

Beyond Smart Mobility

Designing Safe, Resilient and People-Centred Urban Mobility Systems

Varsha Singh
Team lead, UrbanShift Country Project
National Institute of Urban Affairs (NIUA)

What Makes a City Truly "Smart"?

Is a city smart because it has more technology — or because people can move safely, efficiently, affordably and sustainably?



SAFE

Zero preventable deaths on our streets



ACCESSIBLE

Equitable mobility for all — women, elderly, persons with disabilities



SUSTAINABLE

Low-carbon, climate-resilient transport systems



RESILIENT

Infrastructure that withstands extreme events and disruptions

Technology is an **enabler** of these outcomes, not the outcome itself.

The Scale and Urgency of the Challenge

4.87 L

Road accidents in
India (2024)

1.77 L

Lives lost on
Indian roads (2024)

5–7%

Of GDP — annual
cost of road crashes

340 M+

Registered vehicles
(55M in 2001)

Urban Dimension

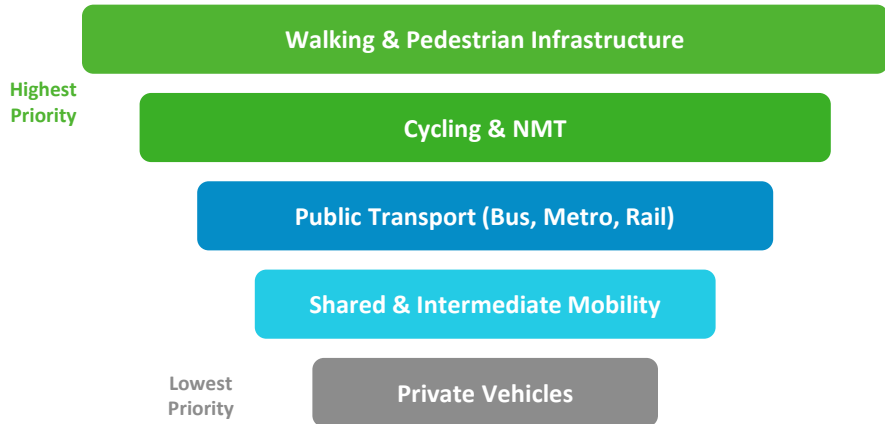
- 38% of all road accidents occur in urban areas (1.84 lakh in 2024)
- 50 million-plus cities account for 44.7% of all urban road accidents
- Over half of crash victims are pedestrians, cyclists or motorcyclists
- Road transport contributes ~90% of all transport-sector emissions in India

Gender & Equity Dimension

- 9 in 10 trips by women are on foot or by public transport
- Walking accounts for 45%+ of women's work journeys vs. 27% for men
- Safety perception is the strongest determinant of women's public transport use
- Private vehicles: 27% of trips but occupy 75% of road space

From Vehicle-Centric to People-Centred Mobility

Sustainable Urban Transport Hierarchy



National Policy Foundations

1

National Urban Transport Policy (2006)

"Move people, not vehicles" , focus on equitable allocation of road space

2

National TOD Policy (2017)

Compact, walkable, mixed-use communities around transit systems

3

Supreme Court Judgment (2026)

Right to walk on safe footpaths, fundamental right under Articles 19(1)(d) and 21

4

Urban Challenge Fund

INR 1 lakh crore for urban mobility, last-mile connectivity, NMT

What Does an Integrated Mobility System Look Like?



Safe Mobility Starts with the Street, Not the Camera

Technology can detect unsafe behaviour. Good urban planning and design can prevent it.

First design it & then use technology to enable and enforce it.

1

Street Design

Complete streets, continuous footpaths, safe crossings

2

Junction Design

Signalised crossings, pedestrian phases, traffic calming

3

Pedestrian Infra

Lighting, shading, accessibility, safe public realm

4

Speed Mgmt

30 km/h zones near schools, residential areas

5

PT Integration

First-last mile, feeder services, multimodal hubs

6

AI & Data Systems

ITMS, CCTV, predictive analytics, ICCCs

India's Smart Cities Mission — Infrastructure Built

1,740 km

Smart roads with footpaths

713 km

Cycling infrastructure

100

ICCCs operational

84,000+

CCTV cameras installed

23,000+

PBS bicycles deployed

What Indian Cities are already Demonstrating

NIUA's UrbanShift Country Project a GEF-funded, UNEP-implemented project, connecting land use, mobility, safety, climate action and inclusion through integrated approaches

PUNE, Maharashtra

- Transit Influence Area Planning across 5 metro stations
- Corridor & Junction Improvement Plans for 6+ transit corridors
- Integrated Green Mobility Plan
PT, NMT, EVs, emissions reduction
- Station Area Mobility Plans linking transit, land use and safety
- ICC+ evolving command-and-control into urban observatory

SURAT, Gujarat

- NMT Policy Guidelines and Network Plans for walking & cycling
- Pilot demonstration of Nature-based Solutions (NbS)
- 1 km+ NbS pilot at Dumas sea face
- Integrated Multi-modal Transport hub planning
- City wide greening plan

UT of PUDUCHERRY

- Comprehensive Mobility Plans for Karaikal, Yanam and Mahe
- Climate-centric review of Master Plans
- Coastal Resilience Plans with NbS for 3 coastlines
- Climate Dashboard for UT of Puducherry

The SH/FT : from planning for outcomes to **building the capacity to measure them.**
KPIs for safety, accessibility, emissions, inclusivity and resilience.

From Smart Technology to Intelligent Decision-Making



India's Emerging Urban Intelligence Ecosystem

- DataSmart Cities Strategy** People, Process, Platform — institutionalising data-driven governance
- India Urban Data Exchange (IUDX)** Interoperability layer for secure cross-domain urban data sharing
- National Geospatial Policy 2022** Digital twins, unified geospatial interface, national infrastructure mapping
- IndiaAI Mission (INR 10,372 Cr)** AI for predictive traffic management, intelligent emergency response, safe mobility
- Metro Rail Network (1,159 km)** Operational across 20+ cities; INR 30,942 Cr allocated FY 2026-27

Future-Ready Mobility: 5 Principles for *Viksit Bharat 2047*

- **SAFE** Zero preventable deaths + safer streets through design, not just enforcement
- **CONNECTED** Integrated modes and networks + seamless multimodal journeys across the city
- **INCLUSIVE** Accessible to all users, esp. women, elderly, children, persons with disabilities
- **RESILIENT** Infrastructure that withstands climate shocks, extreme weather and disruptions
- **INTELLIGENT** Using data and technology to strengthen institutions and improve decisions

*"The future of intelligent mobility is not about putting more technology into cities.
It is about using technology to help cities work better for people."*