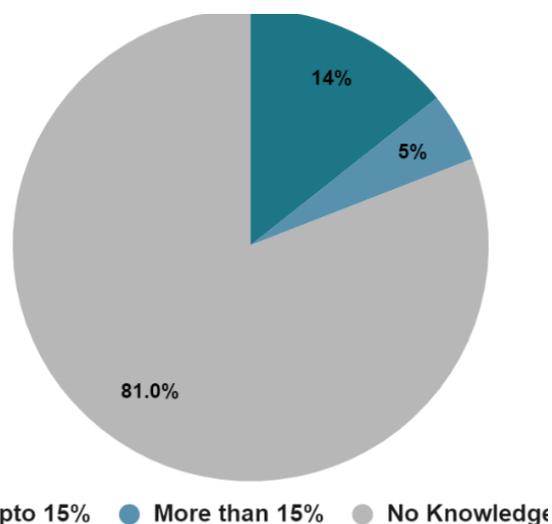


Figure 25: Rate of interest on sanctioned loans

⁷Currently, this may not be sufficient to encourage drivers to apply for a permanent license, as the number of eligible e-rickshaws specified for the subsidy scheme - launched in 2016 - may have already been reached and no new e-rickshaws may be eligible for this subsidy.

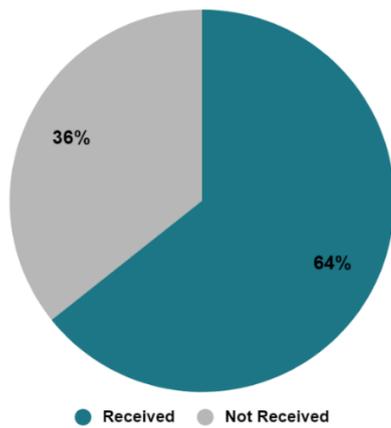


Figure 26: Subsidy received/ not received

OF THE 36% WHO DID NOT RECEIVE SUBSIDY...

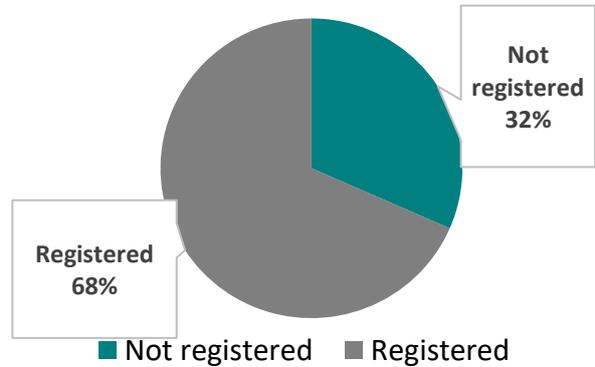


Figure 27: Registered/ unregistered vehicles of owners who did not receive subsidy

OF THE 68% REGISTERED VEHICLES THAT DID NOT GET SUBSIDY...

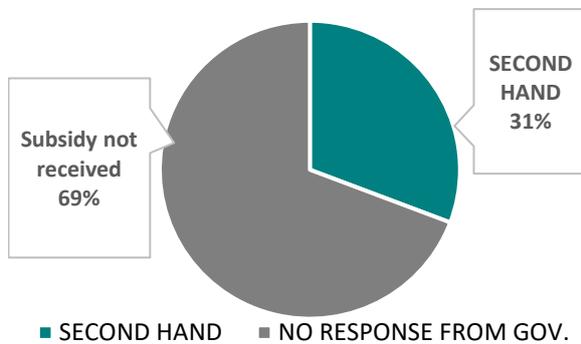


Figure 28: Owners of registered vehicles who did not receive subsidy / owned second-hand vehicles

LICENSES OF REGISTERED VEHICLES THAT DID NOT GET SUBSIDY

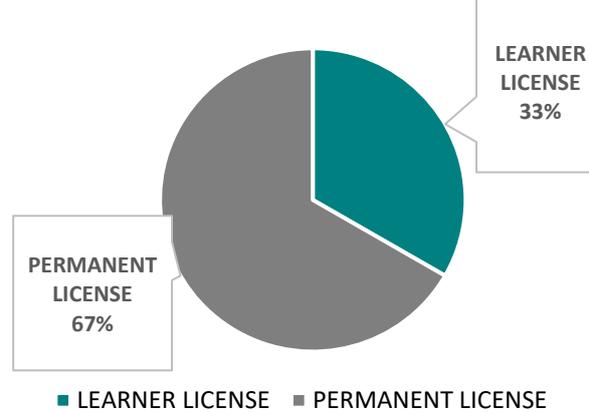


Figure 29: Holders of learner's licenses / permanent driver's licenses among owners of registered vehicles who did not receive subsidy (69%)

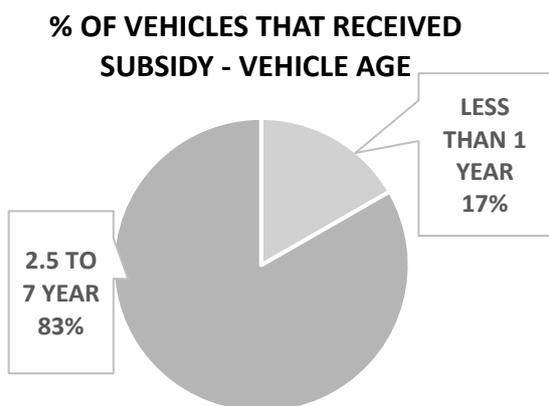


Figure 30: Subsidy received- Vehicle Age

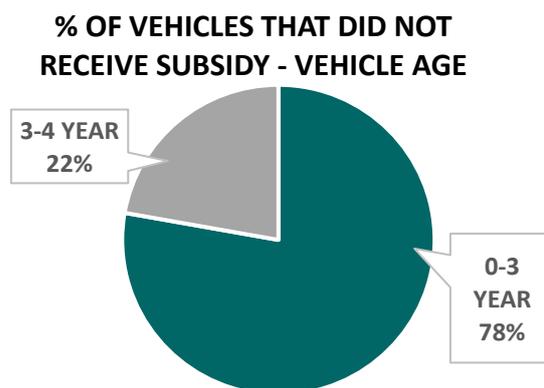


Figure 31: Subsidy not received- Vehicle Age

6.2.3. Ownership

As per section 82 of the Motor Vehicles Act, 1988, and rules framed under the E-rickshaw Sewa Scheme, to be eligible for a permit to operate an e-rickshaw, the applicant should not own any other e-rickshaw or transport vehicle and the ownership of an e-rickshaw shall not be transferable, except in case of the death of the permit holder. However, the survey showed that 10% of the owners operate a second-hand e-rickshaw (Figure 32), suggesting that either the enforcement of these rules needs to improve, or that the rules need to be modified to address genuine user requirements.

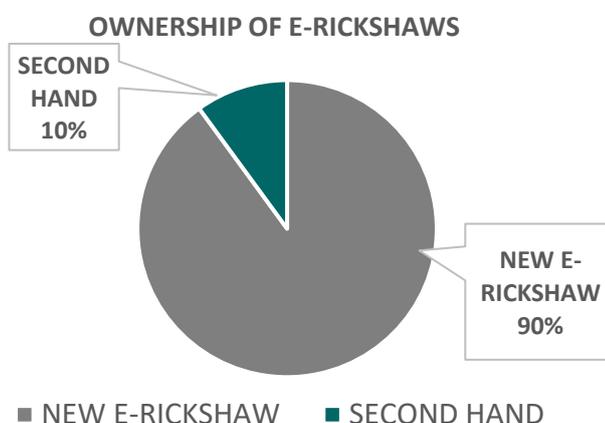


Figure 32: Ownership of E-rickshaws surveyed

6.2.4. Taxes and route flexibility

Findings from literature review and group discussions suggest that e-rickshaw operators (like other electric vehicles in Delhi) are eligible for road tax exemption (GNCTD 2023) and hence do not pay any road tax. Non-electric autorickshaws, however, need to pay Rs. 305 per annum as road tax (Transport Department Delhi 2023). Unlike autorickshaws, e-rickshaws are not allowed to ply on arterial roads, thus

limiting their operational capacity and earnings. E-rickshaw operators demand to be allowed to operate on arterial roads and are willing to pay road tax equivalent to autorickshaws, and to be treated at par with the same⁸.

6.2.5. Cap on number of E-rickshaws

At present, there is no cap on the number of registered e-rickshaws. The Delhi High Court formed a 12-member committee to look at strategies for minimizing accidents involving e-rickshaws⁹. This committee opined that considering the road space and availability of other modes of transport, the number of e-rickshaws should be limited". A number of e-rickshaw operators and members of e-rickshaw unions also agree with this view, but for reasons of maintaining parity between supply and demand to ensure financial viability for the operator.

If given a choice between the e-rickshaw and the e-auto, e-rickshaw drivers are more inclined towards the latter as they believe it is better regulated, and its movement is not restricted. But current government rules do not encourage e-rickshaw operators to switch to e-autos. Only ICE autos can be replaced with e-autos. Therefore, even though e-auto numbers will remain limited in the city, there is currently no concrete plan for any cap on the e-rickshaw numbers.

6.3. Infrastructure and operations

Gaps in terms of adequate supporting infrastructure availability and operational restrictions have been found to be detrimental to maintaining the efficiency, safety and financial viability of e-rickshaw operations. These issues have been discussed below.

6.3.1. Infrastructure

The cost of electricity for charging e-rickshaws is a critical factor in ensuring their financial viability (Figure 33). Operators can have access to electrical points in their residence at subsidised rates. However, most of them live in slums or informal settlements where there is no possibility of having parking space or charging points in their homes, leaving no choice for the operators but to rely on public or commercially available charging networks. Public charging networks have more or less limited capacity and little space for overnight parking of vehicles (or the time when most e-rickshaws are available for charging). Also, the operators do not access service and maintenance facilities offered by vendors of authorised makes of e-rickshaws (except in year 1 when these vehicles are within the warranty period) (Figure 34). This is because such services are expensive, often located far from their operational zone and require the e-rickshaws to be off the road for a significant period, thus impacting the earnings for the operator (Figure 35; Figure 36). Thus, the gap between supply and demand is currently being addressed by informal charging stations and service/ repair shops operated by individuals in slum clusters. These charging stations are mostly roadside stations, with a capacity of charging up to about 10 e-rickshaws at a time. The services offered by these individuals include security of the vehicles, parking space as well overnight charging at a monthly or a daily fee. However, these services are not cheap and can cost the operators up to Rs. 3,000 per month. These locations also offer few facilities to the drivers/operators during the time their vehicles are getting charged (during the operational hours). The local repair shops often use non-standard or recycled parts in an attempt to reduce the repair costs. This points to the need for establishing cost-effective, government authorised and regulated e-rickshaw charging stations and repair shops.

⁸ This argument may not be valid as e-autos do not pay any road tax, and do not face the restrictions imposed on e-rickshaws.

⁹ There is no listing of any fatal accidents involving e-rickshaw drivers or passengers (neither impacted nor impacting vehicle) in the last five years of Delhi Road Crash Fatality Report, released annually by Delhi Traffic Police.

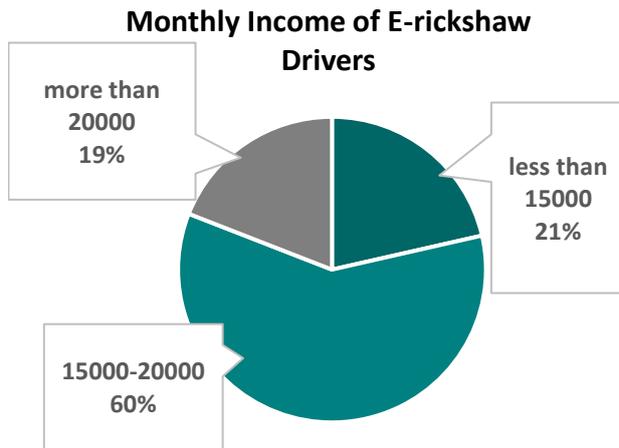


Figure 33: Monthly income of e-rickshaw drivers

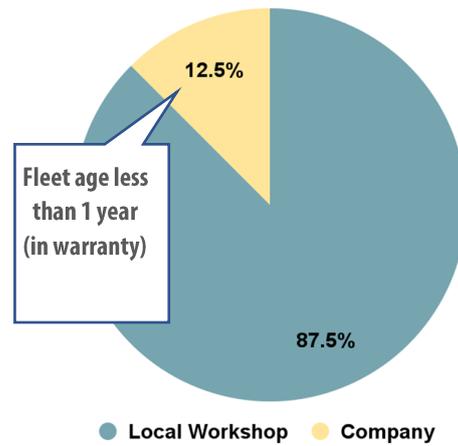


Figure 34: Illustration of e-rickshaw repair services

Monthly Expenditure of Bhawana Drivers(In Rupees)

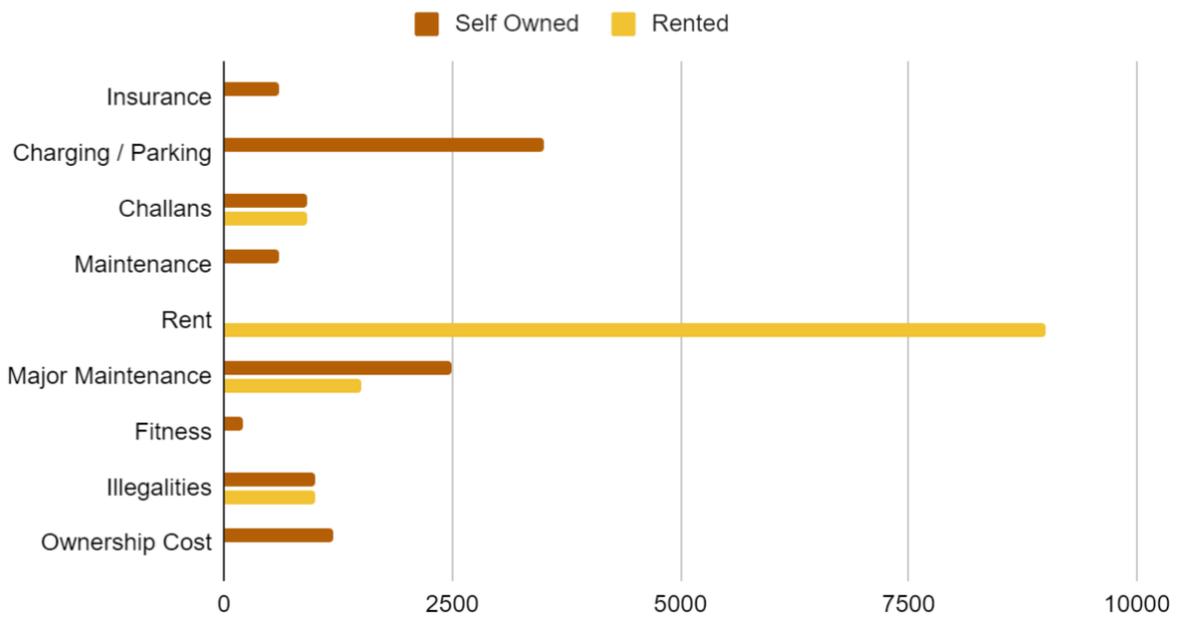


Figure 35: Illustration- Monthly expenditure of Bawana Drivers

Monthly Expenditure of Okhla Drivers (In Rupees)

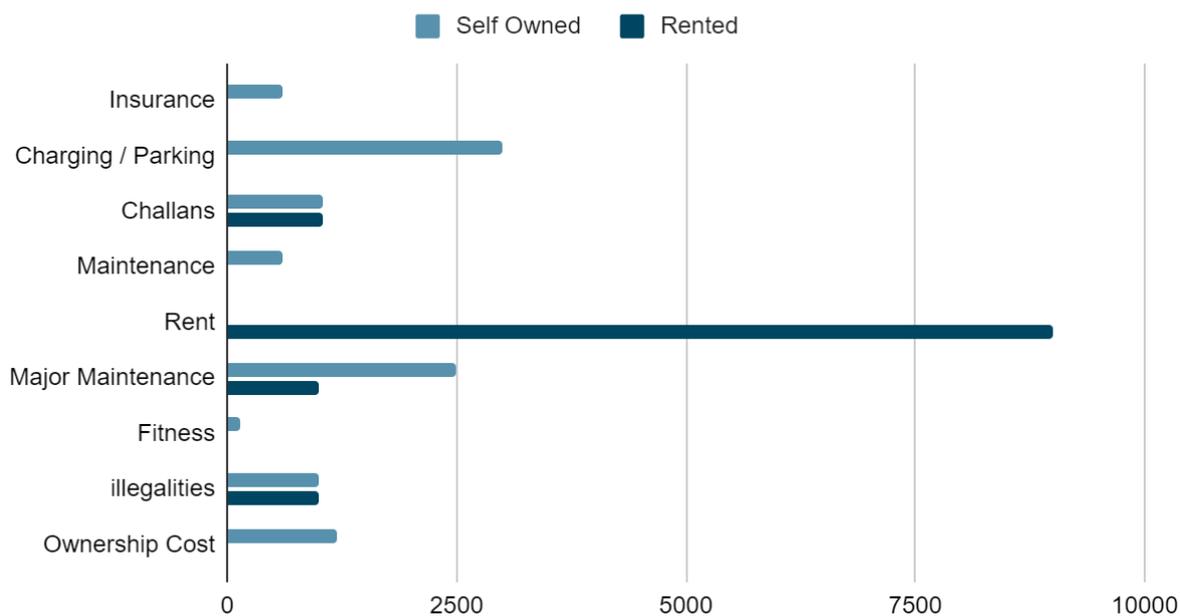


Figure 36: Illustration- Monthly expenditure of Okhla Drivers

6.3.2. Mobility pattern (routes)

The E-rickshaw SEWA scheme specifies that the trip length for the vehicle (or a route length if operated along any fixed route) should be less than 5km. The survey showed that a majority of the operators adhere to this limitation (Figure 37). Additional restrictions limit their access to roads other than local or collector streets. This means that e-rickshaw operators cannot access most major bus stations and metro stations that are on arterial roads, limiting their role as a paratransit and feeder service. E-rickshaw operators/ drivers need to access arterial roads (at least for a short distance) in order to suffice last mile connectivity to origin/destinations (mostly transit points like bus-stop and metro stations) of most trips. They also need to cross these roads to complete trips. This means that e-rickshaw drivers are not able to adhere to these rules and some relaxations in the same is required. In the absence of such relaxation, e-rickshaw operators end up paying a heavy price in terms of fines, confiscation of their vehicles or bribes.

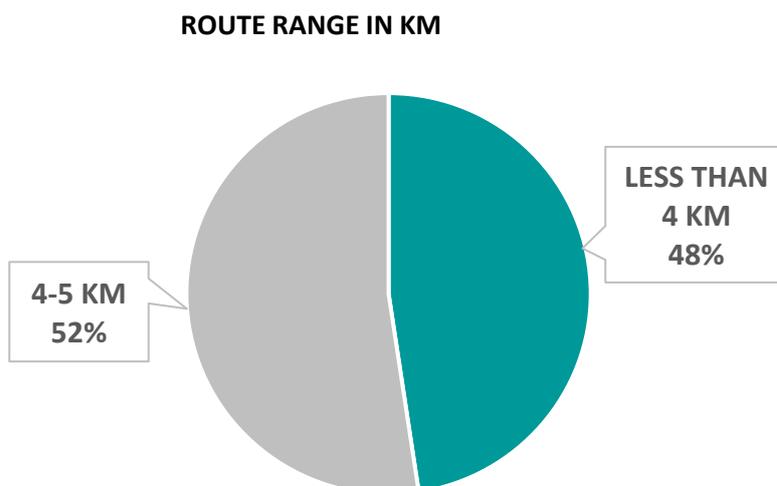


Figure 37: Range of operation of e-rickshaws

6.4. Maintenance

As per previous studies (which were reviewed during desk research) and primary surveys, the following gaps / loopholes have been identified in the maintenance of e-rickshaws:

6.4.1. Insurance

It is mandatory for e-rickshaw operators to renew the insurance of their vehicles annually. Without insurance, these vehicles are not considered fit for operations and will not even get a fitness certificate (necessary for operations). The insurance renewal costs on an average between Rs. 6000 to Rs. 7000 per annum, a large sum for the operators, especially when the insurance does not cover critical components such as battery (Figure 40), theft and damage (Figure 39). Most operators, therefore, do not renew their insurance after the first year (Figure 38) and continue to use their vehicles without fitness certificates. This is further encouraged by a lack of enforcement, which in turn spurs a system of bribes or convenience fees.

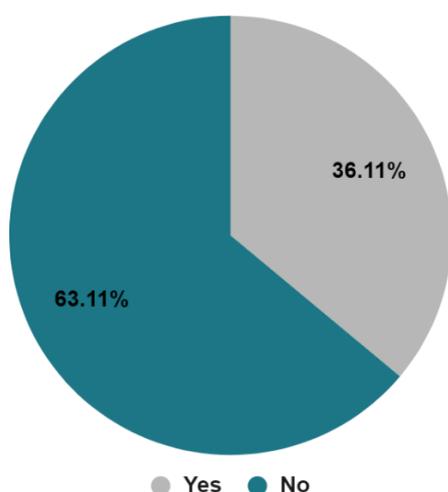


Figure 38: E-rickshaw insurance

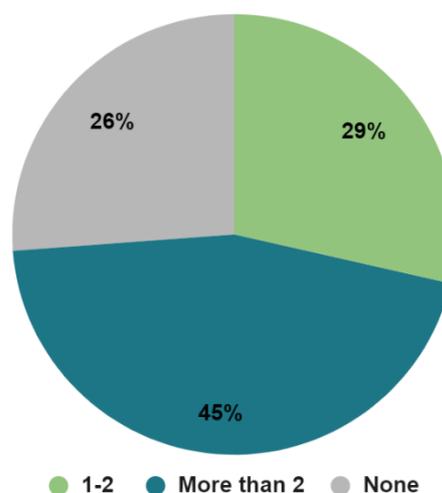


Figure 39: Cases of theft of e-rickshaws noticed in a month

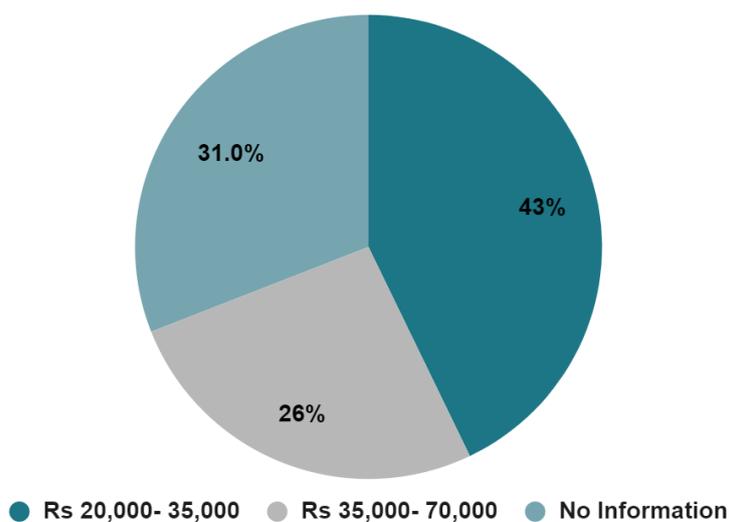


Figure 40: Expenses borne in case of battery theft

An all-inclusive insurance for e-rickshaws is necessary for ensuring the financial well-being of the operators. This is because the battery, the most expensive component in the current models - at Rs 35000 for a lead acid battery and Rs 70,000 for a lithium-ion battery - are prone to theft. This points to the need to make design changes for better battery protection. Additionally, theft of the e-rickshaw itself is also common, with a majority of the operators reportedly hearing about multiple theft cases in a month.

6.4.2. Fitness Certificate

A prerequisite for renewing the fitness certificate is an updated insurance certificate. The primary survey found that 41% (Figure 41) of the drivers did get fitness certificates initially, but didn't renew them (Figure 43), as it costs around Rs.6000-7000 annually to get an updated insurance certificate (Figure 42), which is expensive. Therefore, many of them avoid renewal of both the fitness certificate and insurance.

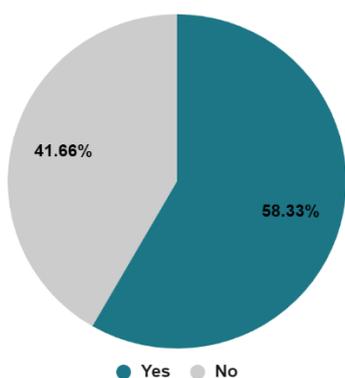


Figure 41: Those with/ without fitness certificate

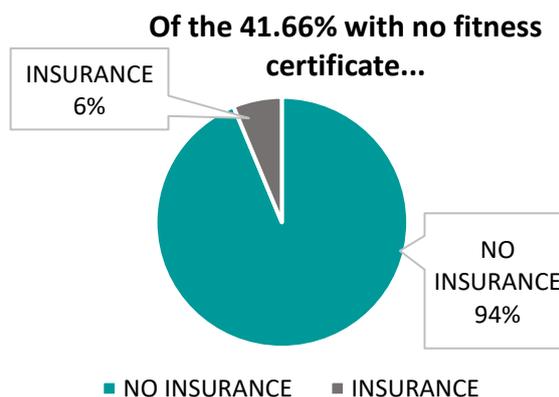


Figure 42: Those without fitness certificate and with/without insurance

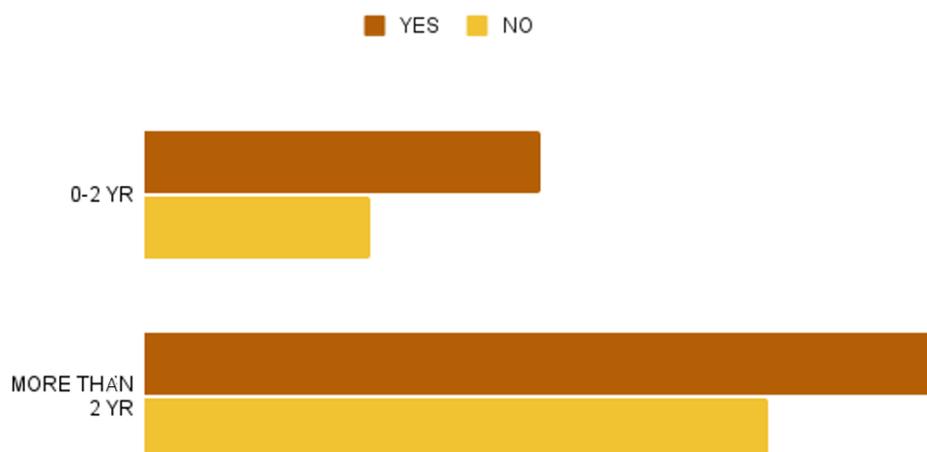


Figure 43: Age of E-rickshaws with/ without fitness certificate

6.5. Vehicle Design

As per previous studies (involving desk research) and primary surveys, the following gaps/ loopholes have been identified in the vehicle specification of e-rickshaws. The findings are as follows:

6.5.1. Battery Types

The two main types of batteries used in e-rickshaws are lead acid batteries, which cost Rs. 36,000 each, and lithium-ion batteries that cost Rs. 70,000 each. The E-rickshaw SEWA scheme specifies that the permit holder shall dispose of the used lead acid batteries only through an authorized e-waste disposal agency. Lithium-ion batteries last longer, are easier to recycle, are less hazardous to the environment and are thus recommended for use. However, their high cost, lack of protection against theft (Figure 46) and lack of insurance cover means that these are not preferred by most operators, a majority of whom use lead acid batteries (

Figure 44). The findings suggest that most operators are willing to shift to lithium-ion batteries if these are covered by insurance and if the vehicle design offers better theft protection (Figure 45).

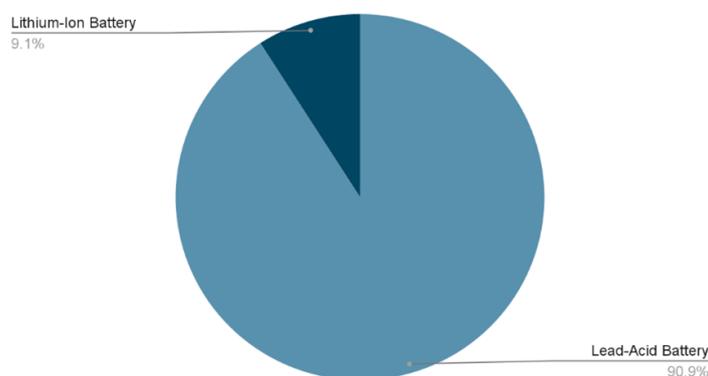


Figure 44: Battery types in e-rickshaws

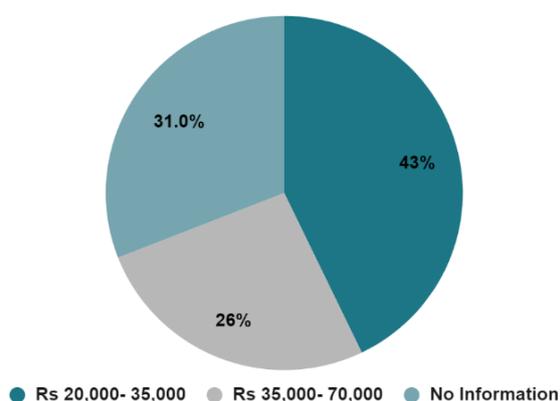


Figure 45: Costs borne following battery theft

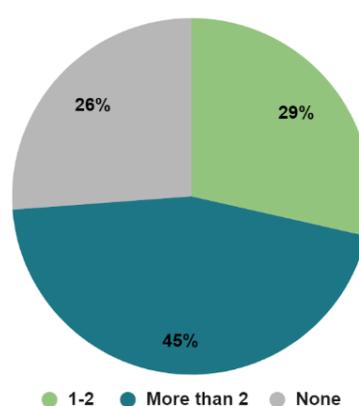


Figure 46: Reported cases of theft

6.5.2. Motor Protections

Most operators complain that e-rickshaw motors are prone to damage due to water ingress and because of the scraping of the vehicle’s underbody¹⁰. They want a vehicle design that provides better motor protection, and more reliable motors.

6.5.3. Seating Capacity

The E-rickshaw SEWA scheme specifies that the number of passengers must not exceed the registered seating capacity of four people, excluding the driver; the driver should not allow any passenger to sit on his seat; and that standing passengers shall not be allowed. However, drivers acknowledged during FGDs that their vehicles were frequently overloaded during peak hours of operations because of high demand and a desire to augment earnings to cover losses incurred during off-peak hours. However, overloading of e-rickshaws can cause them to topple. The FGDs showed that the drivers want e-rickshaw models with a higher seating capacity of at least six passengers.

6.6. Enforcement

FGDs highlighted a general lack of enforcement by the Traffic Police in regulating the movement and operations of e-rickshaws. While some rules not yet being fully enforced, some others are not easily enforceable because they are against the purpose and function of these vehicles on the streets of Delhi. These include the rule preventing e-rickshaws from accessing arterial roads (Government of National Capital Territory of Delhi). The enforcement of such rules is not possible and will only encourage bribes to be offered and lead to a rise in corruption. Clearly, such rules need to change and be made more user and operations friendly.

Other rules relate to the safety of the passengers and other commuters. These relate to standardization of vehicles, fitness, insurance, etc. These may need closer scrutiny to iron out any limitations following which a reliable enforcement mechanism needs to be put in place.

6.7. Summary

The gaps listed in this chapter stem from three main problems - the e-rickshaw design, traffic restrictions and regulations on restricting their numbers – that lead to reduced safety of commuters and reduced income for the operators. The interlinkages of the issues are presented in Figure 47.

¹⁰ Underbody refers to the base of e-rickshaw, where the motor is located.

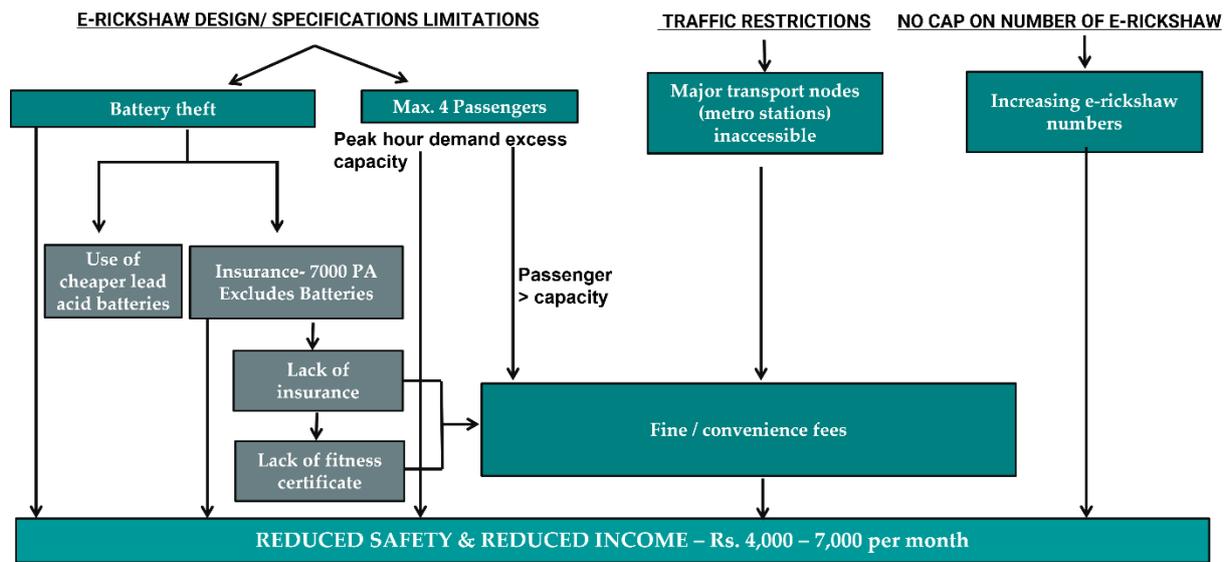


Figure 47: Interdependencies of issues and their outcomes

7. Recommendations

Recommendations for interventions based on the gap assessment have been drafted and have been classified for each of the stakeholders that may oversee their implementation.

7.1. E-Rickshaw Manufacturers

The manufacturers may need to come up with innovative design and manufacturing solutions to overcome some of the issues with the current e-rickshaw models. The recommendations are:

- Secure battery compartment to prevent theft.
- Better underbody design and motor protection to prevent damage and water ingress.
- Designs with higher seating capacity of up to 5-7 passengers, instead of current 4. This will require approvals from ARAI and ICAT
- Designs that lower the center of gravity of the vehicle, to address one of the biggest safety concerns of e-rickshaws, i.e., toppling of the vehicle.
- Registered manufacturers should make spare parts available with guarantees at competitive prices. They also need to target their sales, marketing and capacity building efforts to cover local repair shops, providing them authorised service centre status. This allows provision of cashless insurance and will also discourage the use of substandard parts both by the operator and the service mechanic. The Central Government can step in here and introduce appropriate regulations for the manufacturers to cover this requirement.
- Registered manufacturers and the government should encourage buyback and scrapping schemes to encourage faster transition to IS-compliant e-rickshaws.

7.2. Traffic Police

The traffic police is responsible for enforcing motor vehicle rules. Some of these rules concerning e-rickshaws have been observed to be enforced inadequately, leading to safety concerns. It is recommended that the traffic police conduct regular drives to regulate the following:

- Checking of e-rickshaw permits, fitness documents and insurance. This will regulate the use of unsafe and unregistered e-rickshaws in the city.
- Traffic police may need to relax certain restrictions that prevent e-rickshaws from using arterial roads, so that they can cross arterial roads and access transit stations (such as Metro and bus stations). These relaxations may allow them to use arterial roads for a limited distance on either side of the stations, so as to allow connectivity to and from nearby collector and local streets.

7.3. Transport Department, Government of Delhi, and Industries Department, Central Government

The transport department can support e-rickshaw mobility in Delhi and help overcome gaps in its efficiency and safety by revising the regulatory framework and improving the infrastructure provisions. The recommended changes include:

- An ordinance may be required to cap e-rickshaw numbers in the city to maintain a balance between supply and demand, which in turn will result in healthy earnings for the operators, along with better service for the passengers. The levers for achieving this can include a scrappage policy (to incentivize scrappage through licensed vendors) that encourages exchange of e-rickshaws and better enforcement by the department for the enforcement of permit conditions.
- It is recommended that the Government of Delhi withdraws the 2016 order that allows purchase of e-rickshaws by individuals having a learner's licence. The possession of a permanent driver's licence should be made mandatory for the purchase of an e-rickshaw. However, the government may need to incentivise permanent licences for e-rickshaw drivers by making it free to apply, and by making the process streamlined and transparent.
- Both the central and state governments should bring in required changes in the laws to allow at least a minimal use of arterial roads by e-rickshaws. This can be defined in terms of limited distance on either side of Metro stations and bus stops or on either

side of important intersections. This will allow e-rickshaws to serve their primary purpose of providing connectivity to mass transit stations.

- In order to support the availability of low interest credit for e-rickshaw buyers (and to discourage loan sharks), the Government can step in and support legitimate micro financing companies and operators through different strategies, such as loan interest subvention and credit guarantees. This can be extended to not only potential e-rickshaw buyers, but also local maintenance and charging units, ensuring not only safer and more secure earnings for the operators, but also that only approved models operate on the city roads.
- It is not always financially viable for e-rickshaw operators to purchase a new rickshaw in case of an accident or a theft. Also, not all operators may wish to continue as an e-rickshaw operator for extended periods (say till the end-of-life of the e-rickshaw). It is therefore recommended that the government consider relaxation of its current policies to allow re-sale of e-rickshaws with transfer of permits.
- The government may also need to initiate PR campaigns (in addition to marketing campaigns by e-rickshaw manufacturers) to spread awareness of both the economic and safety benefits of IS-approved e-rickshaws.
- The government should initiate updating of e-rickshaw specifications to address design flaws that have been presented above.
- The government may come out with policies, norms and monitoring mechanisms to regulate and ensure availability of low-to-medium capacity charging stations in all localities, or at least one such station within a one-km radius.
- It is recommended that the Government of Delhi incentivizes battery exchange for e-rickshaws through adequate policies and regulations. This will allow a transition from hazardous lead acid batteries to safer lithium-ion batteries.
- The city government should allocate land for parking space and charging infrastructure for e-rickshaws, with subsidised EV charging power tariffs. Land may also be allocated for maintenance infrastructure for e-rickshaws. As part of the terms for leasing of such land parcels, the government can monitor and exercise control over the quality of services offered.

7.4. Insurance Agencies

Insurance agencies can play a critical role in making e-rickshaw operations more viable for the operators. Currently, the operators find no use for insurance policies as they fail to cover critical components. This is partly due to design flaws that need to be addressed separately. However, once these are addressed, insurance companies may need to re-package their products to make them attractive and useful for e-rickshaw operators. They will need to cover batteries, motors and other sensitive electronic equipment under the insurance, and should also ensure easy disbursement of claims and cashless claims at all authorized service centers.

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9. Annexures

9.1. Annexure-1

To assess the process involved in scrapping of e-rickshaws, authorised scrap dealers of motor vehicles in Delhi, certified under Government of National Capital Territory of Delhi (GNTCD), were contacted. The findings of the telephonic interviews conducted to get insights into the process include:

1. Of the six authorised e-rickshaw scrap dealers contacted, all but one refused to give a detailed interview. The inputs received from one interview have been included in Annexure 2. The remaining five dealers answered only the question related to the number of e-rickshaws scrapped till date.
2. The six dealers have scrapped only 8-10 e-rickshaws between them so far, with four of them not having scrapped any e-rickshaw yet.
3. The age of scrapped e-rickshaws varied between 3 to 5 years, of which about 80% were of authorised make, and the rest had been assembled ones.
4. The owners of the scrapped e-rickshaws were paid between INR 10,000-12,000 each, based on the condition of the vehicles, which largely depends on the condition of the battery.
5. With the exception of the battery, all other parts are scrapped. The batteries are handed over to licensed battery recyclers. Most of these batteries are lead acid batteries.
6. There is no resale value for most parts of e-rickshaws. Tires that are in relatively good condition have a resale value and are handed over to licensed tire retreading agencies.
7. Currently, there are no specific guidelines for scrapping e-rickshaws. Scrap dealers follow the Central Pollution Control Board (CPCB) guidelines, MoRTH AIS 129, and prescribed environmental hazard laws and labour laws applied for all end-of-life vehicles.
8. The scrap dealers hope that the service life as well resale value of spare parts would increase in the future with the induction of India-made authorised e-rickshaw models and use of lithium-Ion batteries.

9.2. Annexure-2

Scrap Dealer Interview Response

M/s Pine view Technology Pvt. Ltd.

C-260, Mayapur Industrial Area, Phase II, New Delhi – 110064

pineviewtechnology@gmail.com

Interviewer Name – Mr. Yash Arora

Designation – Partner/Owner

Contact Number – 9873345301

Registration Number – 0002

1. Scrapping Age of E- Rickshaw?

- 10 years as per norms, but depends on the brand. As per experience, it's not more than 7 years.

2. No. of e-rickshaws scrapped. 4 to 5 so far

Weekly – N/A

Monthly – N/A

Authorized- **80%**

Non-Authorized- **20%**

3. Cost/ Value to the owner for scrapping? 10 to 12k

4. Scrappage policy, if any, by government or any rules? CPCB guidelines, MoRTH AIS 129, environmental hazard laws and labor laws applied for all end-of-life vehicles. No specific law for e-rickshaws

5. Any resale of the e-rickshaw parts

Parts scrapped – Except battery, everything.

Parts recycled – Battery.

6. Resale value of parts like tire/battery? – No resale

7. Battery recycling information/ process?

- **For Lithium-Ion** – Not available in the market yet.
- **For Lead Acid** – Batteries are handed over to battery recyclers.

8. List of deregistered e-rickshaw/ documentation (no. of e-rickshaws getting out of life)?

- The registration number of the scrap vehicles is sent to the transport department for updates.

Remarks/Note

- So far, only 4 to 5 e-rickshaws, with an average age of 3 to 5 years, have been scrapped.
- The earlier models were Chinese, so life expectancy was less. However, made-in-India models can have more service life as well resale value for the spare parts.

Date – 17th January 2023

Medium - Telephonic Survey

E – Rickshaw Scrapping

9.3. Annexure-3

LIST OF SCRAPPERS, GOVERNMENT OF NATIONAL CAPITAL TERRITORY OF DELHI, TRANSPORT DEPARTMENT: OPERATIONS BRANCH 5/9, UNDER HILL ROAD, DELHI-110054.**LIST OF AUTHORISED SCRAPPERS OF MOTOR VEHICLES IN DELHI**

S. No.	LICENSE No.	NAME OF FIRM	ADDRESS
1	0001	M/s Mahindra MSTC Recycling Pvt. Ltd.	6 th Floor, Mahindra Towers 2A, Bhikaji Cama Place, New Delhi -110066. 9501113393, 9975315827, 9819483601 Bhagra.ashish@mahindra.com
2	0002	M/s Pineview Technology Pvt. Ltd.	C-260, Mayapuri Industrial Area Phase- II, New Delhi – 110064. 9873345301, 9999996391 pineviewtechnology@gmail.com
3	0003	M/s Bharat Motors	10/4, 1 st Floor, Block-D1, Rewari Line, Industrial Area, Phase-II, Mayapuri, New Delhi-110064. 8368132192, 8976083364 Bharatmotor786@gmail.com
4	0004	M/s Bharat Vehicle Scrap	F-107, Best Star Mall DDA Complex, Pkt-7, Sec-24, Rohini, Delhi-110085 9711544438 Bharatvehiclescrap@gmail.com
5	005	M/s SG Junkyard and Recycling LLP	C-315, Phase-2, Mayapuri, New Delhi- 110064. 7838666852, 7777997717 Sgjunkyard108@gmail.com
6	006	M/s Chunk Recycling India Private Limited	W-55/1, Mayapuri, Phase-II, New Delhi-110064. 9999108436, 85880313116 Crip7920@gmail.com

9.4. Annexure-4

SURVEY QUESTIONNAIRE

1. Driver Details

- S. No.
- NAME
- Contact No.
- Place of residence
- E-rickshaw number

2. Operational Details

- What is your daily earning (excluding /including expenses)
 - Total number of passengers carried in a day
 - Average per passenger fare (In Rs.)
 - Education Background of Driver
 - Vehicle Ownership
 - i. Self-owned
 - ii. Rented
 - iii. Salaried Driver
 - License Type
 - i. Learner's
 - ii. E-Rickshaw Permanent
 - iii. Other License
 - iv. No License
 - Aware of the government rules and regulations for driving license?
 - i. Yes – Y
 - ii. No- N
- #### 3. Subsidy
- Fleet Age
 - Received any confirmation or receipt after submission of documents to claim their subsidy?
 - i. Yes - Y
 - ii. No - N
 - iii. Applied but not update
 - Is their e-rickshaw registered with government
 - i. Yes – Y
 - ii. No – N
 - Model of E-rickshaw
 - Are you aware that only 6000 e-rickshaw owners will get subsidy? Do they know their status if they fall within the 6,000 eligible applicants?
 - i. Yes – Y
 - ii. No – N
 - What is the response by the transport department in their follow-up communication of the subsidy and what is the last date of that response?

- Did they take loan from bank? if yes, then name of the bank.
 - What was the rate of interest on sanctioned loan?
 - Are drivers aware of the PMMY scheme of the government?
4. Maintenance
- Are drivers aware about the importance of fitness certificate?
 - From where do the drivers get their e-rickshaw repair services?
 - Did drivers receive any subsidy/Incentive on domestic charging?
 - Are the local mechanics, registered with the government and have these mechanics undergone any special training specifically for e-rickshaw?
5. Mobility Pattern
- What are the important destinations/nodes on the banned roads, which generate demand for e-rickshaw trips?
6. Insurance
- Do you have the insurance?
 - if yes, what all is covered in the current provisions of insurance of e-rickshaw?
 - What is the additional coverage required by the e-rickshaw operators?
7. Battery
- On an average, how many theft issues were noticed in a month?
 - If their battery was stolen, how much did it cost to replace it? (In Rs.)
8. Enforcement
- Are you aware of the penalties which traffic police can impose on you for not adhering to the rules as per e-rickshaw policy?

9.5. Annexure-5

Minutes of meeting – Meeting with Mr. K.C. Sharma (Sup. Eng.)-MoRTH

Agenda – Discussion on E-rickshaw Policy Framework and Regularization

Participants

Mr. K.C. Sharma (Sup. Eng.) Mech

- Ms. Kanica Gola and Ms. Shivani Nandal (From SGA)
- Mr. Vijay & Ms. Nandini (From ICLEI)
- Mr. Rajender Ravi

Meeting – At. MoRTH Office / 21st December 2022

Minutes

- The meeting was initiated with a brief discussion about the project by Mr. Vijay.
- Ms. Kanica Gola explained the e-rickshaw issues and findings with the presentation.
- Mr. K.C. Sharma explained that policy making is under the purview of the Central government and issues like unregistered vehicles and enforcement are under the purview of the state government.
- He said that a major issue is of enforcement and it can solve a lot of issues.
- Mr. Sharma described his personal experience with e-rickshaws and suggested that they are not meant for arterial roads.
- He explained that certain rules and regulations are not followed, like maintaining the e-rickshaw's fitness and avoiding speeds more than 25 kmph (rules and regulation violations)
- Mr. Sharma also explained a new rule about 'whole vehicle safety COP (conformity of protection)', which is about random checking of manufacturing quality during mass production, even after approval has been granted.
- Mr. K.C. Sharma explained all e-rickshaw in Lithium-ion battery is very difficult and a complex process.
- Mr. K.C. Sharma talked about the instability of e-rickshaw as dimensions should be more 10cm in width on both sides and he tried it complying but failed.
- He said the solutions to the mentioned issues, including transfer of ownership, lie majorly with the state government.
- He added that the scrappage policy is yet to take concrete shape even for other heavy vehicles. He will see about the scrappage if any restriction is there in scrappage policy scope.
- Mr. K.C. Sharma explained the importance of the e-rickshaw and its features, and suggested that the seating capacity should not be increased.
- Mr. Vijay asked about the issue of quality being compromised during manufacturing one to two years after approval is granted; on this, Mr Sharma said that they were working on this issue.

9.6. Annexure-6

Minutes of meeting – Meeting with EV Cell, Transport Department

Agenda – Discussion on E-rickshaw Policy Framework and Regularization

Participants

Mr. N. Mohan (CEO) Delhi E.V. Cell

Mr. Shraavan Mr. Kartik and Mr. Caleb (From Delhi E.V. Cell)

- Ms. Kanica Gola and Ms. Shivani Nandal (From SGA)
- Mr. Vijay & Ms. Nandini (From ICLEI)

Meeting – At EV Cell, Transport Department 22nd December 2022

Minutes

- Mr. Vijay began the meeting with a brief discussion about the project.
- He explained the importance of the e-rickshaw in Delhi.
- Ms. Nandini added that the e-rickshaw plays an important role in providing first and last-mile connectivity to commuters.
- Mr. Vijay asked if the EV Cell had considered what e-rickshaw operations should be in five years. The EV Cell team responded that they were already trying to remove the subsidy for lead acid battery e-rickshaws, and were focusing more on safety norms for lithium-ion battery e-rickshaws, which would be made mandatory March 31, 2023.
- Additionally, they are working on battery-swapping operators; they bring more value as battery is the major component.
- The EV Cell team added the proper working life of an e-rickshaw is two years only, after which they become unfit for use. To improve fitness, more investment is needed.
- The team agreed that there should be a cap on e-rickshaw numbers as congestion is increasing.
- They said e-rickshaws are famous as they are a business model and economical for passengers, and added that the vehicle's structure needed to be made safer; otherwise it would become a dangerous than a convenient mode of transport.
- Mr. Vijay said that there should be proper regulation of e-rickshaws, and that enforcement of laws is also an issue.
- Mr. Vijay asked about incentives for standard e-rickshaws models. the EV Cell team said that swapping of batteries is already an incentive as it reduces cost.
- The EV Cell team explained the number of registered-rickshaws in government data might not be correct as even after they are scrapped, their record remain in the system as there is no process to de-register/unregister an e-rickshaw.
- Mr. Vijay asked about scrapping of e-rickshaws; The EV Cell team said that there are eight authorized scrappers, and that they could provide their list.
- Mr. Vijay asked if data could be gathered from the scrappers about the number of scrapped e-rickshaws; the EV Cell team said the government would have to be requested to provide data on the number of scrapped e-rickshaws, while the scrappers could give information regarding the value of a scrapped e-rickshaw.

9.7. Annexure-7

List of e-rickshaw drivers surveyed at 2 locations.

Near Raja Park Metro Station, Nangloi

(Northwest Delhi)

1	Sanjay Kumar	Prem Nagar
2	Dharam Veer	Prem Nagar
3	Amarjeet Sah	Gulshand Park
4	Ashok	Rajdhani Park
5	Ramesh	Prem Nagar
6	Devesh Kumar	Rajdhani Park
7	Rajesh	Rajdhani Park
8	Aman Saini	Nangloi Extension
9	Prempal	Prem Nagar
10	Dharam Raj	Rajdhani Park
11	Santosh Kumar	Prem Nagar Second
12	Shyam Sunder	Prem Nagar
13	Shanti	Mundka
14	Ram Kumar	Pandey Enclave
15	Manoj Gupta	Prem Nagar
16	Dilip	Prem Nagar Maha Colony
17	Ramanand Singh	Prem Nagar
18	Mukesh	Prem Nagar
19	Bilal	Prem Nagar
20	Parshuram	Gauri Shankar

Harkesh Nagar Metro Station, Okhla

(South Delhi)

1	Ramdas	Okhla Phase-II
2	Ravi	Harkesh Nagar
3	Rambahal	Harkesh Nagar
4	Deepak	Okhla Phase-II
5	Ram Sarover	Okhla Phase-II
6	Jagdamba	Okhla Phase-II
7	Santosh Kumar	Harkesh Nagar
8	Dilip Gupta	Okhla Phase-II
9	Sunder Singh	Taikhanda Phase-I
10	Rahul	Indira Kalyan Okhla Phase-II
11	Mahendra Prasad	Sanjay Colony, Okhla
12	Rajesh	Sanjay Colony, Okhla
13	Vikram	Okhla Phase II
14	Raj Kumar	Harkesh Nagar
15	Lal	Harkesh Nagar
16	Vidya Sagar	Okhla Phase II
17	Mukesh Kumar	Okhla Phase II
18	Raghuveeri	Okhla Phase II
19	Kartik Kumar	Okhla Phase II
20	Kishan Kumar	Okhla Phase I
21	Ramchandran	Okhla Phase II
22	Rinku	Okhla Phase II



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