# Mobility: present trends and practices and future solutions

**PRESENTER**

**ADARSHA KAPOOR**
**Urban Designer**
**Creative Footprints**
www.creativefootprints.co.in
+7042758806
bigfoot@creativefootprints.co.in

Coordinator, RegenLab
**Trust for Regeneration of Indian Settlements**

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# PRESENTATION STRUCTURE

1 Mobility Issues

2 International and National Policy Perspective

3 Role of education and schools

4 Present Trends in the 8 selected states of India

5 Possible steps towards future solutions
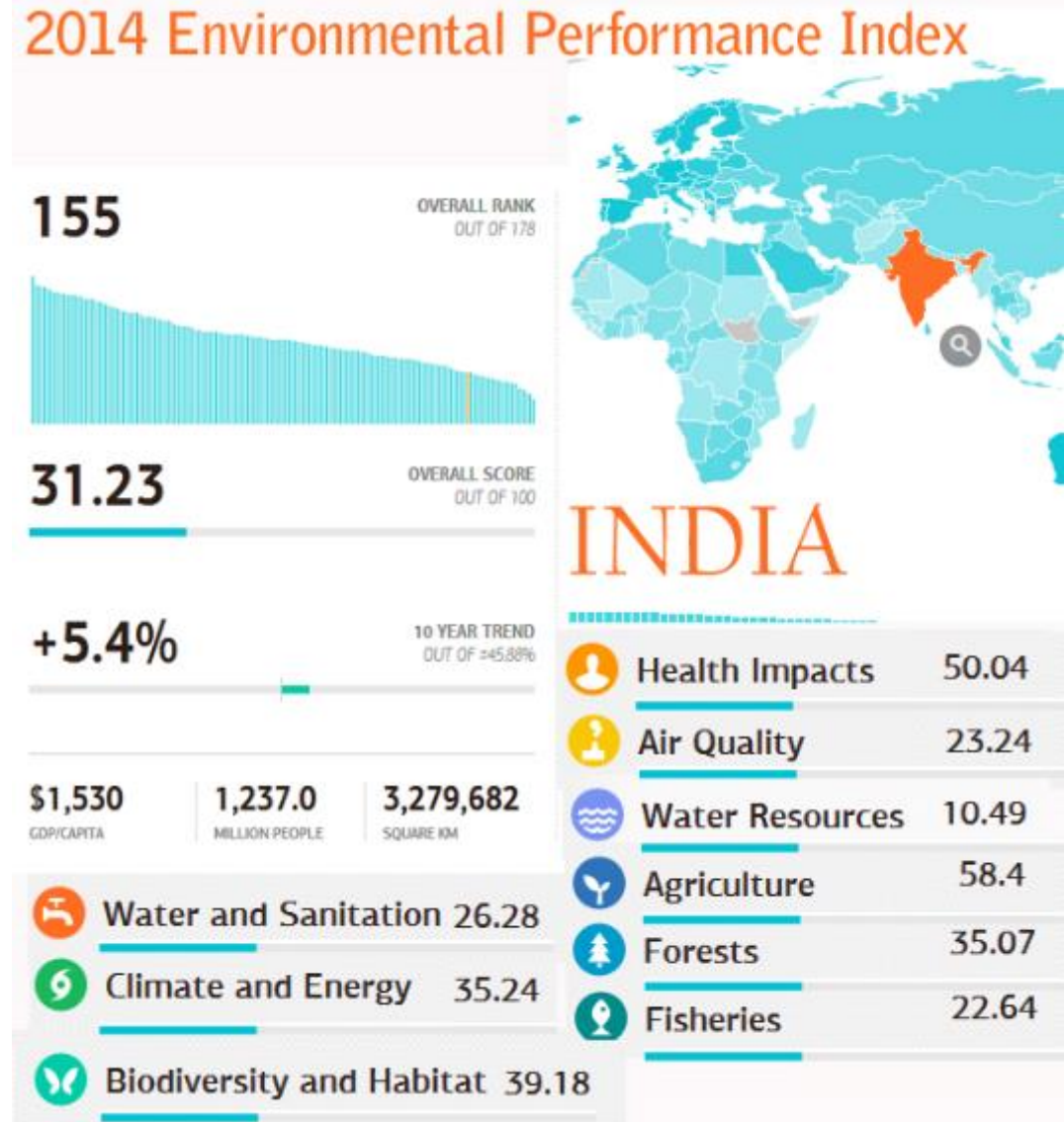
6 Create a Safe Access to School Plan
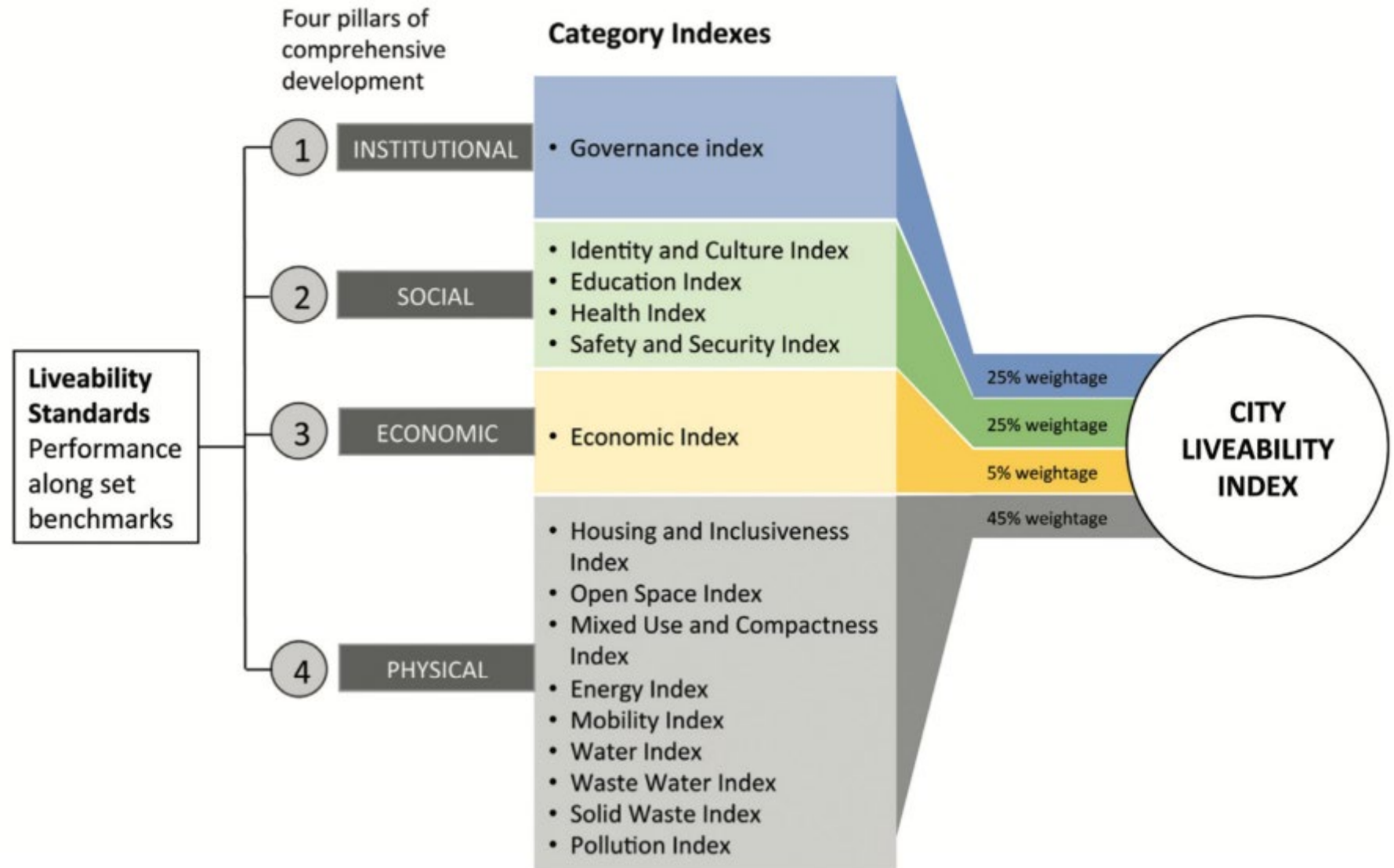
# MOBILITY ISSUES

## Context for changing planning techniques

India ranks **155th out of 178 countries** in its efforts to address environmental challenges, according to the 2014 Environmental Performance Index (EPI)

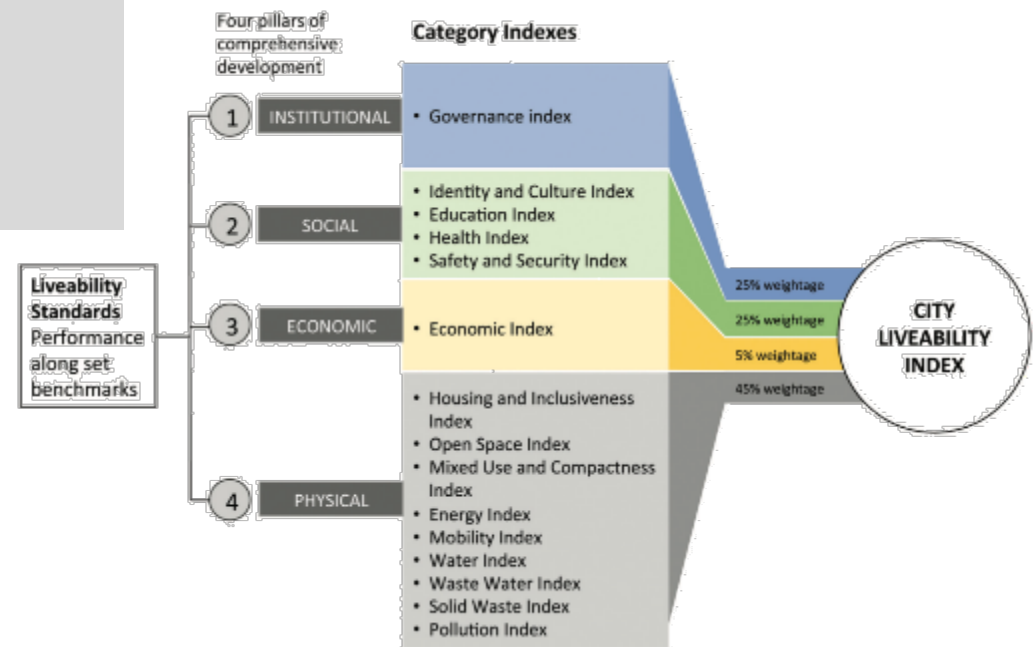**India performs the worst** among other emerging economies

### 2014 Environmental Performance Index

155 — OVERALL RANK OUT OF 178

31.23 — OVERALL SCORE OUT OF 100

+5.4% — 10 YEAR TREND OUT OF ±45.88%

| $1,530 GDP/CAPITA | 1,237.0 MILLION PEOPLE | 3,279,682 SQUARE KM |
|---|---|---|

Water and Sanitation 26.28

Climate and Energy 35.24

Biodiversity and Habitat 39.18

INDIA

| | |
|---|---|
| Health Impacts | 50.04 |
| Air Quality | 23.24 |
| Water Resources | 10.49 |
| Agriculture | 58.4 |
| Forests | 35.07 |
| Fisheries | 22.64 |

# Liveability Index



**Four pillars of comprehensive development**

**Category Indexes**

**Liveability Standards** Performance along set benchmarks

1 INSTITUTIONAL
- Governance index

2 SOCIAL
- Identity and Culture Index
- Education Index
- Health Index
- Safety and Security Index

3 ECONOMIC
- Economic Index

4 PHYSICAL
- Housing and Inclusiveness Index
- Open Space Index
- Mixed Use and Compactness Index
- Energy Index
- Mobility Index
- Water Index
- Waste Water Index
- Solid Waste Index
- Pollution Index

25% weightage
25% weightage
5% weightage
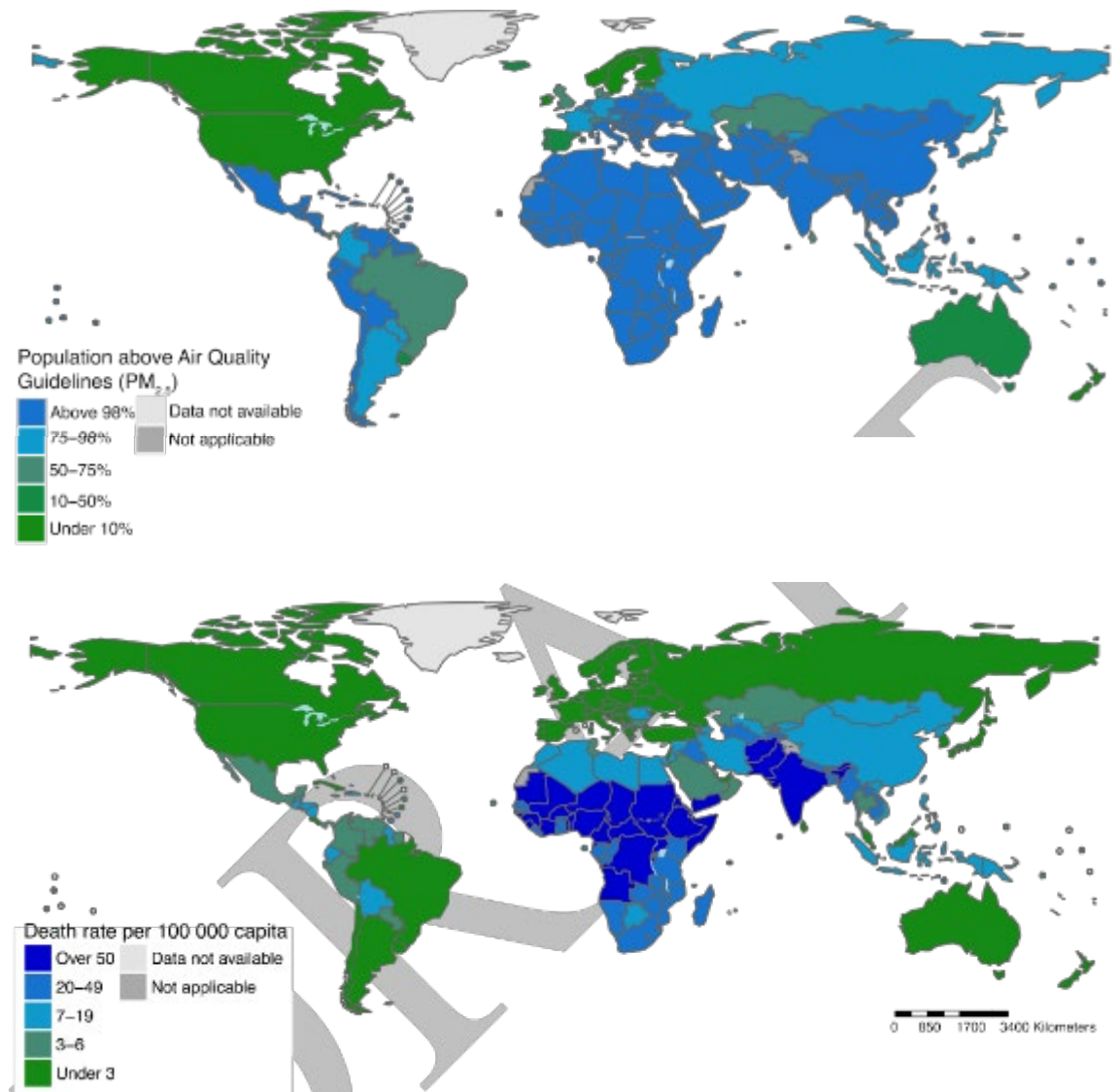45% weightage

**CITY LIVEABILITY INDEX**

# Impacts of Mobility Choice on Liveability

- Housing and Inclusiveness Index
- **Open Space Index**
- **Mixed Use and Compactness Index**
- Energy Index
- **Mobility Index**
- Water Index
- Waste Water Index
- Solid Waste Index



Four pillars of comprehensive development

Liveability Standards Performance along set benchmarks

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25% weightage
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CITY LIVEABILITY INDEX

# Future of our children, if we do not take actions now



Population above Air Quality Guidelines (PM$_{2.5}$)
- Above 98%
- 75–98%
- 50–75%
- 10–50%
- Under 10%
- Data not available
- Not applicable

Death rate per 100 000 capita
- Over 50
- 20–49
- 7–19
- 3–6
- Under 3
- Data not available
- Not applicable

**Source:** Air Pollution and Child Health: Prescribing Clean Air, 2018

**Health Impacts of Air Pollution**

- Adverse Birth Outcomes
- Infant mortality
- Neurodevelopment
- Childhood obesity
- Lung function
- ALRI, including pneumonia
- Asthma
- Otitis media
- Childhood cancers



*"**Lifting lifelong burdens:** Exposure to air pollution can alter children's trajectory through life, pushing them onto a path of suffering, illness and challenge. But this is preventable."*

**Source:** Air Pollution and Child Health: Prescribing Clean Air, 2018

# INTERNATIONAL AND NATIONAL POLICY PERSPECTIVE

International shift towards sustainable city planning

# International shift towards sustainable city planning

Sustainable Urban Planning

Ministry of Housing and Urban Affairs

सत्यमेव जयते

**Waste Management** — Swachh Bharat Mission (Urban)

**Housing** — Pradhan Mantri Awas Yojana (Urban)

**Employment** — Deendayal Antyodaya Yojana - National Urban Livelihoods Mission

**Urban Renewal** — Atal Mission for Rejuvenation and Urban Transformation

**Urban Management** — Smart Cities Mission

**Heritage** — Heritage City Development and Augmentation Yojana

**Transport** — Urban Transport

## Principles for Transport in Urban Life: Better Together

Successful sustainable cities in the twenty-first century will prioritize people by integrating transport and urban development. Making this happen means putting the *Our Cities Ourselves* principles into practice to create vibrant, low-carbon cities where people want to live and work.

The *Our Cities Ourselves* principles show how the future of transport in urban life lies in reinforcing the complementary nature of sustainable urban transport and urban development. In the face of rapid urbanization and climate change, the future of transport in urban life will depend not only on these principles, but how they work together.

### Compact
In a compact city, activities are located closer to one another, requiring less time and energy to connect. When all the principles are applied collectively, a thriving compact city is created.

### Densify
By building up instead of out, cities absorb urban growth in a more compact way. Density supports a lively mix of activities and better transport services, but also requires that the transport systems can handle the increase in people.

### Transit
Public transit connects and integrates more distant parts of the city. Transit corridors are the natural places where densification should begin. High quality transit is critical to create a prosperous and equitable city that is easily accessible by all.

### Connect
A city needs a tight network of streets and paths for pedestrians and cyclists as well as public transit. Creating highly permeable places allows for a variety of mobility options that make trips more direct.

### Mix
A connected city becomes more animated when there is a mix of activities along the streets and paths. Different uses encourage shorter trips and more lively neighborhoods.

### Cycle
Like mixed uses, cycling activates streets and provides people with an efficient and convenient way to travel for medium distances. Cycling increases a person's access to a larger area, as well as increases the coverage of transit.

### Shift
With the above principles in place, getting people out of their cars becomes easier but is not enough. Pricing and traffic reduction tools encourage people to shift away from cars.

### Walk
When all the principles come together, the results are most keenly felt by the pedestrian. Vibrant, active streets where people feel safe are fundamental to the successful twenty-first century city.

**Source:** ITDP

# Approach to Sustainable Mobility



## 20-Minute Towns & a 45-Minute City

Commuters will have more public, active and shared* modes of transport to choose from to facilitate more convenient, connected and faster journeys.

| Target 1 | Target 2 | Target 3 |
|---|---|---|
| **20-Minute Towns** | **45-Minute City** | **Public, active and shared modes of transport** |
| All journeys to the nearest neighbourhood centre using public, active and shared modes of transport are completed in less than 20 minutes. | 9 in 10 peak-period journeys using public, active and shared modes of transport are completed in less than 45 minutes. This will help the average peak-period commuter to save about 15 minutes every weekday. | are the preferred ways to travel, accounting for 9 in 10 of all peak-period journeys. |

- Prioritising public, active and shared modes of transport
- Facilitating more seamless multi-modal travel
- Bringing jobs and amenities closer to home

*This includes public transport such as trains and buses; active mobility such as walking, cycling and the use of Personal Mobility Devices; as well as shared transport such as taxis, Private Hire Cars and car-sharing.

## Transport for All

Commuters desire a more inclusive and welcoming transport system for families, elderly and persons with disabilities (PWDs).

- Nurturing a gracious and caring commuting culture
- Developing the capabilities of public transport workers to meet diverse needs
- Providing infrastructure for better accessibility and barrier-free travel

## Healthy Lives, Safer Journeys

Commuters can look forward to journeys that promote healthier lifestyles and create a more liveable Singapore.

- Providing more spaces for public transport, active mobility and community uses
- Working towards a future with fewer land transport-related fatalities
- Creating environmentally-friendly vehicles and infrastructure

**Source:** Singapore Land Transport Master Plan

# walk

High quality, unobstructed pedestrian footpaths provide basic mobility for all. Furniture, landscaping elements, and active building edges transform walkways into vibrant public spaces.

▶ Provide street trees and covered walkways to make walking pleasant even during hot months. Ensure that lighting is present to increase safety at night.

▶ Leave at least 2 m of clear space to ensure that footpaths are accessible to all.

▶ Encourage active and visually permeable frontage—rather than blank compound walls— to improve safety.

▶ Use speed table crossings to reduce motor vehicle speeds.

# cycle

Street design ensures safety for cyclists by reducing carriageway speeds or creating separate cycle tracks. A complete network, adequate shading elements, smooth surfaces, and secure cycle parking are essential.

▶ Create continuous, physically segregated cycle tracks when motor vehicle speeds are higher than 30 km/h.

▶ Create a dense network of rapid transit lines to ensure that the majority of the population has access to high quality public transport.

public transport

Frequent, fast, and reliable high capacity rapid transit reduces dependence on personal motor vehicles.

# CHILDREN in
## the urban vision of India

(Assessing the current urban missions of India on their responsiveness to the needs of children)

PRADHAN MANTRI AWAS YOJANA

SWACHH BHARAT MISSION

NATIONAL URBAN LIVELIHOOD MISSION

ATAL MISSION FOR URBAN REJUVENATION AND TRANSFORMATION

SMART CITIES MISSION
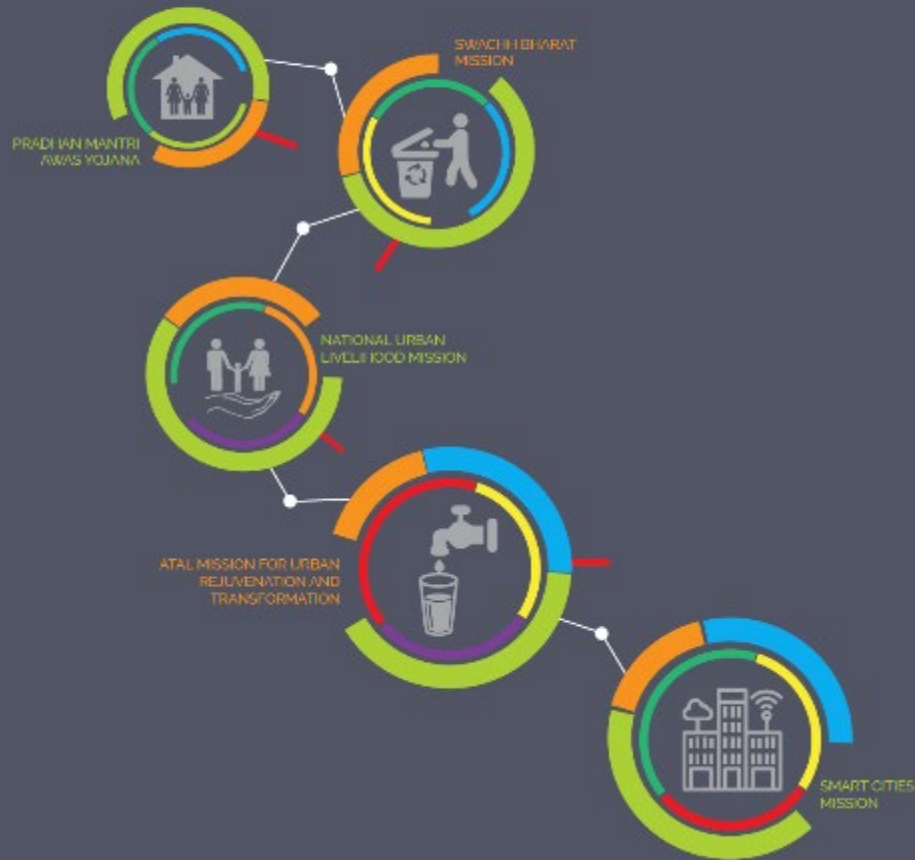
## Child Friendly Smart City Initiative

# ROLE OF EDUCATION AND SCHOOLS

# Need for educating children about impacts of air pollution



- Kids are the future
- Kids can be the ambassadors of change
- Parent's are most concerned about kids
- Schools lay the foundation of good habits.

# Schools can act as the epicenter of sensitization programs



Ways for sensitizing kids:

- Conducting exhibitions
- Conducting campaigns
- Organizing trips on public transport and cycling

# PRESENT TRENDS IN PARTS OF INDIA

Existing

Proposed

Chattarpur Multi Modal Integration

NDMC Public Bicycle Renting Scheme

Ajmal Khan Pedestrianisation

## Public participation

- Resident communities are becoming more sensitive and responsive
- The demands for livable communities are now coming from the grass roots.

# Case of Bhubaneshwar- Odisha
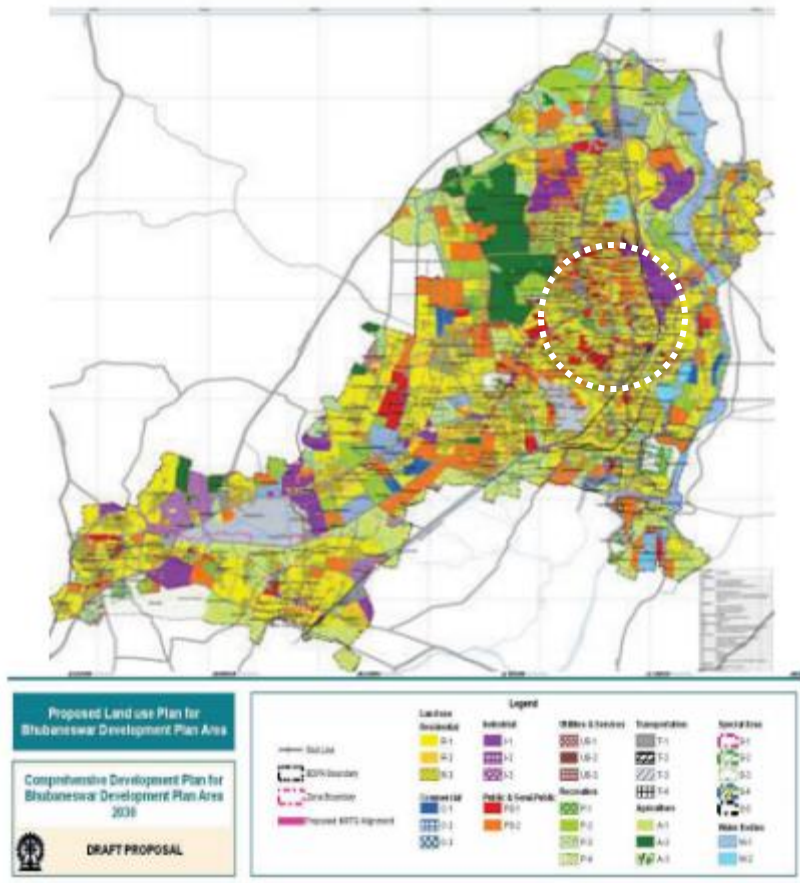
Figure 4.7 Comprehensive Development Plan- 2010 for BDPA
Source: Draft CDP for BDPA-2030 (2008)

**Bhubaneswar City Master Plan encouraged private vehicle use**

**Had been trying to introduce BRT for a decade.**

**Smart City Scheme provided opportunity to prioritize sustainable urban development**
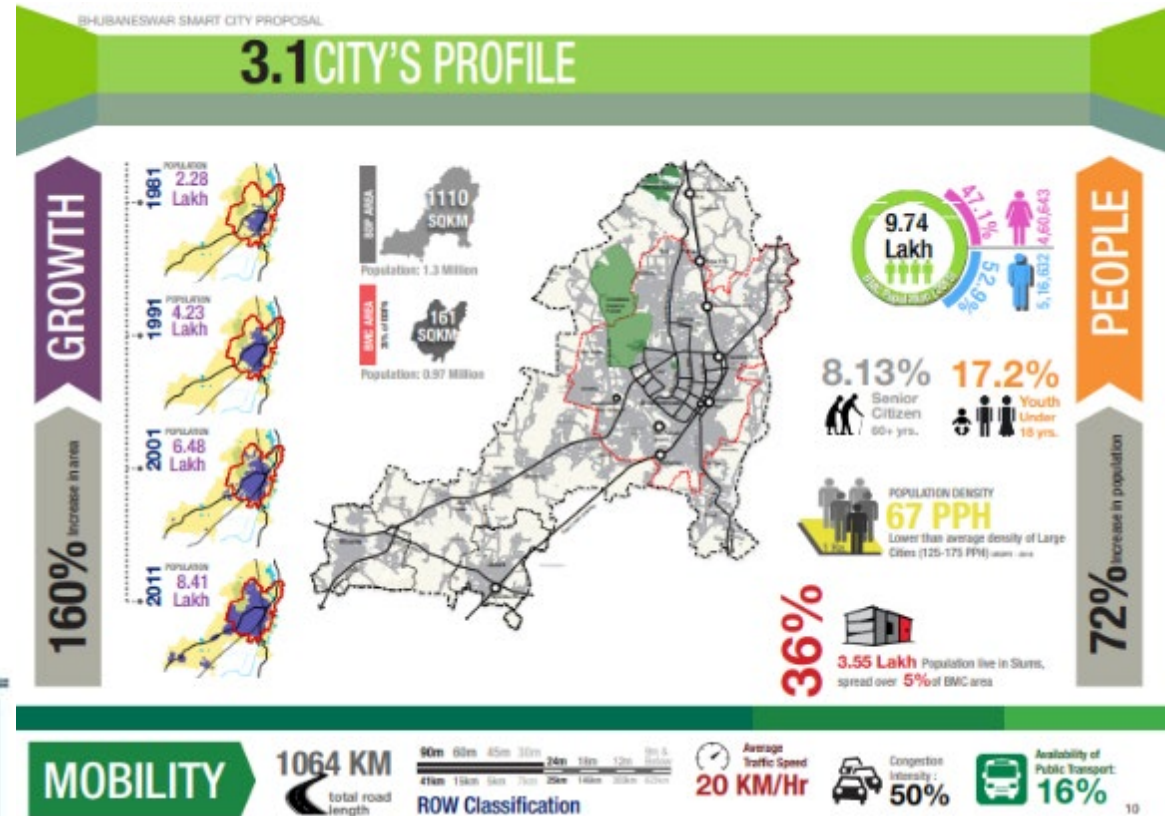
# Case of Bhubaneshwar- Odisha

## Planning for Transit Oriented Development

## Planning for Complete streets

**Urban Renewal**
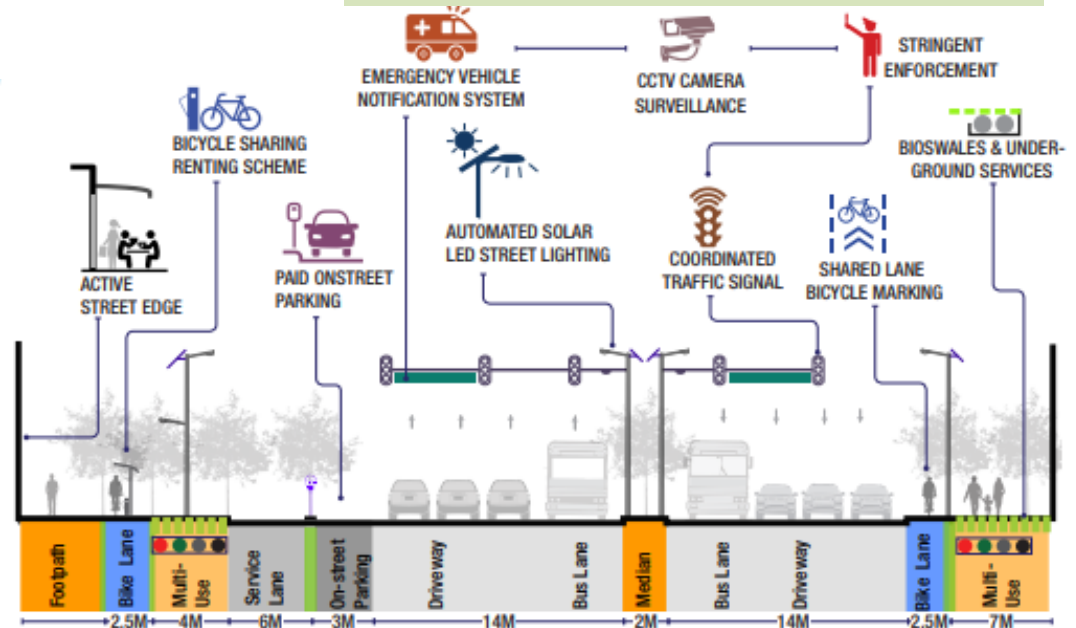
**Bicycle Sharing Scheme**

Chennai is:

- Improving Public Transport
- Improving streets with better pedestrian facilities

MULTIMODAL INTEGRATION OF TRANSPORT SYSTEM

KOCHI METRO • CITY BUS • AUTO RICKSHAW • CITY WATER BUS • FEEDER BUS • CITY TAXI • WALKWAY • CYCLING TRACK

KOCHI METRO RAIL LIMITED

Organised Public Transport

Organised Water Transport

# Case of Kochi- Kerala

Comprehensive Street improvements with priority to Non Motorised Transport

Public Bicycle Sharing Scheme

Bengaluru footpaths are being upgraded with better facilities.

# STEPS TOWARDS SUSTAINABLE MOBILITY THROUGH SCHOOLS AND EDUCATION

# Schools can encourage kids to walk or cycle to School (Chittoor, A.P.)



Zilla Parishad High School, Gopalakrishna Puram, Chittoor AP (rural area): 81 per cent population of the school uses non-polluting modes of travel. Most of these people cycle to school. The school has a special parking space assigned to bicycles to promote the activity.

# Schools can create Safe Access Plans (Chennai)



Jain Public School, Chennai, Tamil Nadu (urban area): The students of the school have designed an optimised commute plan, In addition to encouraging students who live nearby to walk to school or start cycling, they have also come up with a carpooling plan to reduce the level of emissions.

# Schools can provide cycles to kids (Myanmar)

# Schools can provide space for bicycle and bus parking

# Schools can conduct awareness programs with kids & parents (Chennai)

# Schools can demand traffic calming in and around (Udaipur)

# Schools can demand traffic calming in and around (Udaipur)



## अरबन-95 : कीप क्लियर बॉक्स, जिगजैग लाइंस जैसे अनूठे प्रयोग

### 5 साल तक के बच्चों पर आधारित है प्रोजेक्ट

## पेंटिंग से दिया सड़क सुरक्षा का जरुरी सन्देश

## Cityभास्कर

## ओवर स्पीड, एक्सीडेंट कंट्रोल करेगी रोड पर बनाई छात्रों की अनूठी चित्रकारी

Vidya Bhawan Society and Udaipur Municipal Corporation jointly worked to make the access roads safer for kids, pedestrians and cyclings.

# Schools can join hands with local CBOs to organize street audits

# WHERE DO THE PARTICIPATING SCHOOLS STAND

About **141 schools out of 365 schools**

○ have more than **2/3ʳᵈ of its kids travelling by Non-polluting modes**

**If you thought that walking and cycling are for rural areas-**

**Here is a fun fact**

**- About 76 schools out of 141 are from Urban Areas.**

Only **105 schools out of 365 schools**

o have more than **2/3rd of its kids travelling by Polluting modes**

**If you thought that walking and cycling are for rural areas-**

**Here is a fun fact**

**- Only 20 schools out of 105 are from Urban Areas.**

# CREATE A SAFE ACCESS TO SCHOOL PLAN

**Task-01-** Collect data related to travel behavior of kids, parents and staff



**Task-02-** Map trips and facilities



**Task-03-** Consult kids and parents

Discuss and find-
- What would encourage kids, parents, etc. to use buses, cycling and walking
- Identify Impediments that need to be addressed.
- Involve an advisor to assist the process

# Methodology- Step 02- Create Safe Access to School Plan



**Task-04-** Create the Safe Access to School Plan

- Identify all routes taken by kids.
- Identify availability of
  - Footpaths
  - Cycle Tracks
  - Cycles
  - Public Buses
  - Schools Buses
- Check availability of parking spaces for buses and cycles around schools
- Identify accident prone spots

# Methodology- Step 03- Work with local agencies to improve infrastructure

**Task-05-** Schools to demand for improvement of-

- Footpaths
- Cycle Tracks
- Availability of Cycles
- Public & School Buses
- Parking spaces for buses and cycles
- Fix the Accident Prone Zone

**Task-06-** Work closely with agencies and CBOs to address issues-

- Fixing pedestrian crossings
- Improving illumination along footpaths
- Fixing drinking water and toilet facilities along walking/ cycling corridors

# Methodology- Step 04- Sensitization and inclusion in school activities

**Task-06-** Create a plan to have regular workshops with kids and parents to sensitize them

**Task-07-** Integrate walking, Cycling, use of Public Transport, into school curriculum and activities

**Lets leave behind a better environment for future generations.**

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