# Environment & Ecology · GS - III

**Assess the role of electric last-mile mobility in reducing urban air pollution and advancing India's climate commitments. Examine the economic and infrastructural barriers to its wider adoption.**

| EXAM YEAR | PAPER | SUBJECT |
|---|---|---|
| DAILY PRACTICE 18/11/2026 | GS - III | Environment & Ecology |

| MARKS | WORD LIMIT |
|---|---|
| 15 | ~250 words |

## Answer Hint

**Electric mobility, last-mile connectivity, urban air pollution, transport decarbonisation, NDCs, FAME scheme, PM E-DRIVE, charging infrastructure, battery technology, affordable financing, lifecycle emissions, women-led livelihoods, circular economy.**

## Model Answer

### Introduction

Electric last-mile mobility, particularly electric three-wheelers, offers an opportunity to reduce vehicular pollution while improving affordable urban transportation. Its expansion also supports India's broader transition towards low-carbon mobility.

### Environmental and Economic Significance

1. **Air Quality:** Electric vehicles eliminate tailpipe emissions, reducing local pollutants such as nitrogen oxides and particulate matter from vehicle exhaust.
2. **Climate Mitigation:** Electrification of commercial transport can reduce greenhouse gas emissions, particularly as the electricity mix becomes cleaner.

3. **Livelihood Generation:** Lower operating costs can improve driver incomes and create opportunities for small entrepreneurs.
4. **Inclusive Mobility:** Affordable financing and women-driver training can expand participation in the transport economy.

**Major Barriers**

- **Charging Infrastructure:** Uneven distribution of charging stations affects operational convenience.
- **High Initial Cost:** Vehicle affordability and limited access to credit discourage small commercial operators.
- **Battery Challenges:** Battery disposal, recycling and critical mineral dependence raise environmental and strategic concerns.
- **Electricity Mix:** Coal-based electricity generation can reduce the overall climate benefits of electrification.

**Way Forward**

India should expand public and private charging networks, strengthen affordable credit facilities and promote battery recycling. Renewable energy integration, domestic battery manufacturing and targeted incentives can improve the sustainability of electric mobility.

**Conclusion**

Electric last-mile mobility can simultaneously advance cleaner cities and inclusive economic development. Its long-term success requires an integrated ecosystem combining affordable vehicles, reliable infrastructure, clean electricity and sustainable battery management.

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