

# CapaCITIES

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## Assessment of the E-Rickshaw Operations in Siliguri, West Bengal

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# 1 Introduction

The report presents the summary of e-rickshaw operations in Siliguri. The main aim of the assessment is to analyze the present scenario and identify the technical, operational and legal issues pertaining to the e-rickshaw operations in Siliguri. The assessment will assist decision makers in overcoming the lack of information over the same. It will also help in identifying the barriers in order to better promote electric mobility in Indian Cities. The assessment also intends to capture the perception of e-rickshaws from drivers as well as the users relating to the profit, income, issues, feasibility, performance, safety, comfort, maintenance, and various other related heads. Thus, this study could be helpful in creating a clear and vivid picture of e-rickshaws.

Siliguri is the gateway to the North-East of India as its corridor establishes a connection between the rest of India and the north-eastern states. It is not only of vital importance to the state of West Bengal but also to India. The city is spread over two districts in West Bengal, Darjeeling and Jalpaiguri.

Siliguri forms a part of the larger Siliguri Jalpaiguri Planning Area under Siliguri Jalpaiguri Development Authority (SJDA). The land area under the jurisdiction of SJDA is 1329.89 sq.km; with a population of 15.8 lakhs. The Siliguri ODP area is of 260.20sq.km (TTMP-2030). The jurisdiction of Siliguri Municipal Corporation is 41.9sq.km and is spread in 47 wards. 33 wards are in the Darjeeling district and 14 are in the Jalpaiguri district (CDP, Siliguri – 2041).

E-rickshaws started operating in Siliguri in the year 2013. These para-transits are filling the gap between the demand and supply of the public transport system, providing a major relief to the city dwellers.

The state of operation of e-rickshaws in Siliguri is unclear. Since no e-rickshaws are registered, there is no complied information available. In the above context, ICLEI under the 'CapaCITIES' project conducted a primary survey in June and July 2017 to identify the present scenario of e-rickshaws in Siliguri. As a part of the survey, 200 e-rickshaw drivers, 100 users, 5 dealers, 5 assemblers & garages were surveyed to collect the information regarding e-rickshaw operations in Siliguri. In the process, 11 major routes were selected for the study purposes (Figure 1):

- Court More- Ghoghomali-Ashighar More
- Court More – Venus More – Panitanki More- Salugara C.P
- Court More – Jalpai More
- Court More – Jhankar More
- Court More – Venus More – Market More – Sevoke More – Air View More - Junction – Darjeeling More
- Court More – NJP
- NJP- Noukaghat More – Jalpai More – Jhankar More – Air View More

- NJP- Venus More<sup>1</sup>
- Sevoke More – Panitanki More – Salugara CP
- Darjeeling More – Champasari More – Salugara CP
- Darjeeling More – City Center - Matigara

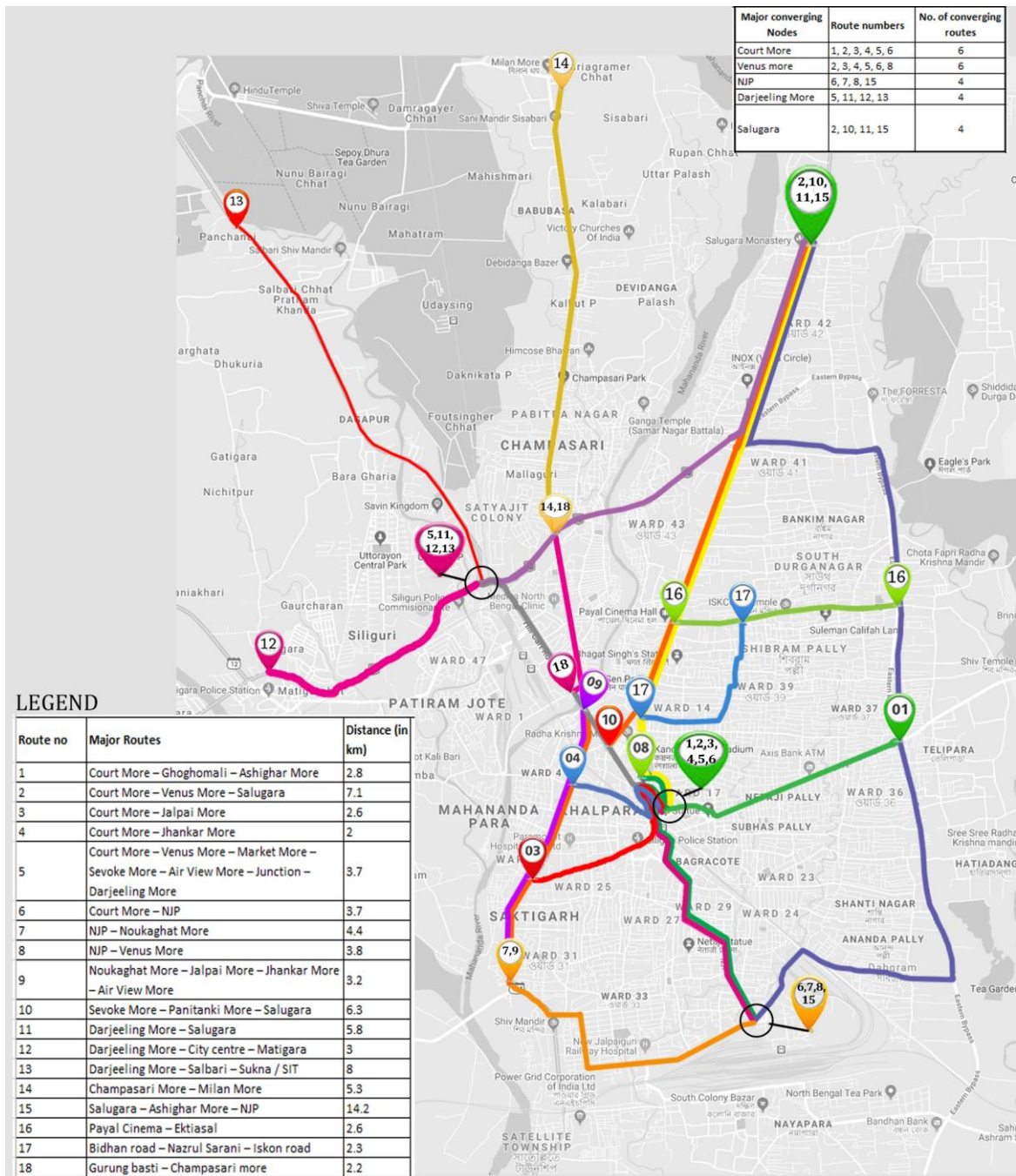


Figure 1: Location of survey points

1 The e-rickshaws plying on a sharing basis from NJP station operate till Darjeeling More via Venus More – Market More – Sevoke More – Air View More – Junction. However, since the route from Venus More till Darjeeling More has been covered in route number v, here the route has been kept from NJP to Venus More, to eliminate overlap and confusion.

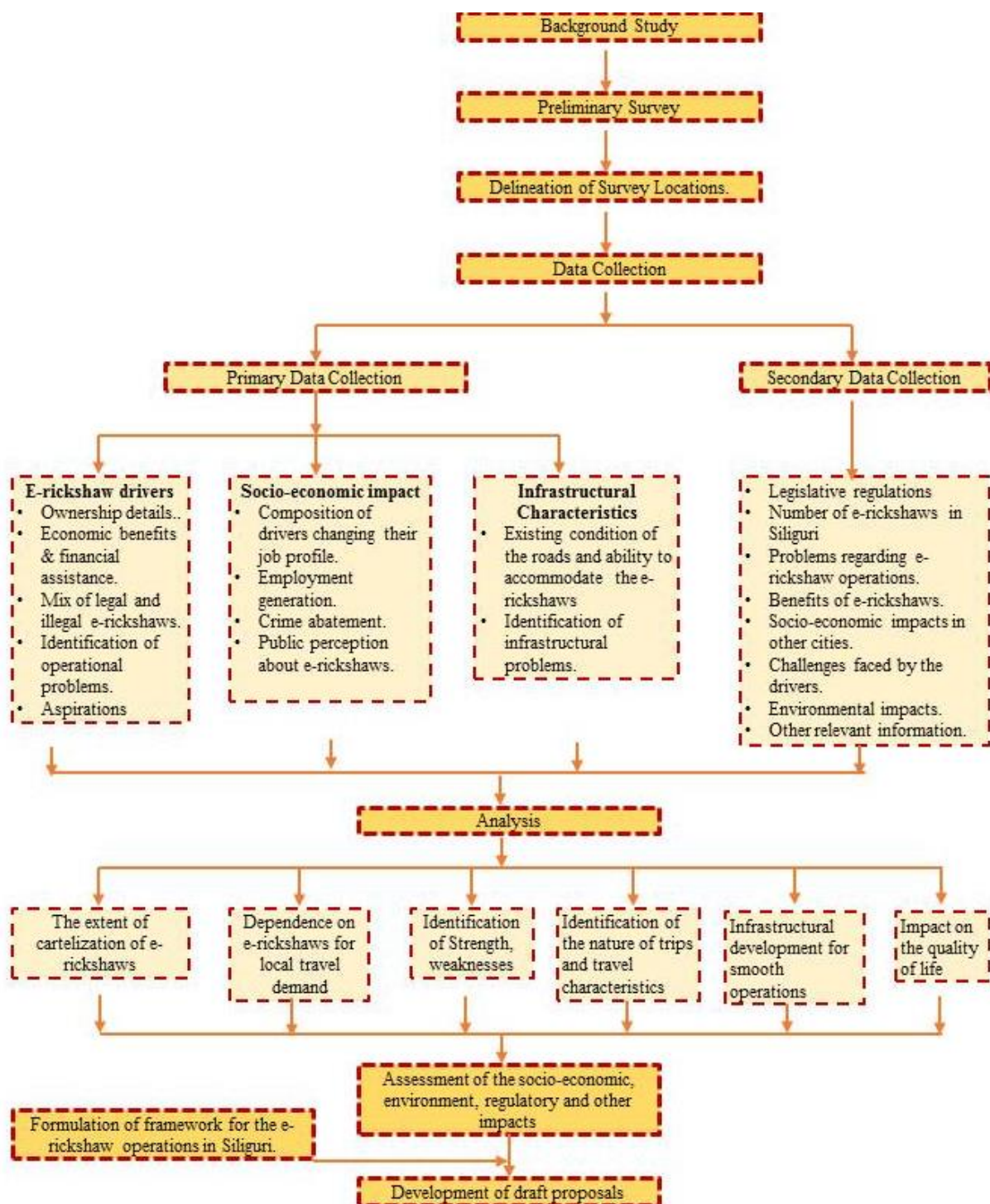


Figure 2: Flowchart of the methodology adapted for the study

## 1.1 E-rickshaw Policy framework

Tripura was the first state in India to form a comprehensive policy on e-rickshaws. Till date several other states in India have introduced their policies regarding the e-rickshaws. But the Tripura Battery Operated Rickshaw Rules, 2014 and E-rickshaw

policy of Chandigarh are the most informative with clear notifications. Through notification number 1526-WT/3M-56/13/Pt-II dated 27<sup>th</sup> April 2014, the Transport Department, GoWB, issued a notification regarding the registration and issuance of permit for the e-rickshaws. Another notification was released with vide reference number 1569(19) – WT/3M-56/13(Pt-II) dated 28<sup>th</sup> April 2014, stating the framework for the registration and a guideline was issued regarding the issuance of permits for e-rickshaws and formulation of routes, issuance of driving license and registration of e-rickshaws.

### **Licencing procedure and requirement in the notification**

Central Government vide notification number G.S.R 27(E) dated 15/01/2015 further amended the Central Motor Vehicles rules, 1989 and inserted a rule 8a after Rule 8 regarding the issue of licence to an applicant for driving provided that the applicant has successfully undergone training for a period of not less than ten days and obtained a certificate of training from the registered e-rickshaw operator association or a manufacturer producing e-rickshaws, as the case may be.

This notification also states that e-Rickshaws are to be registered as contract carriages as defined under Sec.2 (3) of the Motor Vehicles Act, 1988 and all the procedures of registration, certificate of fitness and permit of e-rickshaws are to be followed in terms of the relevant provisions of the Motor Vehicles Act, 1988 and Central Motor Vehicles Rule, 1989 on payment of the prescribed fees.

## 2 Assessment of the E-rickshaw Operations in Siliguri

E-rickshaws in Siliguri can be classified in three groups based on their movement pattern. E-rickshaws whose origin and destination are within the main city are placed under the 'Core to Core' category, while those having at least either of the origin or the destination within the main city are classified in 'Core to periphery' category. Those having both the origin and destination outside the main city and operating predominantly on the city periphery routes are classified in the 'Periphery to Periphery' categories. Fifteen routes were surveyed and among the movement category, 57% routes are from core to periphery, while 28.5% routes are based on periphery to periphery movement and the rest 14.5% routes are core to core routes.

All together 14 stands were surveyed. Among these 14 stands, 9 (64%) stands are located in the main city while 6 (36%) stands are located on the periphery. The main survey locations within city include NJP Station, Court More, Venus More, Sevoke More, PaniTanki More, Air View More, Ghughumali and Junction, while the locations along the city periphery consist of Noukaghat More, Jalpai More, Jhankar More, Darjeeling More, Salugara CP, and Champrasari More.

**Table 1: Popular routes for E-rickshaws and alternative options for transportation available in those routes**

Major Routes	Other options	Distance (in km)
Court More- Ghoghomali-Ashighar More	Bus, minidor	2.8
Court More – Venus More – Salugara C.P	Minidor	5.1
Court More – Jalpai More	None	2.6
Court More – Jhankar More	None	2
Court More – Venus More – Market More – Sevoke More – Air View More - Junction – Darjeeling More	Bus, minidor	3.7
Court More – NJP	Minidor	3.7
NJP- Noukaghat More	Minidor	4.4
NJP – Venus More <sup>2</sup>	Bus, minidor	3.8
Noukaghat More – Jalpai More – Jhankar More –	Bus <sup>3</sup> , minidor	3.2

<sup>2</sup>The e-rickshaws plying on a sharing basis from NJP station operate till Darjeeling More via Venus More – Market More – Sevoke More – Air View More – Junction. However, since the route from Venus More till Darjeeling More has been covered in route number 6, here the route has been kept from NJP to Venus More, to eliminate overlap and confusion.

<sup>3</sup>The buses operating in this route are long distance regional, and do not cater to the short distance (local) passengers.



Air View More			
Sevoke More – Panitanki More – Salugara CP	Minidor, rickshaw <sup>4</sup>	Auto	6
Darjeeling More – Salugara CP	Minidor, rickshaw	Auto	3.8
Darjeeling More – City centre – Matigara	Minidor, bus		3
Darjeeling More – Salbari – Sukna / SIT	Minidor, bus		8
Champasari More – Milan More	Bus		5.3
Salugara CP – Ashighar More	Bus		5.8

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<sup>4</sup> Auto rickshaws ply throughout Siliguri and beyond on a reserved basis, but along route numbers 10 and 11 they also operate in sharing basis

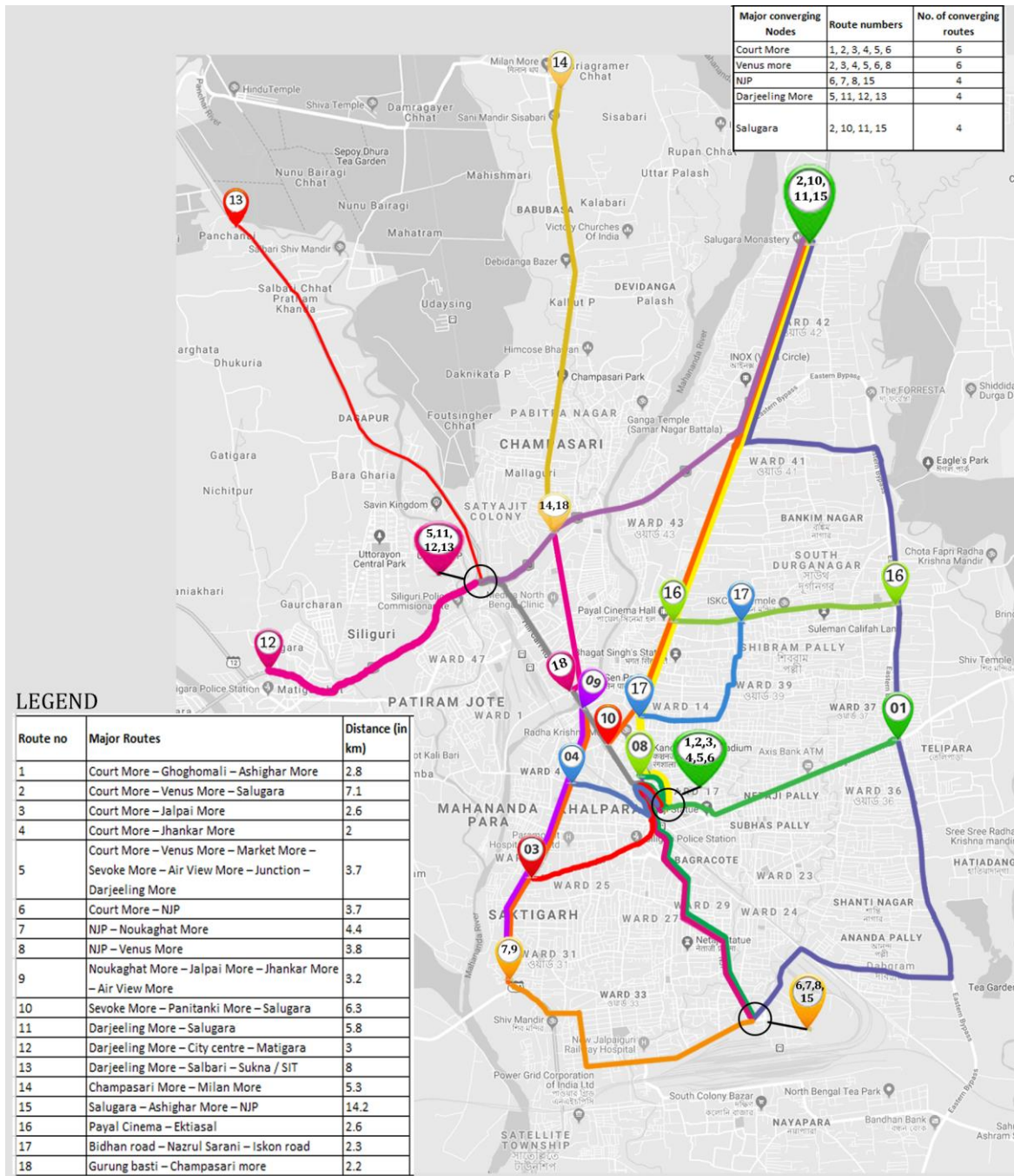


Figure 3: Routes covered by E-rickshaw

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## 2.1 Legal Status and route distribution

### **E-rickshaws are operating unregistered and unregulated**

Siliguri is yet to start the registration process for the e-rickshaws as per the Motor Vehicles (Amendment) act, 2015. Till date no registration number or temporary identification number (TIN) has been issued. The e-rickshaw operations are yet to get a legal cover.

### **E-rickshaw routes in Siliguri are decided by the drivers with the help of unions**

No route permits are required as of now. The e-rickshaws operating in Siliguri have their own unions, which takes care of the benefits of fellow drivers. The unions are mainly affiliated to political parties. The route sharing is organised by mutual understanding among the drivers and on the intervention of the unions. The SMC or the SMP plays no role in the route sharing.

### **Tax Structure**

The Transport Department on 03/03/2017 issued a notification with the revised tax structures which has been prescribed by the West Bengal Motor Vehicle Tax (Amendment) Act, 2016 vide notification number 775-WT/TR/3M-56/2013 Pt. IV and West Bengal Additional Tax and one-time tax on Motor Vehicle (Amendment) Act, 2016 vide notification number 776-WT/TR/3M-56/2013 Pt. III. These notifications were passed as an Act by the Governor of Bengal on 28/02/2017 and came into force from 01/04/2017. As per the new act, i.e. West Bengal Motor Vehicle Tax (Amendment) Act, 2016 e-rickshaws registered as a transport vehicle in West Bengal and covered by any contract carriage permit issued by the authority have to pay Rs. 260 annually as per the Description of Motor Vehicles and Rate of Annual Tax.

Earlier the entire operation was tax free. But due to the change in the official stand of the government discouraging fresh influx of e-rickshaws, these e-rickshaws also have been put under the tax rules.

## 2.2 E-rickshaw Operations:

The average trip length for e-rickshaw operations is between 3 to 5kms. They operate from informal, unrecognised and unregulated stands which are neither recognised by the SMC or by the traffic police.

In the surveys, it was found that the nature of the trips in the main city is quite different from the city periphery. In the main city majority (approx. 68%) of the respondents said that e-rickshaws are their primary mode of travel and didn't use it for any intermodal connection, whereas in the periphery areas, the e-rickshaws are solely used for last mile connectivity.

In spite of heavy reliance of e-rickshaws for mobility, there is a lack of initiative from the authorities in providing a legal cover to them. Prolonged delay in the policy formation

fore-rickshaws and the recent reports from the Government of West Bengal to discourage fresh influx of e-rickshaws are restricting local authorities from registering them.

**E-rickshaws have become integrated part of urban mobility of Siliguri and not only provide last mile connectivity**

E-rickshaws are intended to provide last mile connectivity. But in Siliguri, due to lack of alternative hierarchy roads, e-rickshaws are found to be plying on the arterial roads, national and state highways. 13% of the respondents believe that in Siliguri, e-rickshaws have improved the connectivity as a Para Transit mode and 31% of the respondents believe e-rickshaws are very easily available and hence they prefer it over other modes.

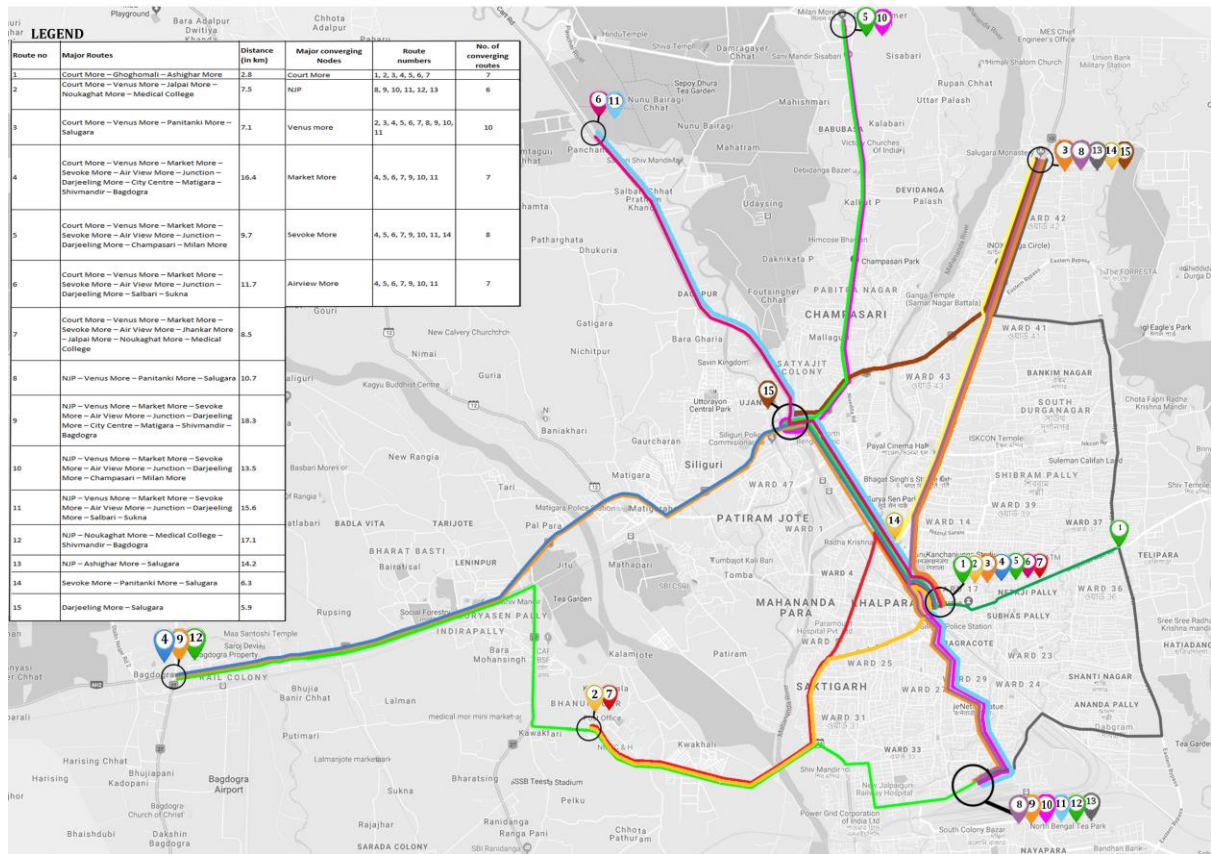


Figure 4: Routes catered by Minidor

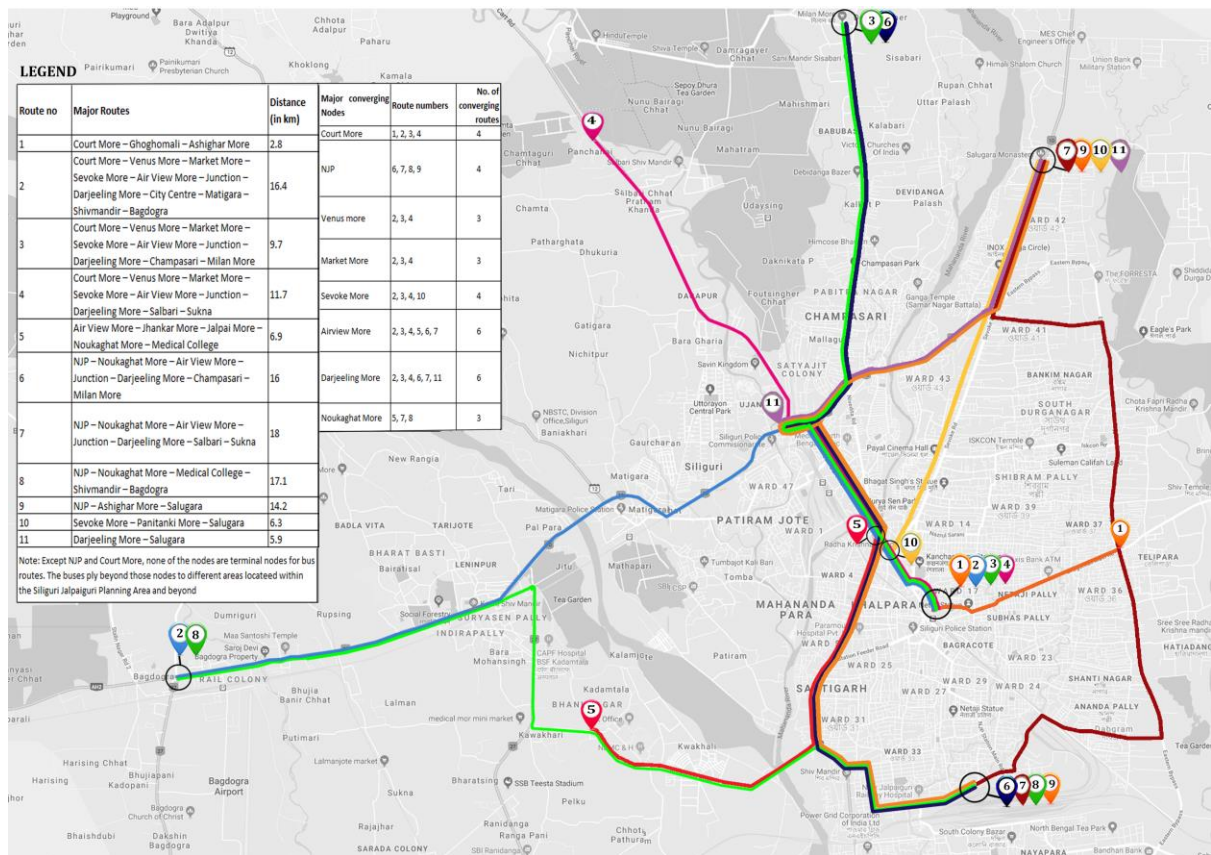


Figure 5: Bus routes in Siliguri

### **The aged and differently abled people find e-rickshaws comfortable for low floor height**

The general perception of the people is that e-rickshaws have smoothed their lives as a faster and cheaper mode of transportation. 31% feel that e-rickshaws are a comfortable option for travelling (Figure 22). The aged and the differently abled like it for the reason that they find it easier to board and alight due to its low floor height. Majority of the people like the e-rickshaws because of their easy availability.

### **E-rickshaws bridging the gap for the demand and supply of last mile connectivity in the periphery areas**

In the primary survey, it was found that prior to the introduction of the e-rickshaws in peripheral areas like Champrasari More and Noukaghat More, they had last mile connectivity issues. Cycle rickshaws were present, but had the limitation of range and were economically unviable options. City buses and minidors were used to drop the passengers along their routes and from there onwards the passengers had to wait for a long time for further connectivity. This was the gap where the e-rickshaws were introduced as a solution and soon gained popularity.

### **E-rickshaws as an alternative to PT and other IPT in the main city**

In the main city, e-rickshaws provided a relief to the residents from the crowded minidors and buses. For local transport, cycle rickshaws were used which slow and costly. It is observed that while an e-rickshaw charges Rs.10 to travel from Court More to Pradhan Nagar, a cycle rickshaw charges approximately Rs.60 for the same distance. Moreover, e-rickshaws are more comfortable, safer and faster than cycle rickshaws. Hence, in the main city too, the e-rickshaws soon gained popularity.

### **Popularity of e-rickshaws among users also beyond financial reasons**

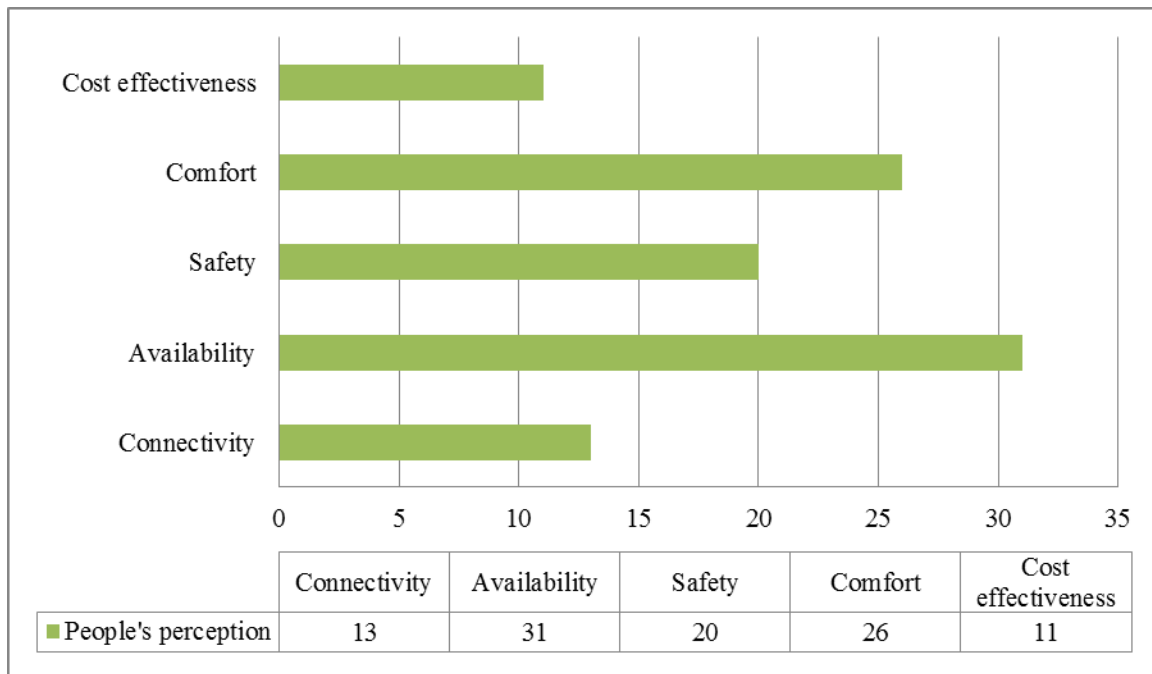
In the main city, the main reason for the popularity for e-rickshaws is not financial. In fact, the city service buses are the cheapest option of travel. In the primary survey, it was found that 31% of the respondents prefer e-rickshaws for its availability, while 26% like e-rickshaws for the comfort factor.

### **E-rickshaws provide women a sense of security due to openness.**

Women, in particular feel e-rickshaws to be quite safe for their daily travel because of the openness. In the primary survey, 80% of the women felt secure in e-rickshaws as they are open and can ask for help or can be spotted quickly in case of any unforeseen incidents.

### **The perception of 'environment friendly' nature of E-rickshaws is agreed by all**

The perception of their environment friendly nature is also proving to be positive for these e-rickshaws. All the respondents in the primary survey feel that e-rickshaws are environment friendly. It is beyond doubt that e-rickshaws do not contribute to the direct emissions in the city, but the overall environment friendliness needs detailed analysis after taking into account of the 'indirect emission' factor.



**Figure 6: People's perception of the advantages of e-rickshaws**

### **E-rickshaws benefited urban mobility, but it is blamed for the worsening traffic condition of the city**

Around 60% of the respondents feel that e-rickshaws have worsened the traffic conditions and should be regulated and penalised in case of traffic rule violations. They are being blamed for congesting the roads by irrational halts for passenger pick up and drop off.

A few minor drivers revealed that they are unsatisfied with the way e-rickshaws are being operated in the roads and complained that e-rickshaws often tend to block their way while picking up passengers. This type of behaviour from the e-rickshaws leads to frequent altercations.

### **E-rickshaws are making the roads dangerous due to rash and irrational driving**

One of the major complaints against the drivers is that they take sharp turns whenever and wherever they feel like it. Many people have blamed the e-rickshaws for the increase in road accidents and complain about the irrational and irresponsible behaviour of the drivers. They also complained that the drivers, more often, ask them to alight the vehicle in the middle of traffic in case of any traffic jam.

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It was found that e-rickshaws do not turn on the headlight even while operating on the darkest stretches of the highways. With this behaviour, they are not only risking their own lives, but also putting the passengers and other users lives in jeopardy.

### **2.3 Problems with the e-rickshaw operations in Siliguri**

#### **No formal training for the drivers is risking the lives of many people**

As no registration process for the e-rickshaws has begun in Siliguri, the operations are predominantly informal. The drivers don't have any formal training or any training certificates. Most of the drivers are illiterate or have very basic education. So many a times they don't even understand the basic road instructions and signage installed at the roads. Often they don't care for such instructions due to lack of capacity to assess scale of probable danger.

In the primary survey, it was found that around 65% of them were unaware of the fact that they are legally barred from operating on the highways. As per the Amendment of CMVR, 1988 in 2015 as CMVR (Amendment) act, 2015 and the notification from the Ministry of road transportation and highways, Government of India, the e-rickshaws are prohibited from plying on the highways and even on the city roads they should maintain the extreme left of the road. And so, they frequently violate one of the basic operational guidelines.

#### **No formal place for passenger pick up and drop off cause traffic jams**

There are no legal stands or stops for the e-rickshaws and they operate randomly and informally. This not only slows down the traffic flow, but also poses a major threat to the e-rickshaw driver and the passengers. Due to lack of awareness and also competition among them and also among other IPTs operating in Siliguri for passenger pickups, they are risking their lives. They also expressed their concern about the lack of parking facilities in the city. Their main demand is to regularize e-rickshaws so that they can operate fearlessly.

#### **No legal status, no financial assistance putting extra burden on the poor drivers**

As the e-rickshaws are yet to get the legal status, they are deprived of the financial benefits from any of the missions and schemes launched by both Central and State Governments. There is no insurance cover either for the operator or the vehicle. Hence any damage to the vehicle and the operator proves to be burdensome.

#### **Harassment by police is a major hurdle for the e-rickshaw drivers**

During the primary survey, many of the drivers alleged that they are being harassed unnecessarily by the police. They also requested to be allowed to operate on the main arterial roads because of the otherwise limited road network.

#### **E-rickshaw drivers are willing to pay for the registration charges so that they can operate without hurdles**



When asked about their willingness to regularise their vehicles, they responded by saying that the government should provide them with registration numbers so that if any e-rickshaw violates the traffic norms, he can be penalised.

### **E-rickshaw drivers feel that registration numbers will impart discipline**

It will help in identification of the culprits and provide safeguards to the innocents. This identification will also lead to more responsible behaviour and driving. When asked about the common observation regarding the headlights while driving on the dark stretches of the highways like the hill cart road, they denied it. They were busy blaming others, and tried to prove their morality and responsibility while driving. The drivers are very sceptical about the intention of the government regarding the registration of the e-rickshaws.

### **Cartelization of e-rickshaws needs to be tackled by the authorities to avoid arbitrary charging and to help the benefits reaching the needy**

In Siliguri it is reported that the rent of an e-rickshaw is around Rs.300 per day. An e-rickshaw operator earns about Rs.500 – Rs.600 per day. The drivers have to pay almost half of their earnings as rent. The authorities should fix the rent of e-rickshaws. Unless and until this cartelization of e-rickshaws is stopped, the full economic benefits of these e-rickshaws help the needy. E-rickshaws were meant to benefit the unemployed, but due to cartelization, maximum benefits are being pocketed by the affluent people.

### **Provision of financial assistance at subsidised rates for the needy will help in preventing cartelization**

Financial assistance to the interested drivers should be provided at a subsidized rate so that they can own their own vehicles. But there must be proper screening criteria for selection so that the benefits are not misused and it only helps the targeted beneficiaries.

### **Financial assistance to the needy will help in tacking debt trap**

The unorganized sector is lending money to these poor drivers at very high rate of interest. Though unreported yet, there is high probability that the poor drivers may fall prey to the never-ending debt trap in case they fail to repay even one EMI. This 'debt trap', though yet to be reported in this sector, is one of the major reasons for the farmers committing suicide all over India.

## E-rickshaw ownership in Siliguri

■ Rented E-rickshaw   ■ Own E-Rickshaw

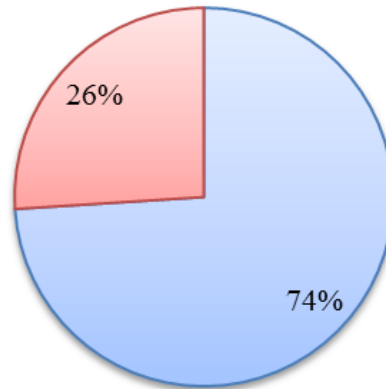


Figure 7: E-rickshaw ownership in overall Siliguri

### Loan from unorganized sectors is the most availed source of financial assistance in Siliguri

In the primary survey, it was found that 77% of the drivers in Siliguri, having their own e-rickshaws has taken loan from the unorganized sector. While in the periphery it is about 79% and in the main city it is 77%. This trend is dangerous as the rate of interest in the unorganized sector is very high and can lead to debt trap. In the periphery 16% drivers have taken financial assistance from the organised sector and only a mere 4% of the drivers in main city could avail financial assistance from the organised sectors. 13% totally with 21% and 5% of the people in the main city and periphery respectively used their own or family savings to purchase the vehicle.

#### 2.4 Technical Specification of E-rickshaws

**E-rickshaws are assembled. They are imported either as a whole or in knock down condition. Parts like motors; controllers are imported from China and assembled in India**

E-rickshaws in Siliguri are actually assembled as there are very few companies which actually manufacture e-rickshaws in India. It has also been alleged that most of the companies who claim that they manufacture e-rickshaws locally are actually importing e-rickshaws as whole unit or as knocked down units and just assembling them. The major technical components of an e-rickshaw are the motor, battery, shock absorbers, axle, tyres and the chassis. The structural stability has to be mandatorily approved by ICAT, Manesar, or Automotive Research Association of India, Pune,

## 2.5 Battery

**Lead acidic batteries are mostly used in Siliguri for e-rickshaws. Reputed batteries are widely used**

E-rickshaws mostly use lead acid battery in Siliguri. The most widely used battery brands for the e-rickshaws are of Exide and Amaron. The use of local made batteries couldn't be confirmed in the primary surveys. The opinion of the e-rickshaw drivers regarding the use of local batteries is negative and they are very sceptical about them.

**Batteries come with a cost of Rs.25000 to Rs.44000. Life expectancy of the batteries makes difference in cost.**

A good battery from Exide or Amaron costs between Rs.25000-Rs 44000, depending on the life expectancy. The batteries need to be replaced every six month to one year.

**Disposal of used batteries are a matter of concern. Batteries from the garages are sold to the scrap dealers.**

There is a major concern about the disposal of used batteries. Batteries are being purchased by the drivers from authorised dealers and then fitted in garages. The used batteries are then mostly left with the garages. The garages rarely return them to the authorised recycling centre are sold to the scrap dealers. The scrap dealers then dismantle them unscientifically causing pollution and even accidents due to the presence of acids and other harmful chemicals.

## Passenger over loading

As per the provisions laid in the CMVR, 1988, e-rickshaws were allowed to carry only 2 passengers with a motor up to 450W and a maximum speed of 20kmph. This proved to be economically unfeasible and as a result a gross violation of the rules was reported all throughout the country. But after the enacting of CMVR (Amendment) 2015, now the maximum seating capacity has been increased to 4+1 and a motor power of 4000W. Though in many e-rickshaws with seating capacity of 4, 6 and 8 passengers are available, they are still not legal as per the new amendment of CMVR, 2015.

## 2.6 Maintenance

**E-rickshaws are not susceptible to major mechanical or electrical failures. Minor mechanical failures are reported.**

No major mechanical failures were reported during the operation. The drivers reported minor mechanical failures including axle damage, gear box failure, brake shoe damage or problems with the hydraulic system. Majority of the drivers informed that these conditions are rare and of not much concern. Minor electrical problems with the circuit and head lamps also occur. Only 5% of the drivers surveyed reported that they have suffered major mechanical or electrical failure during their operations and have to keep their vehicles off road for more than one day.

**There is overall satisfaction among the drivers with the performance of their vehicles.**

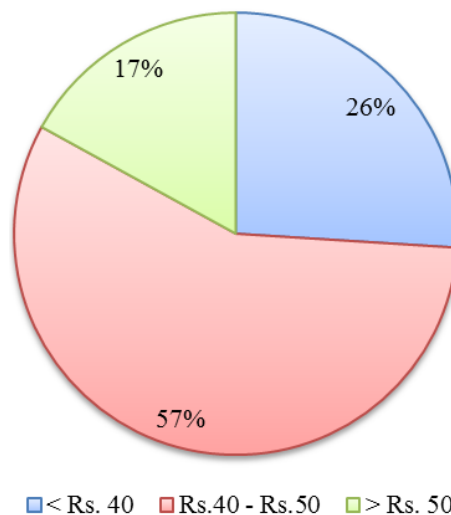
Overall they are satisfied with the performance of their vehicles. Minor servicing of the vehicles is done periodically including the changing of the tyres, batteries and brake shoes. Tyres need to be changed annually while the brake shoes need to be changed every month or two.

E-rickshaws have low operational cost of Rs.0.096 per passenger km .E-rickshaws are economically viable and the biggest reason for this is the low operational costs. Operational costs of e-rickshaws are as low as Rs.0.096 per passenger km as compared to Rs.0.62 per passenger km for CNG auto-rickshaws (Majumdar & Jash, 2015). For e-rickshaw operations, major costs involved are the electricity cost for charging, cost for replacement of batteries, tyres, brake shoes and other consumable items. The operational costs can be categorized in three sub categories i.e. *operational cost*, *maintenance cost* and the *regulatory cost*.

**Daily electricity cost for charging varies between Rs.40 to Rs.50.**

Operational costs involve the fuel cost, toll (if any) or any other permits that need daily payment. It is generally calculated on daily basis. In general, the daily fuel costs vary from Rs.40-Rs.50 in Siliguri. Most of the drivers reported this as their daily electricity consumption.

The operational cost in the main city was found to be more than in the periphery. The main reason is the use of comparatively old motors and poor battery quality. Though these drivers use batteries from reputed brands, they limit their budget to not more than Rs.30,000. The drivers in the main city were reluctant to spend more for the better-quality batteries (Figure 29, 30 & 31).



**Figure 8: Daily electricity cost in the main city**

### Monthly maintenance cost range between Rs.1500 to Rs.1800 excluding the cost of consumables.

Maintenance costs are the cost of periodical repairing and servicing, including the costs of consumable items like brake shoes, battery, tyres etc. The cost of periodical maintenance and servicing was found to mostly in the range of Rs.1500 – Rs.1800 per month excluding the cost of batteries and tyres.

In the primary survey, it was found that 64% of the respondents in Siliguri have a monthly maintenance cost between Rs.1000 to Rs.1500. While 24% have a cost of more than Rs.1500 per month, the rest 12% have maintenance cost of below Rs.1000 (Figure 32).

### Better road conditions can bring down the maintenance costs significantly

In the primary survey, it was found that the maintenance costs of the e-rickshaws operating in the main city is almost equal to that of the e-rickshaws operating in the city periphery. But as seen earlier, the e-rickshaws operating in the peripheral areas tend to use higher motor power vehicles more often than the e-rickshaws in the main city and ideally the maintenance cost should be lower in the main city. But due to the congested roads in the main city, the longevity of consumable items like brake shoes are much lower. From this fact, it can be safely concluded that the maintenance costs can be brought down if road conditions in the city are improved. In fact, the daily running costs can also be brought down. In India, every year people and the government face huge financial losses due to poor road conditions. Some estimates suggest that the developing economies in the world suffer an annual economic loss of 2%-3% of the GDP just due to the poor road conditions(Dr. Frank Wolter, 2014).

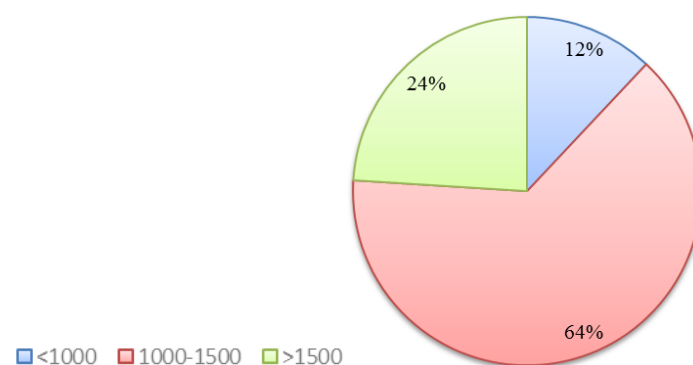


Figure 9: Overall monthly maintenance cost

## 2.7 Socio-economic impact of e-rickshaws in Siliguri

### **E-rickshaws have a positive impact the socio-economic conditions of the people leading to a better economic opportunity and dignified life**

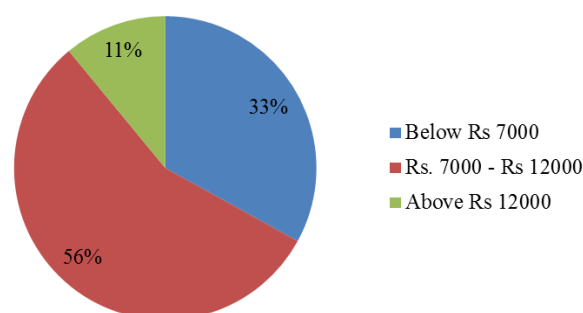
In several research papers, it has been highlighted that e-rickshaws are providing better economic opportunities. Many of the previously unemployed youth are now getting a good source of income. Many cycle rickshaw drivers are also switching to e-rickshaws as it provides them a better social status, more revenue and less strenuous work. Through the primary surveys, it emerged that almost everyone has better earnings. Due to its informal nature of operation and almost no formalities (permits) required yet in Siliguri, it had become popular among the unemployed youth.

### **E-rickshaws are perceived to improve social status, and do not violate human dignity like cycle rickshaws**

Earlier most of the less educated youth or youth with a decent background used to shy away from cycle rickshaw pulling with concern about their social status being a main reason. Cycle rickshaws are perceived to be ‘violating human dignity’. Now with the induction of e-rickshaws, those same youths are getting engaged with this profession. Many people are also switching from other occupations in the quest of better economic opportunity and financial independence. It has been observed that people who earlier used to pull cycle rickshaws or vans are trying to socially and economically ‘upgrade’ themselves. Seasonal or casual labours are also switching to e-rickshaws for year around employment. People earlier engaged in low paying jobs like helpers in small shops etc. are also switching to this for better economic opportunity and independence.

### **An E-rickshaw driver mostly earns between Rs. 7000 to Rs. 12000 per month**

33% of the drivers reported that they are having a monthly income of around Rs. 7000, while 56% drivers responded they are having a monthly income of less than Rs. 12000 and the rest reported it to be more than Rs. 12000. These monthly incomes are their take home incomes keeping aside all their daily, monthly, annual expenditures and rent if they have rented the vehicle (Figure 37).



**Figure 10: Average monthly income of the e-rickshaw drivers**

## 2.8 Crime abatement

### **New economic opportunity has reduced petty crimes and helped in mainstreaming of many people.**

It has been found through various research papers and by conducting primary survey in Siliguri that petty crimes have reduced drastically after the induction of e-rickshaws. Many times, due to lack of economic opportunities petty crimes increase. Now when an easy source of income is available, it is helping in the mainstreaming of the persons involved in petty crimes. Though the exact figures in the reduction of petty crime rate is missing, the drivers and even the passengers confirmed this fact during the primary survey. This trend is predominantly visible in the periphery of the city. Though, the exact figure is currently unavailable, unconfirmed sources put it is somewhat around 5% - 10% of the total number of e-rickshaw drivers.

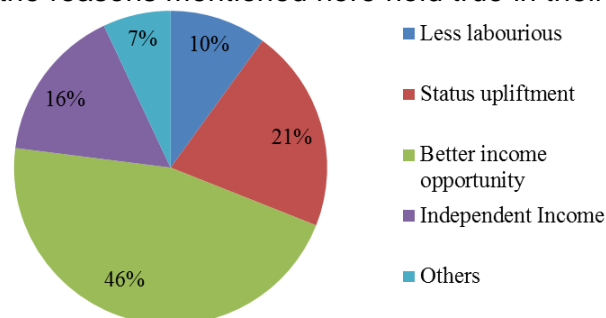
## 2.9 Operator’s perception of satisfaction

### **E-rickshaws need to operate in few arterial routes to remain profitable.**

In the primary survey, it has been found that the e-rickshaw drivers are satisfied overall with the economic opportunities while driving e-rickshaws. They are satisfied for the reason that they are now having a better quality of living than during their earlier profession. But almost all the drivers raised concerns regarding the shrinking economic opportunities and financial viability due to increasing competition with fresh influx of e-rickshaws and other IPTs like minidors.

### **Economic opportunity is the main pull factor for the drivers in this business.**

When asked about their reason of satisfaction, 10% of the respondents shared the view that driving e-rickshaws is less laborious than their earlier occupations. 21% of the respondents think that their ‘Social Status’ has been ‘upgraded’. 46% agree to the fact that they are now having better economic opportunities and can make their families happier and fulfil their basic needs. While the rest 16% admitted that they like the fact that they are earning independently and need not work under anyone. The rest 7% respondents couldn’t provide any specific reason for their satisfaction. They were under the impression that all the reasons mentioned here hold true in their case (Figure 38).



**Figure 41: Average perception of satisfaction of the e-rickshaw drivers**

**Table 2: Cost- benefit analysis of the different IPT modes in Siliguri**

Source: - Results are based on primary Survey.

Category of parameter	Parameters for comparison	Mode of Para-Transit		
		E-rickshaw	Minidors	Cycle Rickshaw
Operation	Category of service	Informal	Formal	Informal
	Hire type	both	shared	Individual
	Operational region	local	Local and sub-regional	local
	Permissible Seating capacity (excl. driver)	4	8	2
	Fuel type	Electric	Fossil (diesel)	Manual
	Authorised stand	No	Yes	No
	Operational Speed	15-20 kmph	25-30kmph	-
Vehicle cost and other statutory costs	Vehicle cost	60000-120000	275000-320000	10000-15000
	Registration cost	540 <sup>5</sup>	12000-15000	NA
	Route permit cost	NA <sup>6</sup>	20000	NA
	Taxes (yearly)	260	22000	NA
	Other informal costs	NA	50000 - 70000 <sup>7</sup>	
	Total	61000-121000	400000	10000-15000
Regulatory framework	Permit Required	No	Yes	Yes
	Registered & regulated	No	Yes	Yes
	Registration Authority	SMC <sup>8</sup>	ARTA	SMC
	Regulation guideline	Yes <sup>20</sup>	CMVR, 1988	SMC
	Driving licence	Yes <sup>9</sup>	Required	No
	Formal training	Yes <sup>20</sup>	Required	No
Comfort	Seating	Yes	Yes	No

<sup>5</sup> Registration charges and other form of taxes are as prescribed by the GoWB. The present status is no e-rickshaws in Siliguri are paying taxes apart from few reported of paying for the registration in the main city.

<sup>6</sup> Route permit is not required as per GoI notification (No permits required for e-rickshaws, govt issues notification, 2016)

<sup>7</sup> Informal costs include the brokerages and other informal costs incurred by the applicant to obtain a limited route permit as a stage carrier.

<sup>8</sup> Registration of e-rickshaws is yet to start in Siliguri.

<sup>9</sup> Driving license, formal training and regulation guideline is required as per CMVR (Amendment), 2015, but in Siliguri it is yet to implement.



perception <sup>10</sup>	Noise inside vehicle	minimum	High	No
	Structural safety	minimum	Medium	No
	Women's Safety	Yes	Medium	Yes
	Jerking	Yes	Yes	high
	Economic viability	Yes	Yes	No
	Easy availability	Yes	Yes	Yes
Financial viability <sup>20</sup>	Average monthly income <sup>11</sup>	10000	22000	5000-6000
	Average daily earning	400-600	1800-2500	200-250
	Daily fuel cost (INR)	50-60	300-350	NA
	Average daily run (in km)	60-70	200-250	----
Environment friendly perception <sup>20</sup>	Polluting	No	Yes	No
	Consumption of natural resources	Low	High	No

<sup>10</sup> These are the results of the primary survey conducted in June – July 2017 on user perception.

<sup>11</sup>Excluding all costs.

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## 3 Key takeaways

So far in the report we have seen that there are certain advantages and disadvantages of the operation of e-rickshaws in Siliguri. For a developing city like Siliguri planning, implementation and enforcement is equally important.

### **Absence of Policy to regulate E-rickshaw operation in city**

Until the Amendment of the CMVR (Amendment), 2015 there were serious legal hurdles in the operation of e-rickshaws as they were not recognised as a mode of transportation. They have been banned by various State High Courts from time to time due to lack of proper policy framework. Until now many states haven't yet formed a comprehensive legal framework and strategies for registration for e-rickshaws. The reasons for this problem are the several conflicting and confusing notifications that are being published.

### **Cartelization of e-rickshaws is snatching away the desired benefits from the poor e-rickshaw drivers**

In Siliguri, it has been alleged that, though e-rickshaws are meant for providing economic benefit to all, it has been found that majority of these e-rickshaws are being cartelized. The drivers have urged the government to take necessary actions to curb the cartelization of e-rickshaws by capping the number of e-rickshaws a single person can own. Due to lack of proper fare structure, the owners of these e-rickshaws charge arbitrarily from 300-800 (PTI, 2017).

### **No financial help from organised sectors for purchasing new e-rickshaws**

Most of the e-rickshaw drivers were poor cycle rickshaw drivers, so it's very difficult for them to bear the cost of these e-rickshaws. Due to lack of proper framework regarding the e-rickshaws, the poor drivers are deprived of the financial benefits from the organised sectors like banks, NBFCs. No one from formal sector lends money to them due as they were not considered as a mode of transportation and did not have registration (Roy T. L., 2017).

### **Absence of Comprehensive policies governing the manufacturing of the vehicles**

The battery-operated e-rickshaws in the city have also been deemed unsafe because of the lack of policy framework governing the manufacturing of the vehicles, and also due to the absence of safety certificate for the vehicles. They were lacking in the policies regarding e-rickshaws which lead the police not being able to penalise them on traffic rule violations. Wrong side driving, dangerous driving, violating traffic signals were some of the major problems faced (Times News Network, 2017).

### **Absence of drivers training: Incidents of rash driving, violation of traffic rules**

E-rickshaws are blamed for choking the major arterial roads with illegal parking, traffic rule violations. However most of the problem is due to violation of the rules.

### **There is no official count of the number of e-rickshaws operating in Siliguri**

During the primary survey, e-rickshaw driver's union estimated that more than 10000 e-rickshaws are operating in Siliguri. As per some other e-rickshaw associations, there are more than 7000 e-rickshaws operating within Siliguri. But when the sales figure of the authorised e-rickshaws dealers is combined, they have sold around 5700 e-rickshaws in total. Hence it can be concluded that there are significant number of e-rickshaws purchased from unauthorised dealers. These e-rickshaws sold by the unauthorised dealers may not comply with the specifications in the CMVR (Amendment) - 2015.

There are many unauthorised e-rickshaw dealers. As per the reports from the e-rickshaw drivers it is around 30-40. Many garages in Siliguri are purchasing spare parts, assembling them, and selling them in the local market at a price between Rs. 60,000 – Rs.1,10,000. They neither have the permit to sale, nor pay any taxes post sales. Most of these unauthorised dealers are located in the periphery areas especially on the SH-12 and NH-55.

### **E-rickshaws are operating as a parallel transportation system**

E-rickshaws are not only providing the last mile connectivity, but are also operating as a parallel option for urban mobility in Siliguri. Around 75% the e-rickshaws are operating on the major arterial roads of Siliguri.

### **E-rickshaws are operating unregistered and unregulated**

Siliguri is yet to start the registration process for these e-rickshaws as per the Motor Vehicles (Amendment) act, 2015. Till date no registration number or temporary identification number (TIN) has been issued. Therefore, the e-rickshaw operations are yet to get a legal cover.

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## 4 Conclusion

Absence of a legal framework for e-rickshaw operation in Siliguri is a major threat to its effective utilization. The travel demand in Siliguri is increasing drastically and the current road infrastructure is not enough to support the growing demand. It will not only choke the city with increasing number of personal vehicles, but also contribute to the pollution.

The e-rickshaws not only need to be promoted in a planned manner, but also need to be protected. It is providing economic opportunities to thousands of unemployed youth and helps in supporting their families as the government otherwise is unable to provide alternate employment opportunities. E-rickshaws should not be treated as a traffic nuisance, rather they should be effectively managed to provide the much-needed last mile connectivity in the city which the government has failed to provide. Proper initiatives should be taken to increase the profitability of the e-rickshaw operations in the city. After the assessment of the operations of e-rickshaws in Siliguri, it can be concluded that

- In spite of popular perception, e-rickshaws are not illegal, they are just unregulated and proper measures must be taken to regulate them.
- E-rickshaws are not contributing to direct pollution. They can be used in a planned manner in the heavily polluted city area and will provide relief to the residents.
- E-rickshaws are providing the last mile connectivity.
- Since there is no registration, and virtually no process to identify the defaulters, the attitude of the drivers is very arrogant and rogue. They know they can't be identified and penalized.
- In absence of registration, enforcement of traffic rules is difficult.
- E-rickshaws in Siliguri are not following the basic operational guidelines.
- Proper facilities like legal stands, charging points helps in smooth operation of e-rickshaws and they should be provided.
- Legal stands will not only facilitate smooth operation of e-rickshaws, but will also help in reducing traffic woes. The violators can be prosecuted accordingly.
- E-rickshaws are proving direct and indirect employment to thousands of people.
- Initiatives must be taken to provide financial assistance at a subsidized rate to the poor drivers to purchase new vehicles.
- In absence of registration, drivers as well as users can't avail insurance benefits
- Route planning should be done to increase the profitability of the drivers.
- The fresh influx of e-rickshaws must be pre-planned according the road capacity and projected future travel demand.

- In case of government subsidies, it should be taken care of that the benefits of such subsidies are benefitting the targeted people.
- E-rickshaws are a comfortable and safe solution to the urban mobility woes of Siliguri. They can be used effectively in providing barrier free travel for the aged and differently abled population.
- E-rickshaws are financially viable mode of transportation for the residents of Siliguri. E-rickshaws are immensely popular both among the users and the operators for these reasons.

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