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SUSTAINABLE MOBILITY FOR BENGALURU

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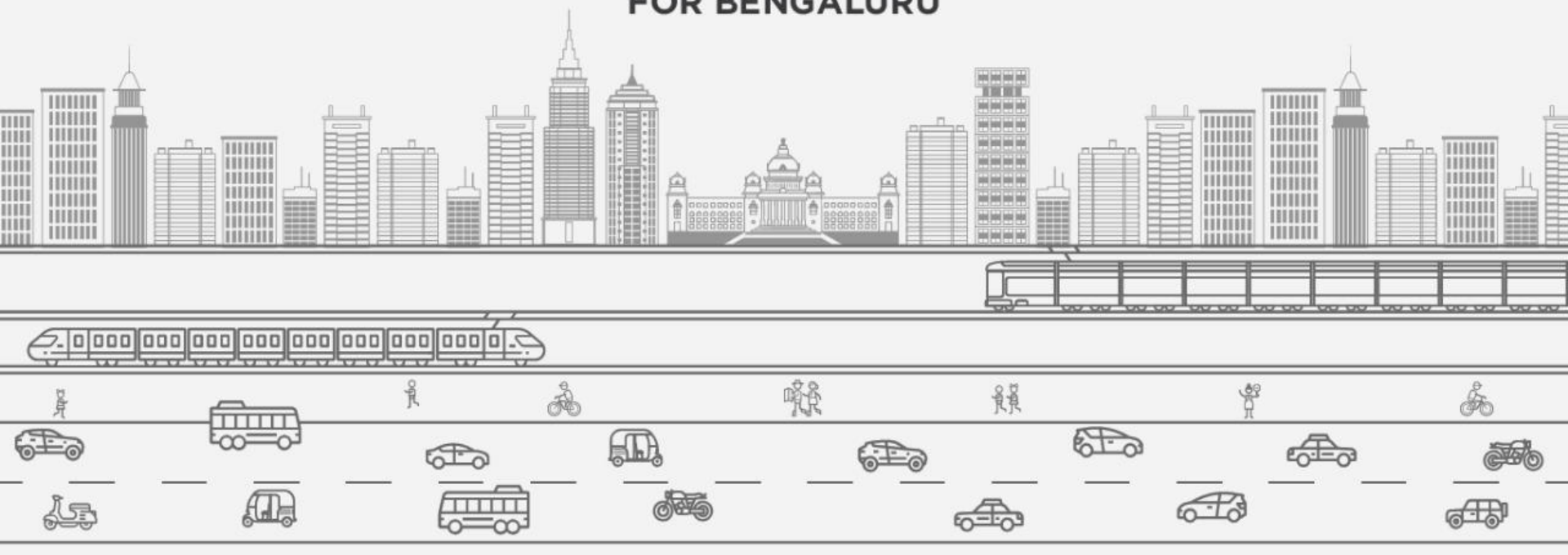


Presentation on

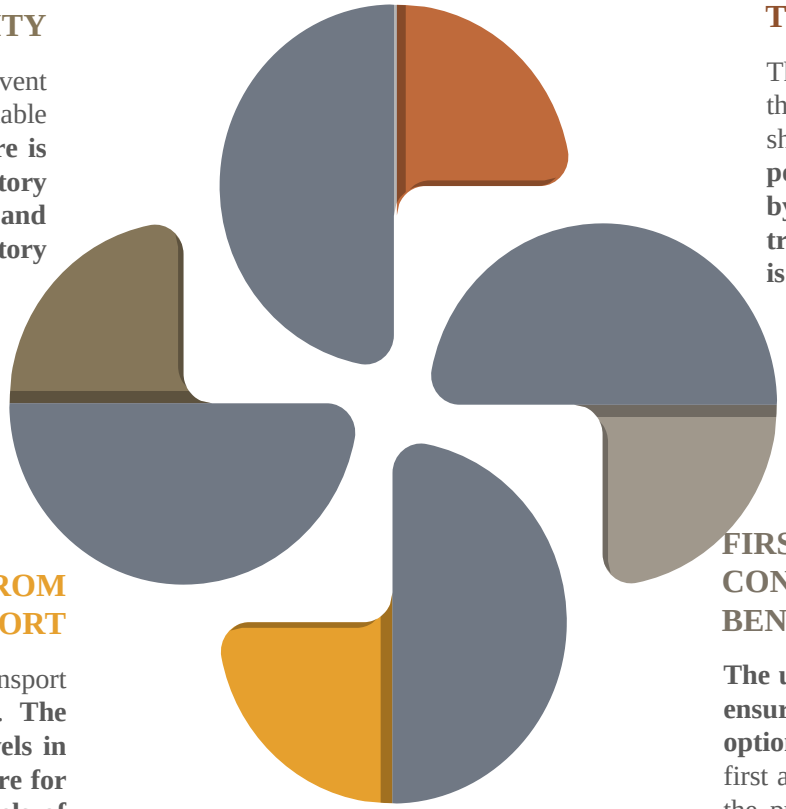
B.PAC – Uber report on Sustainable Mobility for Bengaluru

DATE: 11TH MARCH, 2020

THEMES OF THE PAPER

REGULATORY ECOSYSTEM IN BENGALURU MOBILITY

There are multiple regulatory challenges that prevent new mobility service providers to offer sustainable mobility solutions in Bengaluru. **Therefore, there is a need to understand the existing regulatory bottlenecks specific to the state of Karnataka and work towards creating a conducive regulatory ecosystem for shared mobility services**.



SUSTAINABLE AND GREEN TRANSPORT

The mobility options in the city while addressing the aspects of affordability, speed and comfort should also focus on sustainability. **Through a policy push for the usage of alternate fuels and by provision of required infrastructure, green transport could be promoted in the city which is efficient and sustainable.**

INCENTIVISING SHIFT FROM PRIVATE TRANSPORT

Bengaluru has a lower share of public transport lagging behind Mumbai, Kolkata, and Delhi. **The higher levels of congestion and pollution levels in the city require policy push and infrastructure for the use of public transport by various models of incentivizing which promotes a shift from private modes to public transport.**

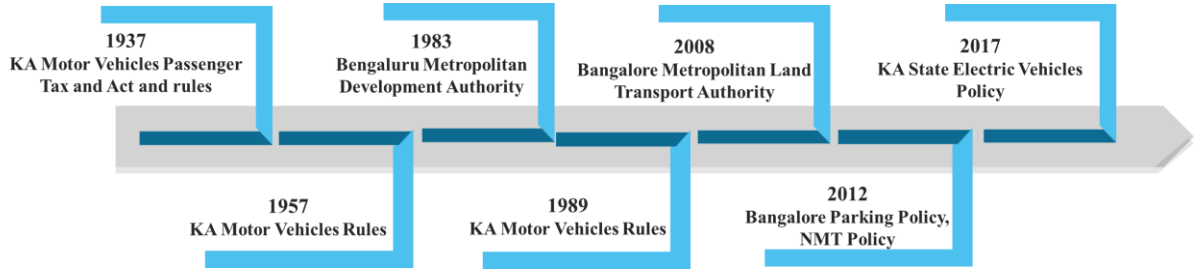
FIRST AND LAST MILE CONNECTIVITY OPTIONS IN BENGALURU MOBILITY

The usage of public transport can be promoted by ensuring seamless first and last-mile connectivity options. At present, there is no formal integration of first and last-mile connectivity service providers with the public transportation system. The first and last-mile gap could efficiently be solved through low cost and sustainable solutions

Theme 1: Regulatory Ecosystem in Bengaluru Mobility: Current Context

- The Motor Vehicles Act of 1988 is the principal Act that governs and regulates the road transport, vehicular ecosystem, including permits, penalties, registration, and insurance
- The recent Amendment of 2019, the Act has introduced certain changes to recognize the new age mobility service providers for the first time.
- "Taxi Policy Guidelines" (MoRTH, 2016)"; "Moving Forward Together" (NITI, 2018) highlights the importance of shared mobility services to solve congestion
- In Karnataka, the regulation has not kept pace with the innovations in urban mobility
- There have been limited or no regulatory interventions for new mobility solutions which provide shared mobility services, technology-based cabs, autos, bike taxis, car and bike pooling.

Timeline of acts, rules, policies authorities formed relating to motor vehicles in state of Karnataka



Intermediate Transport Option and their Regulatory Challenge

Intermediate Transport Option	Regulatory Challenge	States that have promoted	States that have banned
Ride Sourcing • Cabs • Shared Autos	**Cabs**- Price cap, ban surge pricing	**Cabs**- Delhi	Cabs- Nil **Bike Taxis** - Tamil Nadu, Karnataka
Ride Splitting • Shared Cabs • Shared Autos • Shuttle Services	**Cabs and Autos** operate on variations of contract carriage permits which do not allow pick up and drop off of passengers from different points. They require Stage Carriage permits to do so which are only given to public buses in the state of Karnataka.	**Shared Cabs**- Delhi, Tamil Nadu **Shared Autos** - Tamil Nadu **Shuttle Services**- Delhi, Maharashtra	**Shared Cabs** – Karnataka Shared Autos- Karnataka Shuttle Services- Karnataka
Ride Sharing • Carpooling • Bike- Pooling • Bike Taxis	Section 66(1) of the Motor Vehicles Act states that no person can earn a profit with a privately owned vehicle. Carpooling can be used to offset the cost of the trip but cannot be used to make a profit. **Bike Taxis**- Have no regulation looking into their legality, making them illegal	**Carpooling**- Delhi, Maharashtra **Bike Taxis**- Andhra Pradesh, Uttar Pradesh, Rajasthan Haryana, Goa, Gujrat, Punjab, Telangana, Mizoram West-Bengal, Madya Pradesh	**Carpooling** (for a profit)- Tamil Nadu Karnataka
Car, Bike and Bicycle Sharing	No explicit regulatory challenge.	**Bike and Bicycle Sharing**- Karnataka	Nil

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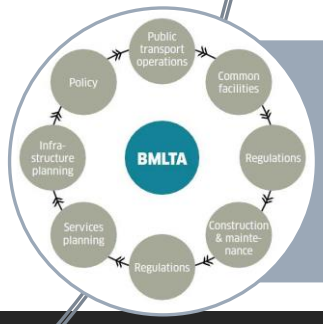
Recommendations

Policy Initiatives

1. Formulate a **comprehensive policy for shared cab and shared auto to oversee legality and focus on dispute resolution and safety.**
2. Promote **shared mobility services by providing infrastructural support such as priority parking for shared mobility**

Legislative changes to be made by Karnataka State Government

1. Allow **shared cabs, shared autos and feeder with contract carriage permits to legally operate in Bengaluru.**
2. Amend the **Karnataka On-demand Transportation Technology Aggregators Rules, 2016 to allow for dynamic pricing by aggregators that is based on time, distance and fuel cost**



Provide More Authority to BMLTA

1. The BMLTA should be **made a statutory body which has financial and legislative autonomy to ensure that the proposed solutions can be implemented**

Recommendations

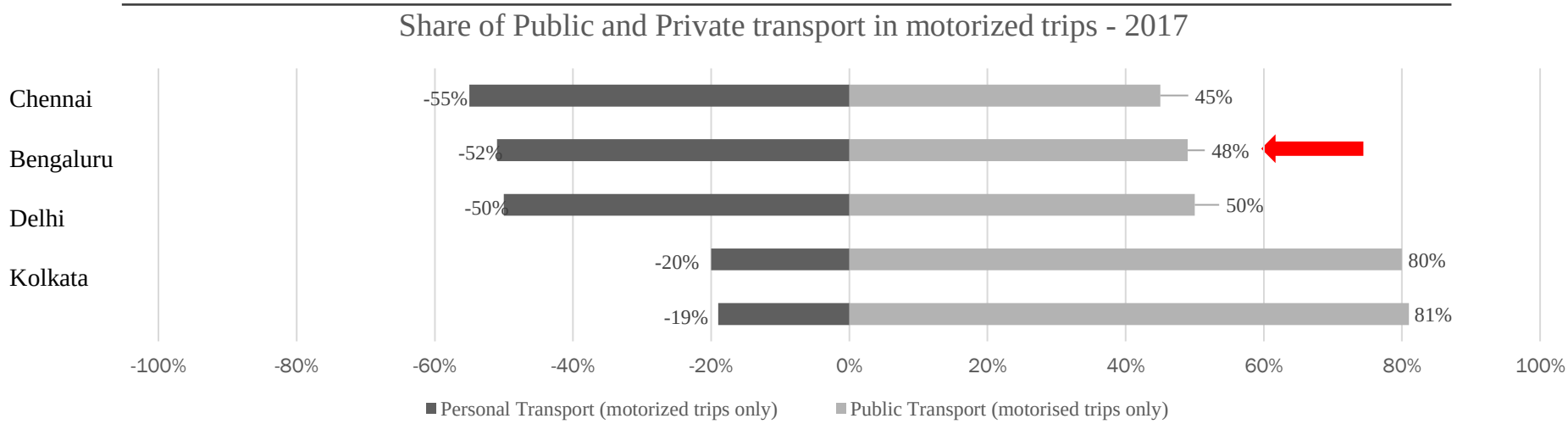
Data Sharing

1. The Government of Karnataka (under BMLTA) **must consider creating an open digital infrastructure for data that brings the operators, both public and private, together to enable voluntary participation, allowing them to collaborate while being competitive at the same time**.

Regulatory Sandbox

1. Karnataka Government **should encourage new mobility service providers to operate through regulatory sandbox by allowing them to pilot their solutions in Bengaluru at specific locations and use cases for a specific period**

Theme 2: Incentivizing Shift from Private Transport



Source: Base figures from multiple transport studies; projections using factors given in "Review of Urban Transport prepared by CSTEP and IUT "

Public Vs. Private Transport Share

- Bangalore has a lower share of public transport lagging behind Mumbai, Kolkata and Delhi.
- As of 2017, share of public transport in Bangalore is 48%
- Goal is to achieve 80% public transport

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Current Status of Mass Transit Services in Bengaluru

BMTC

- Fleet strength is increased only by 7.89% since 2011, whereas the population is increased by 32%.
- Present fleet strength is 6635
- Revenue (daily) has increased from 3.5cr in FY 16-17 to 4.78 cr during FY 18-19
- Service kilometers reduced from 1.28 millon during FY 16-17 to 1.15 Million during FY 18-19
- **The current ridership is 36 lakh**

BMRCL

- Two metro lines currently in operation : 42.3 km
- Phase 2 (128Km) will be completely operational by 2024, however a majority of the corridors will be completed by 2021.
- When completed, Phase II is expected to have a daily ridership of 20 lakh people.
- **The metro currently has a daily ridership ranging b/w 4.5 to 5**

Suburban railway

- A well-connected suburban rail in the city will be beneficial in connecting the peripheral areas of the city and reduce the congestion.
- In the Union budget of FY 20, the Bengaluru suburban railway project was mentioned for Rs. 18,600 crores.
- The central government will fund 20% of the total project cost and state government will invest another 20% and the balance 60% will be raised through external funding
- **The current ridership is 1.5 – 2 lakh**

Recommendations

Fiscal Incentives

1. Free bus passes (on one working day of the week on the lines of cycle day to popularise the concept).

Non Fiscal Incentives

1. Real time Passenger Information System (PIS) to be installed in all public transit stations

2. Increase the fleet size of BMTC buses to 15,000 by 2021.

3. Providing priority lanes for shared mobility and public transport would

4. The smart card based automatic fare collection system

5. Information integration with paratransit service providers

Fiscal Disincentives

1. Parking pricing: Strictly implement parking policy that charges a hefty fee for on road and off-road parking with strict enforcement..

2. Congestion pricing: Implement congestion pricing in high density corridors

Non Fiscal Disincentive

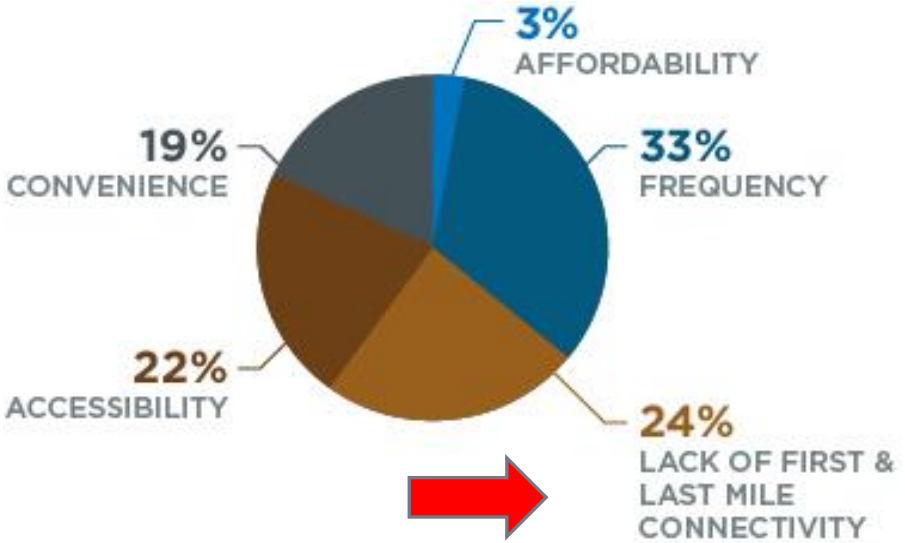
- Private vehicles can travel by creating Bus Priority Lanes and transit plus zones

Theme 3: First and Last Mile Connectivity in Bengaluru

1. First and last mile connectivity to public transport forms an important part of the travel experience.

2. It is a major incentivizing factor for people to move from private transport to public mode

3. Existing regulatory framework is not supportive of services of shared cabs and shared auto



Source: B.PAC Survey

First and Last Mile Connectivity Challenges in Bengaluru

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1. **Lack of connectivity to public transit from inner localities:** The public transit in Bengaluru covers only a few localities leaving the inner localities with limited or no connectivity. There are no feeder bus services currently operational in the city because of which commuters rely on their own vehicle or cabs/ autos to reach the nearest transit stations

2. **Lack of shared mobility services to cover the first and last mile gaps***:* The three-seater shared auto services which operate in certain parts of the city effectively work as a primary medium to cover the first and last mile travel is not allowed to operate legally

3. **Poor infrastructure for walking and cycling:** Walking is the most desirable form of first and last mile connectivity. In Bengaluru, 53% of people who travel on public transport walk both their first and last mile, while 18 % of them do not walk even one leg of the journey.

4. **No integration of services at public transport transit points:** Several metro stations in the city do not have parking spaces for rental operators to provide service. Further, the metro stations which have a facility for bus stops outside the metro stations have not been integrated with timings.

Recommendations

Policy Initiatives

The recently amended Motor Vehicle Act has outlined that the State Government can modify the permits issued under the MV Act or formulate schemes and issue licenses to promote last mile connectivity solutions in the city.

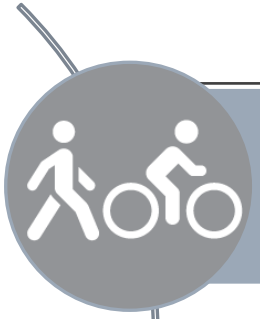
Pedestrian Infrastructure

The operators of mass transit services should invest in improving the infrastructure for pedestrians who access their first and last mile by walk. The operator should develop and maintain the footpath for 1 km radius surrounding the transit stations.

Feeder Bus

Reintroducing this service will be able to cater to the last mile travel of commuters. Further, the Transport Department needs to allow private operators to operate the shuttle service from transit stations.

Recommendations



Last mile should be location specific

The last mile solutions need to be planned at a micro level taking into consideration the purpose of travel.

Stakeholder consultation meetings:

The new phase of Metro and Suburban railways are expected to be completed by 2022. The mass transit operators should hold stakeholder consultation meetings with commuters, private operators to introduce feasible connectivity options for first and last mile.

Theme 4: Sustainable and Green Transport in Bengaluru

- As of 2019. there are 10 million trips made per day in Bengaluru
- In 2030 its predicted to be 3times of 10 million trips made per day in Bengaluru

Its time to move beyond congestion, with the immediate need for reducing carbon emissions and head towards clean, cost-effective and efficient mobility.

Karnataka is the 1st State to have Electric Policy

- Karnataka's EV policy aims to convert 50% of its entire fleet into EV by 2030, which has shifted the focus to electrification of transportation which is the primary technology pathway to achieve the transformation
- Currently, the EV market has less than1% sales in Bengaluru for 80 lakh vehicular population

Potential Segments

The growth in EV vehicles is likely to happen faster among :

1. Fleet owners,
2. Public transport
3. Employee transport
4. Last mile deliveries
5. Logistics

Public Transport

Platform based ride-hailing

Employee and customer transport

EV is fast becoming a growing use case for short distance travel.

Challenges for EV adoption

Vehicle & Design/Form

- Limited Pool of EV Manufacturers
- Limited Form Factors for various use cases (especially logistics).
- EV adoption is more challenging for platform aggregators where vehicles are owned by individuals but operated for commercial as well as personal purposes. Personal use requires flexibility in distance travelled and because of range anxiety. Current design of vehicles doesn't possess the required vehicle strength and often fail on safety standards

Battery & Charging/ Swapping

- Need of better Battery technology for varying temperature conditions, speed, distance and payload
- Battery Swapping Stations yet to take off
- Less Availability of Charging Stations limits usage
- Use of lead-acid batteries, which need to be replaced within 7-8 months
- Commercial tariffs are still being imposed in states where EV tariffs have been proposed; there is a delay between policy and implementation.
- Land leasing costs for charging infrastructure on private/public lands are high Solution
- Long waiting times for charging and high opportunity costs are discouraging drivers from making the switch to EVs
- Rapidly changing technology, unfavoured operational conditions and high cost

Hurdles in EV adoption

- High EV costs
- Challenges to battery technology
- Limited range of evs,
- Lack of charging infrastructure

Challenges for EV adoption

Infrastructure

- The lack of proper parking facilities for EVs leads to damage of the vehicle and adversely affect the possibility of charging the vehicle
- Rental EV witness theft and vandalism

Financing

- Lack of proper financing models to support the upfront high cost of the vehicle.
- Resale value decreases as form of the vehicle is customised.

Regulatory

- Lack of comprehensive regulatory framework Absence of safety and compliance standards

Hurdles in EV adoption

- High EV costs
- Challenges to battery technology
- Limited range of evs,
- Lack of charging infrastructure

Recommendations

Short term 2020-22

- FAME II must include under 60km EV and inclusion of e-NMV in EV Policy of GoK
- EV definition to include vehicles without pre-installed batteries, treating electric vehicles and batteries as separate entities and extending demand incentives for both
- Implement electric vehicle parking regulation
- Establish low/zero emission zones

Medium term 2022- 30

- Green mile incentives for every km run using EV which will encourage fleet operators in reporting number of EV trips
- Create research hubs and incubation centers
- Incentivize end-of-life recycling

Long term 2030 onwards

- As we move closer to the all-EV goal, ensure mass retrofit policy for ICEs is in place

Karnataka needs to have achievable plan to reach the 2030 target

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Wayforward

Measurements, Monitoring and Reporting

- **Universal access**
  - **Providing multiple choices of public transport with different price points,** to meet the requirements of all socio-economic sections.
- **Transition to sustainable mobility**
  - **Measuring success rate and improvement of public transport based on accessibility, efficiency and affordability** of last and first mile connectivity options.
- **Efficiency**
  - **Reducing the time spent in traveling, congestion, and cost of travel** in a sustainable way.
- **Safety**
  - **Reduction in the number of private vehicles on the road will also cause the accidents to decrease**.
- **Green mobility**
  - **Set interim goals to reach 20% target by 2022 and 50 % by 2025 to reach the EV target of 2030**.

Thank You

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