



# Behavioural Shifts in the Transport Sector



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## Introduction

Emissions from the Indian transport sector currently account for almost 10 per cent of the country's total GHG emissions, mandating significant sectoral interventions for attaining the 'net zero' goal.

Strategies to reduce emissions from the transport sector include electric vehicle (EV) adoption, shift to public transport (PT), and non-motorised transport (NMT). These typically require substantial behavioural change. Therefore, a sound understanding of consumer behaviour in terms of what determines consumers' choice of one mode of transport over another can help design effective strategies to enable the shift.

There are various factors that affect consumer preferences— socio-economic factors such as gender, age, and income and mode-specific technical factors such as speed (travel time), travel cost, frequency of service, and range (for electric vehicles particularly).

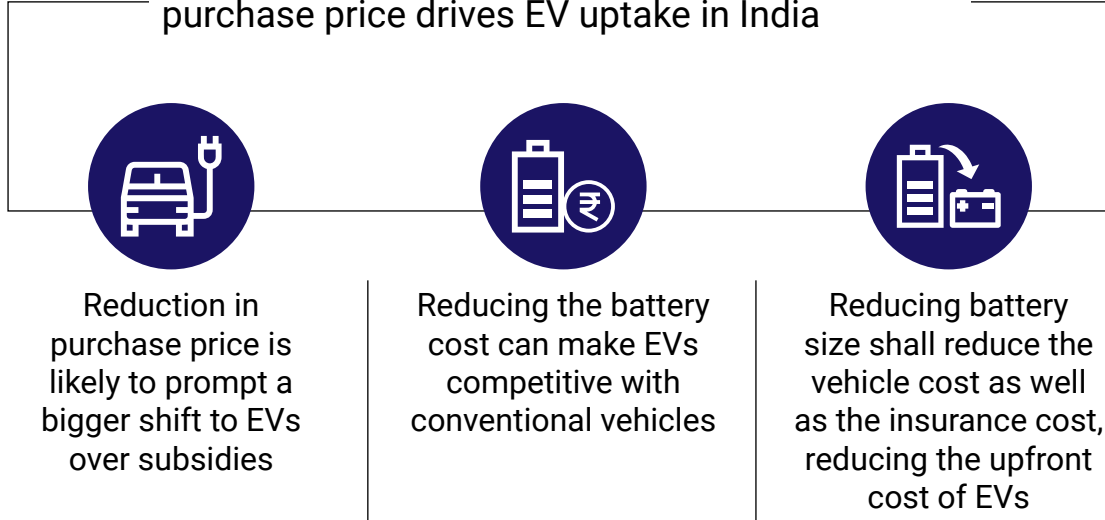
The Center for Study of Science, Technology and Policy (CSTEP) undertook a modelling study (employing a discrete choice model) to understand the role of some of these factors in determining the behavioural shifts in the transport sector.





## Key Insights

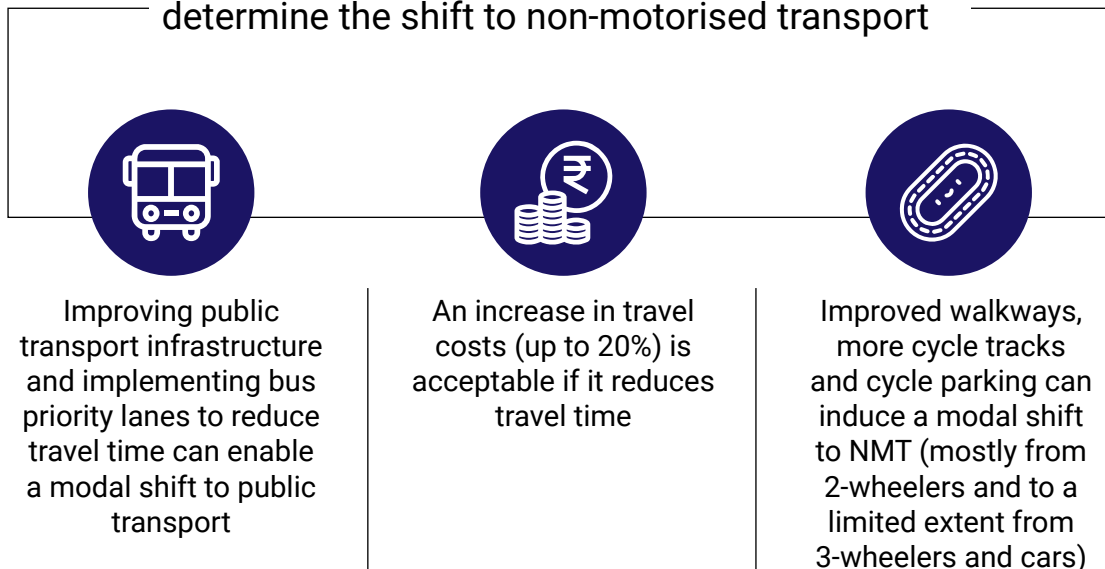
### 1. Not the total cost of ownership (TCO) but the purchase price drives EV uptake in India



2. A range of 50–70 kilometres is sufficient for daily urban commuters in India

3. Travel time determines the shift to public transport over travel cost

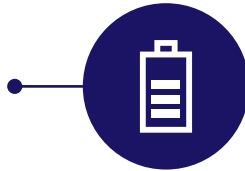
### 4. Convenience (seamless connectivity) and safety determine the shift to non-motorised transport





## Recommendations

Provision of different battery capacity options (inter-city and intra-city) should be made available to reduce the overall capital cost of EVs



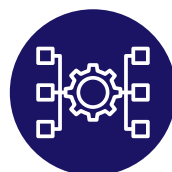
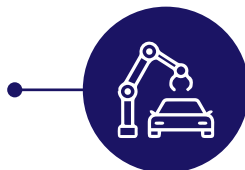
Two range options in the Indian context could be 100 km (daily commute) and 300 km (frequent inter-city travel)

Retaining tax benefits and reducing the battery size can bring EVs at par with their ICE counterparts



Increasing the battery range is not enough to enable inter-city travel; EV infrastructure development has a vital role to play

Stringent scrapping policy for old/polluting vehicles can give the required push to EVs



Support of private players for building state-of-the-art infrastructure

States that are focusing on EV sales should be prioritised for public EV infrastructure development

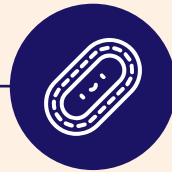




Awareness programmes focusing on the benefits EVs

1. Lesser energy cost
2. Lesser maintenance cost
3. Higher lifespan
4. Lesser total cost of ownership over the lifespan

Better walkways and more cycle tracks including seating spaces, shading devices, drinking water fountains, and green areas to promote NMT



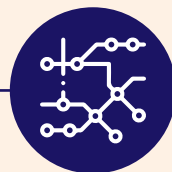
Improved public transport infrastructure such as dedicated bus lanes, passenger information system (PIS), and comfortable and safe bus shelters reduce travel time and encourage the shift to public transport

Area-wise detailed assessments for comfortable and safe NMT infrastructure



Seamless connectivity plans at the city level, including pedestrian zones, intermediate public transport (IPT) zones, clean zones, bus rapid transport (BRT) systems, and station accessibility plans, to expedite the transition

First- and last-mile connectivity options for public transport systems should be provided





## Benefits

- Shift to EVs, NMT, and PT leads to definite reductions in GHG emissions, as well as air pollution, and improves the quality of life in cities.
- By 2030, if 30% of all passenger-kilometres in urban areas are electric (2-wheelers, 3-wheelers, cars, and buses), GHG emissions from urban passenger transport can reduce by ~10%, as compared to a business-as-usual (BAU) scenario.
- If the average share of NMT and PT in Indian cities increases by 20% by 2030, GHG emissions from urban passenger transport can reduce by another 10%, as compared to BAU.





## Barriers

- The Government's push for moving from BS IV to BS VI standards in conventional automobiles poses an investment dilemma for automobile manufacturers.
- Given the heavy EV infrastructure investment cost—in terms of money, time, and energy—making our cities EV-ready would be quite challenging.
- Not all cities have area-wise NMT development plans; lack of seamless connectivity plans at the city and zonal level adversely affect the pace of clean mobility transition.
- Considerable policy gaps—in the area of EV and NMT/PT—make the transition difficult.
  - EV subsidies do not reach consumers directly.
  - EV policy lacks awareness programmes and monitoring mechanisms.
  - NMT/PT policy landscape lacks a state/centre mandate on NMT infrastructure, PT coverage, and mode share.
  - NMT/PT policy lacks an integrated transport planning, including grassroots analysis.
- Encroachment poses another major barrier by taking up most of the space on wide footpaths.
- Lack of decent first- and last-mile connectivity options under PT is also a big deterrent.







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