

case study

Walking into the Future — Redefining Urban Mobility through Non-Motorized Transport (NMT)

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SHARMA

Introduction

Indian cities are facing a major urban mobility crisis. Over the years, the focus has been on building more roads, flyovers, and promoting motorized transport in an effort to ease traffic and improve mobility. However, this has only led to more congestion, air pollution, and safety issues. The more roads we build, the more cars fill them, creating a never-ending cycle of problems. To break free from this cycle, **a new approach is needed—one that puts people over vehicles and sustainability before convenience.**

This is where Non-Motorized Transport (NMT) becomes crucial. **NMT includes modes of travel that don't rely on engines or fossil fuels—mainly walking and cycling—along with the necessary infrastructure such as footpaths, cycle lanes, pedestrian crossings, and green spaces.** NMT is an affordable, eco-friendly, and inclusive mode of transport that offers numerous benefits, including reduced traffic congestion, lower carbon emissions, improved public health, and safer streets. Yet, in most Indian cities, NMT remains an afterthought in urban planning, overshadowed by an overwhelming emphasis on motorized transport.

In fact, according to the National Sample Survey (2019), **more than 50% of trips in Indian cities are made by walking or cycling.** In smaller cities and low-income areas, this number is even higher. Yet, despite the clear demand for non-motorized transport, urban infrastructure is primarily designed for motor vehicles, leaving pedestrians and cyclists to navigate poorly maintained sidewalks or even risky roads. This mismatch between travel behavior and infrastructure needs is a major challenge for cities across the country.

Cities like Pune and Chennai are beginning to lead the way by prioritizing NMT, and the results are promising. In Pune, the city introduced the **Pune Cycle Plan, which included dedicated cycle lanes, bike-sharing programs, and improved cycling infrastructure.** These changes led to a 300% increase in cycling trips between 2017 and 2020, reducing traffic congestion and improving air quality. Similarly, **Chennai made strides by transforming streets to be more pedestrian-friendly, with new pedestrian zones and better crossings.** This led to a 20% increase in pedestrian traffic and a noticeable reduction in road accidents in these areas.

The role of government is key to promoting NMT. National policies like the National Urban Transport Policy (2017) and initiatives under the Smart Cities Mission have acknowledged the importance of non-motorized transport. However, successful implementation requires more than just policies—it needs consistent funding, strong regulations, and active participation from local governments, urban planners, and citizens. When cities invest in NMT infrastructure—such as wider footpaths, safer cycling lanes, and public spaces for people to gather—it not only alleviates traffic congestion but also creates healthier, more vibrant urban environments.

In cities that have embraced NMT, the benefits are clear: less traffic, cleaner air, safer streets, and better quality of life for residents. By focusing on walking and cycling, cities can make sustainable urban transport a reality and provide a model for others to follow. **Prioritizing NMT is not just about transportation—it's about creating cities that are safer, greener, and more inclusive for everyone.**

Why Non-Motorized Transport is Essential for Indian Cities?

As Indian cities grow, how we move through them is becoming more important than ever. While motorized vehicles may seem like the obvious solution, they often make our cities more polluted, congested, and unequal. Non-Motorized Transport (NMT)—such as walking and cycling—offers a better way forward. Here's why NMT is not just a transport choice, but a necessity for Indian cities:

1. Making Cities More Inclusive

Mobility is not a luxury—it's a basic need. Millions of Indians depend on walking and cycling because they simply cannot afford motorized transport. In fact, **92% of households in India do not own a car, and about 64% don't even own a two-wheeler.** This makes NMT the most commonly used form of transport, especially for low-income communities, senior citizens, students, and women.

Yet, most Indian cities fail to provide basic walking or cycling infrastructure. Poor people are often forced to walk on the edges of busy roads, navigate around parked vehicles, or cross unsafe intersections. When cities ignore the needs of pedestrians and cyclists, they leave behind those who rely on these modes the most.

2. Healthier and Safer Cities

India records some of the highest numbers of road fatalities in the world. **In 2022 alone, over 85,000 pedestrians and cyclists lost their lives in road crashes—that's more than 230 deaths every day.** Many of these tragic incidents could be prevented with safer roads: proper footpaths, marked crossings, and traffic calming.

There's also a hidden health cost of our car-dependent cities. As daily activity levels drop, non-communicable diseases like obesity, heart problems, and diabetes are on the rise. The World Health Organization recommends at least 30 minutes of physical activity per day—.

something as simple as a walk or cycle to school or work can easily meet this target. Encouraging NMT is a win for both road safety and public health

3. Cleaner Air, Lower Emissions

Transport is a major source of India's climate and pollution challenges. It contributes around **14% of India's total greenhouse gas emissions**, and cars and two-wheelers are a big part of that. At the same time, **India is home to 14 of the 20 most polluted cities in the world**, where air pollution is a serious public health threat.

Switching from private vehicles to walking, cycling, and public transport can significantly cut emissions. **NITI Aayog estimates that a shift to sustainable transport could reduce India's transport-related emissions by up to 35% by 2050.** NMT offers a simple, low-cost, and zero-emission way to help cities meet their climate goals.

4. Smarter Use of Urban Space

Cars take up a lot of space—around 20 to 25 square meters just to park or move a single vehicle. Bicycles and pedestrians need far less room: only 1.5 to 2 square meters. As more people drive, roads get clogged, and there's less space for people, parks, or public areas.

According to the **Institute for Transportation and Development Policy (ITDP)**, **a dedicated cycle lane can carry up to 7 times more people per hour than a car lane.** Prioritizing NMT frees up valuable space, reduces traffic, and makes room for more green areas, community spaces, and vibrant street life.

Pune: The Comeback of a Cycling City

Pune was once known as the "cycling capital of India." In the **1980s**, bicycles were everywhere—from schoolchildren to office-goers, cycling was the norm. **Nearly 70% of all daily trips in the city were made on bicycles.**

But as the years passed, so did the dominance of non-motorized transport. Rapid urban growth, rising income levels, and a growing preference for motorized vehicles pushed cycling to the sidelines. By 2011, the share of bicycle trips in Pune had plummeted to less than 9%.

Policy Reset

As traffic congestion worsened and air quality deteriorated, the city began to rethink its approach. Citizens, urban planners, and decision-makers realized that returning to a cycling-friendly culture wasn't just nostalgic—it was necessary. This led to a bold, structured shift in Pune's urban mobility planning.

In **2017**, Pune launched its **Comprehensive Bicycle Plan**, committing over **₹600 crore** towards building a city-wide cycling network. The plan aimed to create **470 km of dedicated cycling tracks, coupled with safe footpaths, signage, and street furniture**. But this wasn't just about infrastructure—it was about making the streets work for everyone.

To complement the cycling plan, **Pune introduced Urban Street Design Guidelines**, promoting the idea of **“Complete Streets”**—roads designed to serve all users, not just **vehicles**. These streets include wider sidewalks, universal accessibility, shade, seating, and pedestrian crossings.

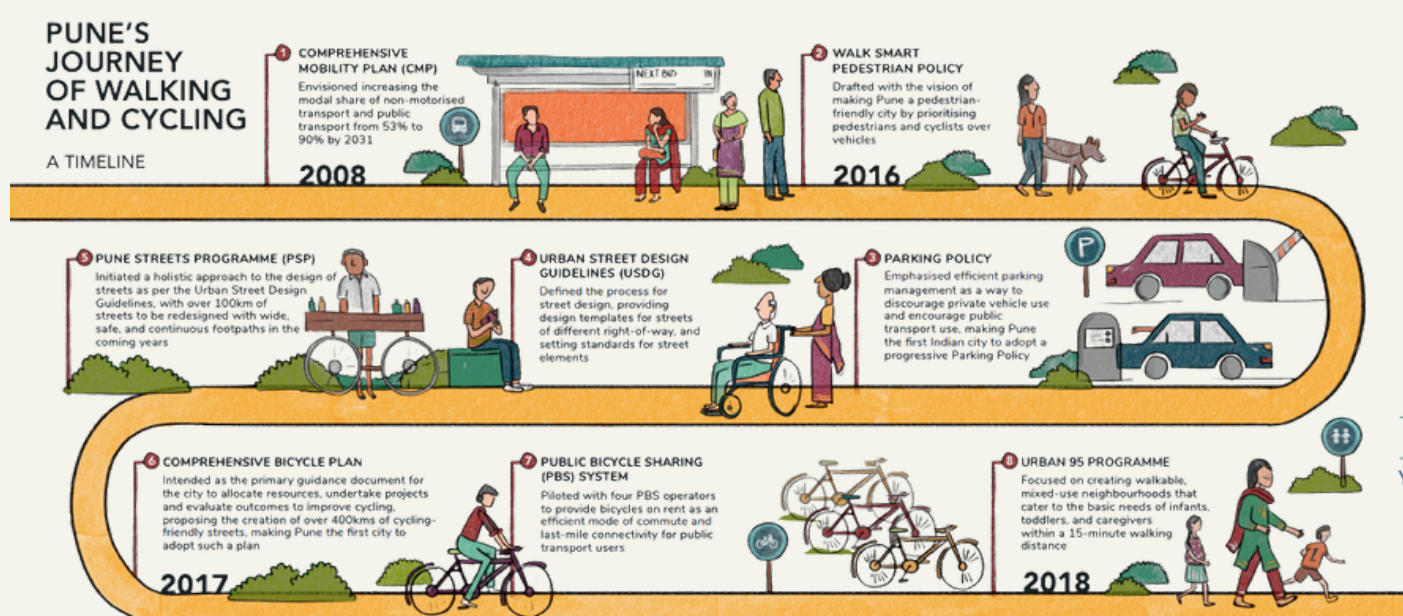
Another major move came with Pune's **Pedestrian Policy** in 2016, which **mandated that 35% of the city's transport budget be allocated to pedestrian and cycling infrastructure**. This was a powerful step toward changing how funds are spent—and who benefits from them.

Change on the Ground

In the years that followed, Pune **redesigned over 100 km of roads**, giving them wider footpaths, protected cycle lanes, tree cover, benches, and proper lighting. These streets became more walkable, safer, and more vibrant.

The city also introduced a **Public Bicycle Sharing (PBS) system with more than 4,300 bicycles**, connecting residential areas, markets, offices, colleges, and public transport hubs. This system made short-distance travel easier, cheaper, and greener for thousands of users every day.

By 2021, surveys began to show signs of change: cycling had increased by 20%, especially among students and women in central parts of the city. People started choosing cycles again—not out of compulsion, but because the city made it a viable and safe option.



What Made Pune Different?

Pune's progress wasn't just a result of large budgets—it was about institutional commitment. The municipal corporation created a dedicated Bicycle Department, something few Indian cities have. Elected representatives, civil society groups, and urban planners were actively involved in tracking the plan's progress. Citizen feedback played a role in shaping street design and operations.

The lesson from Pune is clear: when a city combines policy, design, funding, and accountability, change becomes visible—and sustainable.

Chennai – Redesigning Streets for People

In the early 2010s, Chennai's streets told a familiar story—narrow footpaths, chaotic traffic, and an overwhelming dominance of vehicles. But the city chose to rewrite that story, becoming a national leader in creating inclusive, walkable, and cycle-friendly streets. The transformation began in 2014, when Chennai became the **first Indian city to adopt a Non-Motorized Transport (NMT) Policy, setting a bold benchmark: 60% of the city's transport budget would be allocated to pedestrian and cycling infrastructure**

The Shift to Complete Streets

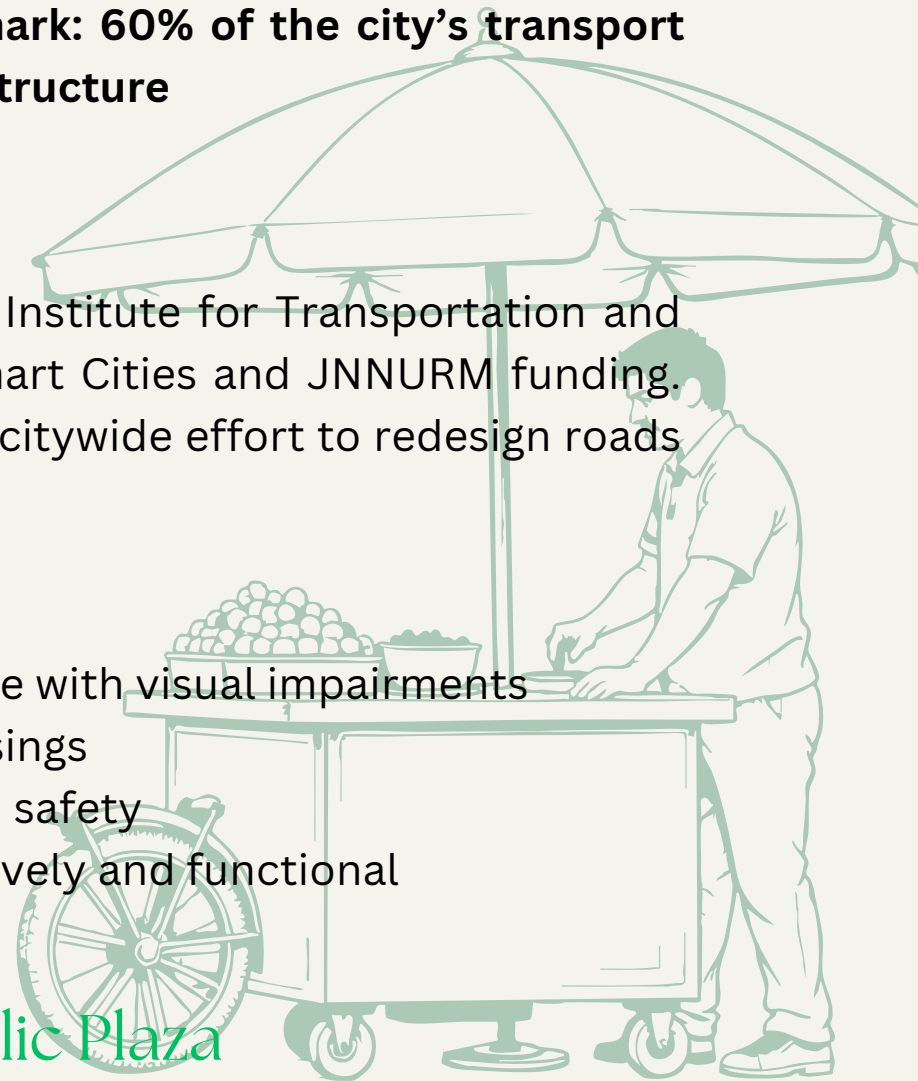
To put this policy into action, the city partnered with the Institute for Transportation and Development Policy (ITDP) and accessed support from Smart Cities and JNNURM funding. This led to the launch of the **Complete Streets initiative**—a citywide effort to redesign roads to serve all users, not just cars.

Under this initiative, streets were transformed with:

- Wide, continuous footpaths with tactile paving for people with visual impairments
- Dedicated cycling tracks and protected pedestrian crossings
- Green cover, public seating, and lighting for comfort and safety
- Street art, signages, and vending zones to make spaces lively and functional

Pondy Bazaar: From Traffic Corridor to Public Plaza

One of the most iconic outcomes of Chennai's NMT journey is the transformation of **Pondy Bazaar—a bustling commercial street—into a 1.4 km pedestrian-only plaza**. Where once cars dominated, people now stroll under trees, shop from street vendors, and relax on benches.



The redesign included:

- Landscaped walkways, solar-powered streetlights, and seating areas
- Play zones, drinking fountains, and space for informal vendors
- Better access for families, the elderly, and persons with disabilities

This people-first transformation had measurable impacts:

- Footfall increased by 25%, with more families and women using the space
- Local shopkeepers saw a 30% rise in sales, showing that walkable streets are good for business.

What Sets Chennai Apart

Chennai's success lies not just in design, but in commitment. **Over 120 km of streets have already been redesigned**, and the city **aims to scale this to 650 km by 2027**. What's more, public satisfaction surveys **in 2022 showed 87% approval, especially from women, senior citizens, and families**.

The city's efforts have earned global praise—from C40 Cities to UN-Habitat—as a model for inclusive, people-first urban mobility. By making streets safe and accessible for everyone, Chennai is proving that good design can drive both equity and economic vitality.



India's Push for Non-Motorized Transport

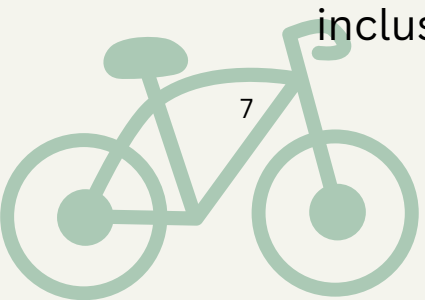
Recognizing this need, the Indian government has introduced a number of forward-thinking policies and programs to support NMT across the country. These initiatives not only promote infrastructure development but also encourage a cultural shift towards sustainable, people-friendly mobility.

Key National Policies and Programs

- **National Urban Transport Policy (NUTP):** This policy sets the direction for sustainable mobility by encouraging cities to prioritize walking, cycling, and public transport over private vehicles. It supports the creation of dedicated paths and infrastructure for pedestrians and cyclists.
- **National Mission on Sustainable Habitat (NMSH):** Part of the National Action Plan on Climate Change (NAPCC), this mission promotes integrated land use and transport planning. It emphasizes the need for safe, efficient NMT systems to reduce fuel use and improve urban sustainability.
- **Service Level Benchmarks (SLBs):** Developed by the Ministry of Housing and Urban Affairs (MoHUA), these benchmarks include specific indicators for NMT—such as the availability and quality of footpaths and cycle tracks—encouraging cities to regularly monitor and improve their infrastructure.
- **Jawaharlal Nehru National Urban Renewal Mission (JNNURM):** This program has supported several urban transport projects, including footpaths, pedestrian subways, and cycle tracks, making cities more inclusive and accessible.
- **Smart Cities Mission:** This mission promotes compact, walkable neighborhoods with a strong focus on NMT as a key element of urban design. Many cities under this mission have piloted street redesigns and public space improvements.

Innovative Challenges and Initiatives

- **India Cycles4Change Challenge (2020):** Launched under the Smart Cities Mission, this initiative supports cities in implementing quick, low-cost cycling infrastructure and campaigns to boost bicycle use.
- **Transport4All Challenge (2021):** Also by MoHUA, this challenge brings together city governments, citizens, and startups to improve public transport and make it more inclusive and efficient.



- **3C Framework by NITI Aayog:** This strategic approach—focused on Clean, Convenient, and Congestion-free mobility—guides cities toward sustainable transport by promoting NMT, reducing car use, and enhancing last-mile connectivity.

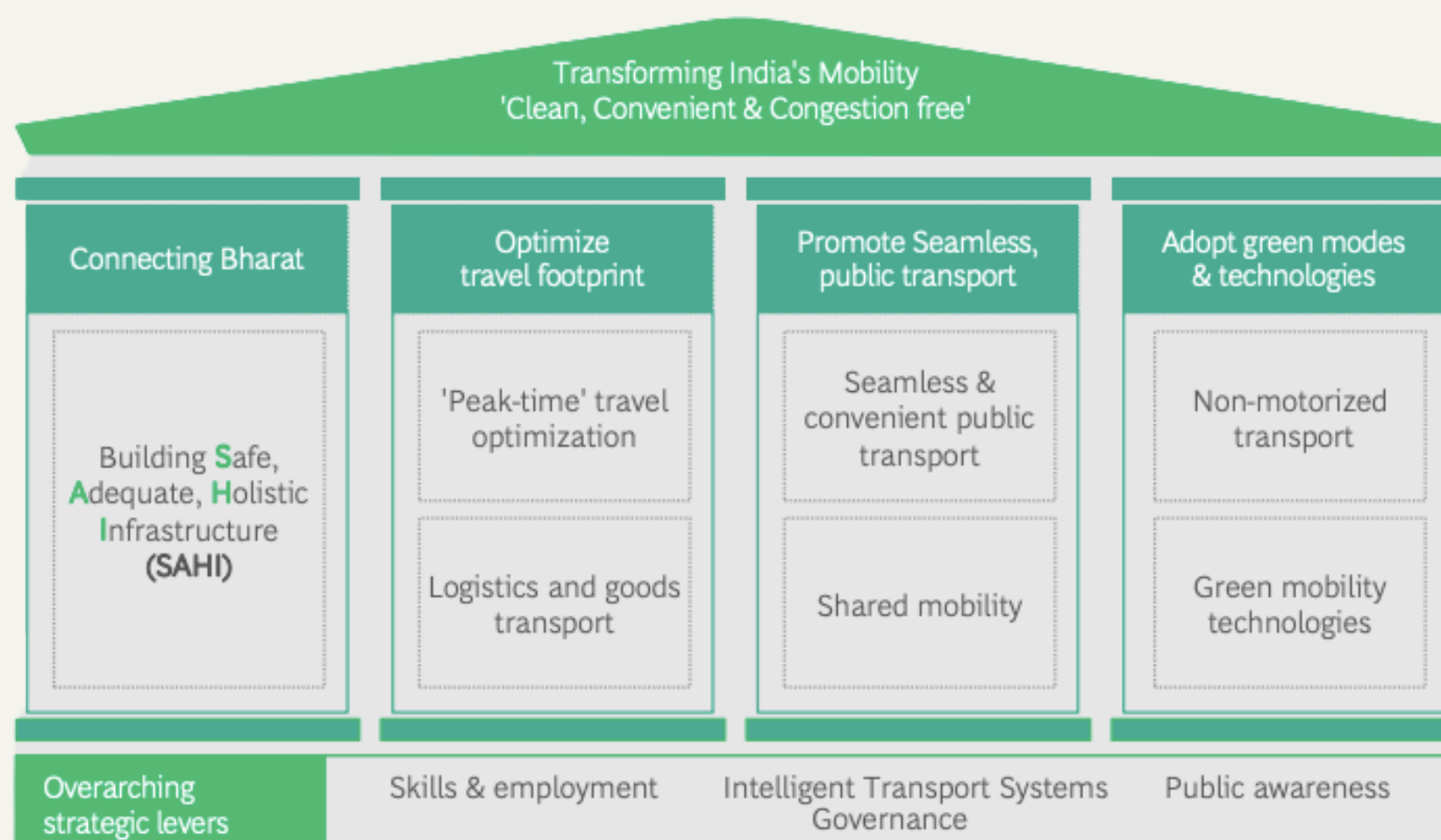


Fig: 3C framework by NITI Aayog

A Structured Approach to NMT

India's push for **NMT** is guided by **10 core principles** and **6 supportive strategies**:

- **Guiding principles** focus on building connected, safe, and accessible routes for walking and cycling. They also emphasize user comfort, safety, security, clear signage, and protection from encroachment.
- **Supportive principles** promote the integration of informal transport modes, mixed land use planning, efficient parking management, and the development of a cycling culture and industry.

Together, these efforts are helping Indian cities move toward a more sustainable, inclusive, and people-friendly future. With continued investment and leadership at all levels of government, the culture of walking and cycling is not just being revived—it's being reimagined.

Action Path to Redefine Urban Mobility

1. Set a Strong Vision for NMT

Cities should integrate walking and cycling into all major planning frameworks to show clear intent and direction:

- Include NMT goals in Master Plans, Development Plans, and Mobility Strategies.
- Align with national guidelines like the National Urban Transport Policy (NUTP) and Smart Cities Mission.
- Define long-term targets for modal share, safety, and accessibility.

2. Identify High-Impact Zones

Not all areas need the same type of intervention. Focus first on locations with:

- High footfall (schools, hospitals, markets, religious sites)
- Transport hubs (bus stops, metro stations)
- Vulnerable users (children, elderly, and low-income communities)

These zones often have the greatest need for safe and reliable walking and cycling infrastructure.

3. Design Through Community Involvement

Successful NMT projects involve the people who use the streets daily:

- Conduct surveys and street audits with residents and shopkeepers.
- Involve women's groups, senior citizens, and school children in design feedback.
- Host community workshops to co-create solutions.

This ensures the infrastructure meets local needs and earns public support.

4. Start Small with Pilot Projects

Pilot projects can test ideas at low cost before full-scale implementation:

- Use tactical urbanism: paint cycle lanes, install temporary bollards, close streets on weekends.
- Create "pop-up" pedestrian zones or trial school streets.
- Measure user feedback, traffic flow, and safety impacts.

These quick wins help build momentum and showcase the benefits of NMT to citizens and decision-makers.



5. Secure Dedicated and Diverse Funding

Financial commitment is key for long-term success:

- Allocate at least 30–35% of the transport budget to NMT infrastructure.
- Apply for funding through Smart Cities Mission, AMRUT, or the Cycles4Change Challenge.
- Explore CSR funds, climate finance, and green bonds for additional support.

6. Build Institutional Capacity

To ensure continuity and professional implementation:

- Create a dedicated NMT or Sustainable Mobility Cell within the Urban Local Body (ULB).
- Set measurable KPIs like walkability scores, user satisfaction, and crash reduction targets.
- Train engineers, planners, and contractors in inclusive street design and universal accessibility.
- Use data to track performance, identify gaps, and scale successful projects.

Conclusion: Streets That Tell a Different Story

Not too long ago, the streets of Indian cities belonged to people—children walking to school, vendors setting up carts, families cycling to markets. Over time, however, these vibrant spaces were overtaken by cars, pushing people to the margins and turning roads into corridors of chaos.

But something is changing.

In Pune, cycling is making a quiet comeback. In Chennai, streets once dominated by traffic have been transformed into safe, walkable spaces where people gather, rest, and connect. These cities are not just building footpaths and cycle tracks—they are rebuilding trust between people and public spaces.

What their stories show us is powerful: we don't need to invent new technologies to fix our cities. The solutions already exist. What's needed is a shift in mindset—a willingness to ask, who are we designing our streets for?

The answer isn't cars. It's people.

The road ahead is clear. All we need to do is choose to walk it.



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- [Urban Transport in India: Challenges and Recommendations](#)

