CENTRE FOR SCIENCE AND ENVIRONMENT

ANIL AGARWAL DIALOGUE 2 0 2 0

ANNUAL MEDIA CONCLAVE
ON THE STATE OF INDIA'S ENVIRONMENT

Reinventing the Bus System for Clean Air

A Quick Overview

Cities are growing bigger

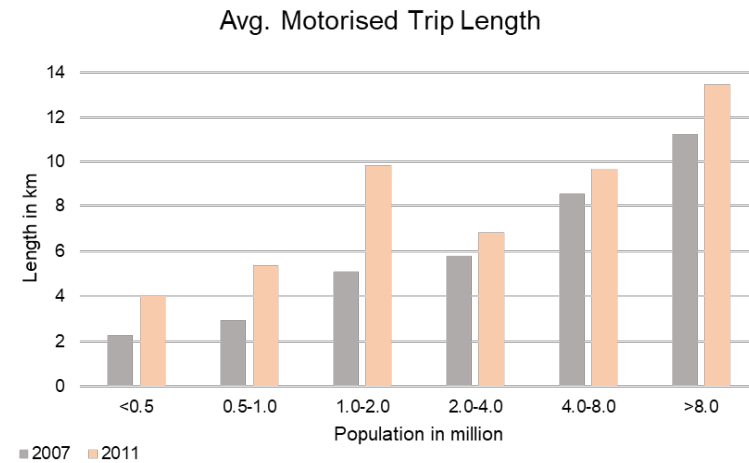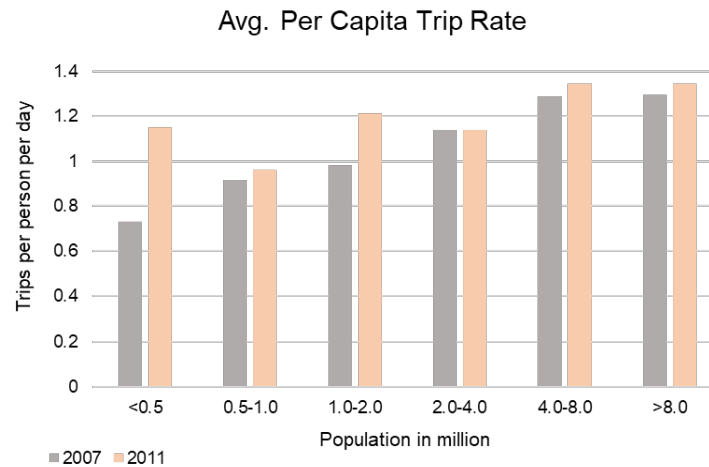In India, 87 crore people will live in Cities by 2050

(According to United Nations)

As per census 2011 - 37 crore people.

All top 10 fastest growing cities of the world shall be from India

(According to oxford economics, in between 2019-35)

Source: Oxford Economics

As the Cities growing bigger, so its transport demands:

Avg. Per Capita Trip Rate

Avg. Motorised Trip Length

Higher transport demands leads to higher vehicular traffic:

Trend of Registered Motor Vehicles in India
(1951 – 2017)

SOURCE: WWW.CEICDATA.COM | Ministry of Road Transport and Highways
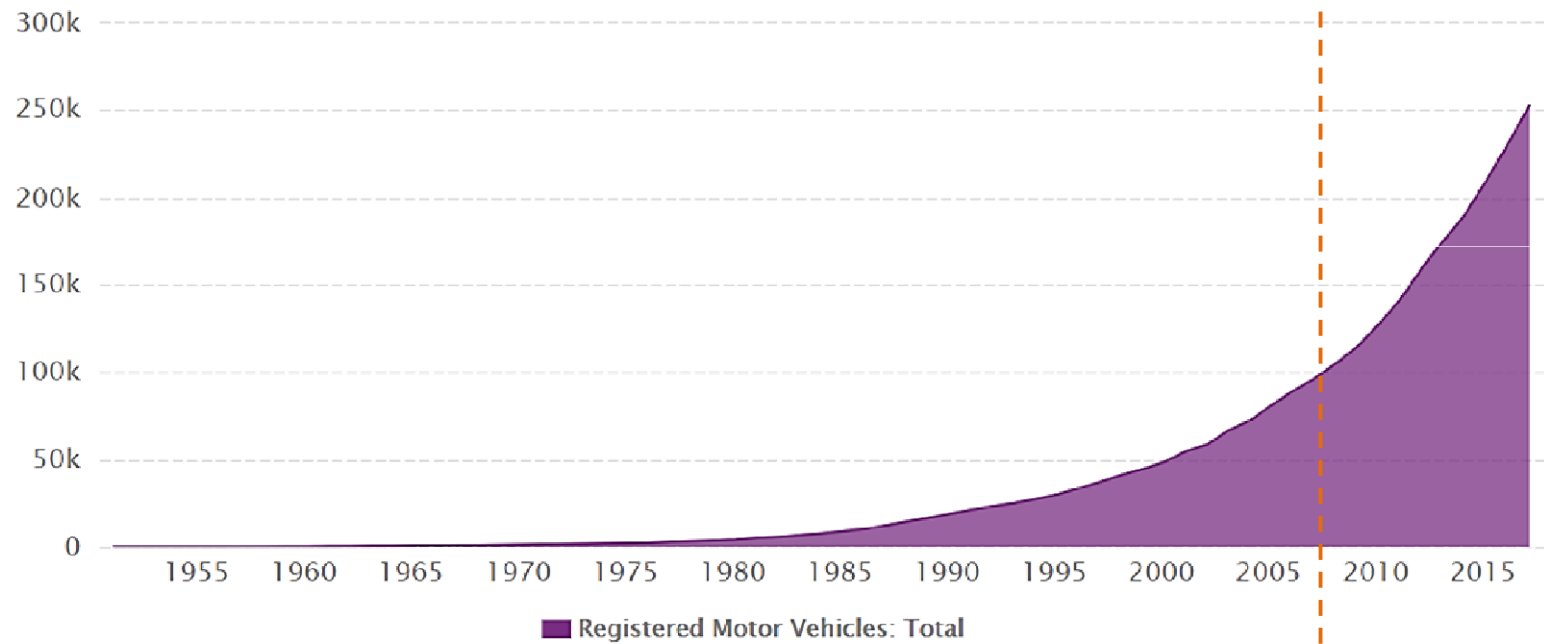
Added approx. 1.5 billion vehicles in past 10 years

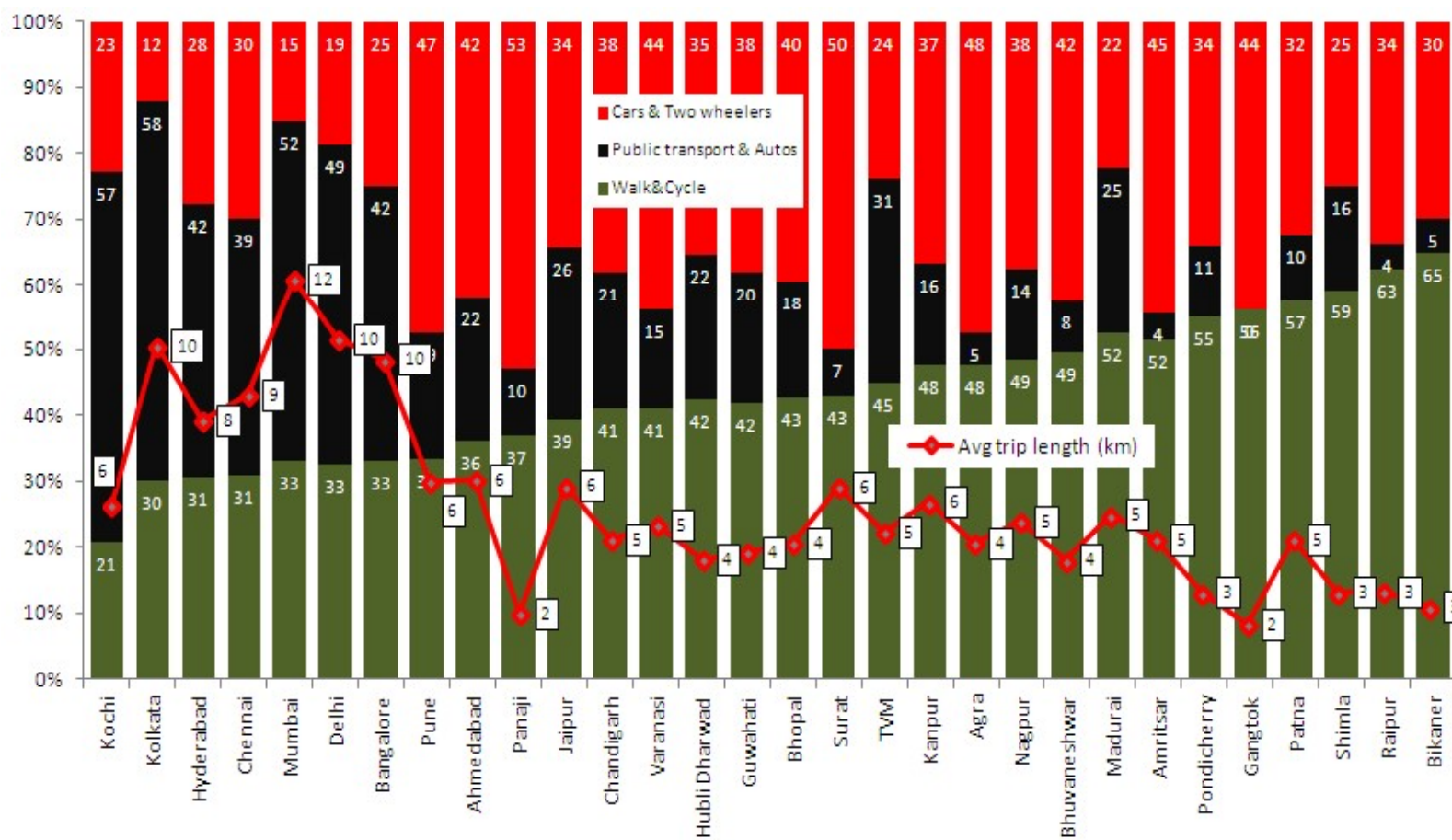## Mobility Crisis:
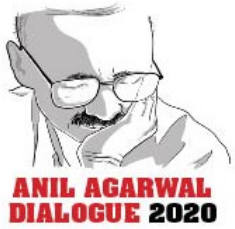
Mobility Crisis to worsen:

Between 2011- 2030:

-- Daily travel trips will become **double**;

-- Share of **public transport trips** shall decline from 26% to

   16%;

-- Share of personal vehicle trips to increase from 34% to 51%;

-- Peak traffic to crawl at 8km/hour compared to 16 km/hour.

Source: IIT, Kanpur

Need Mobility Transition:

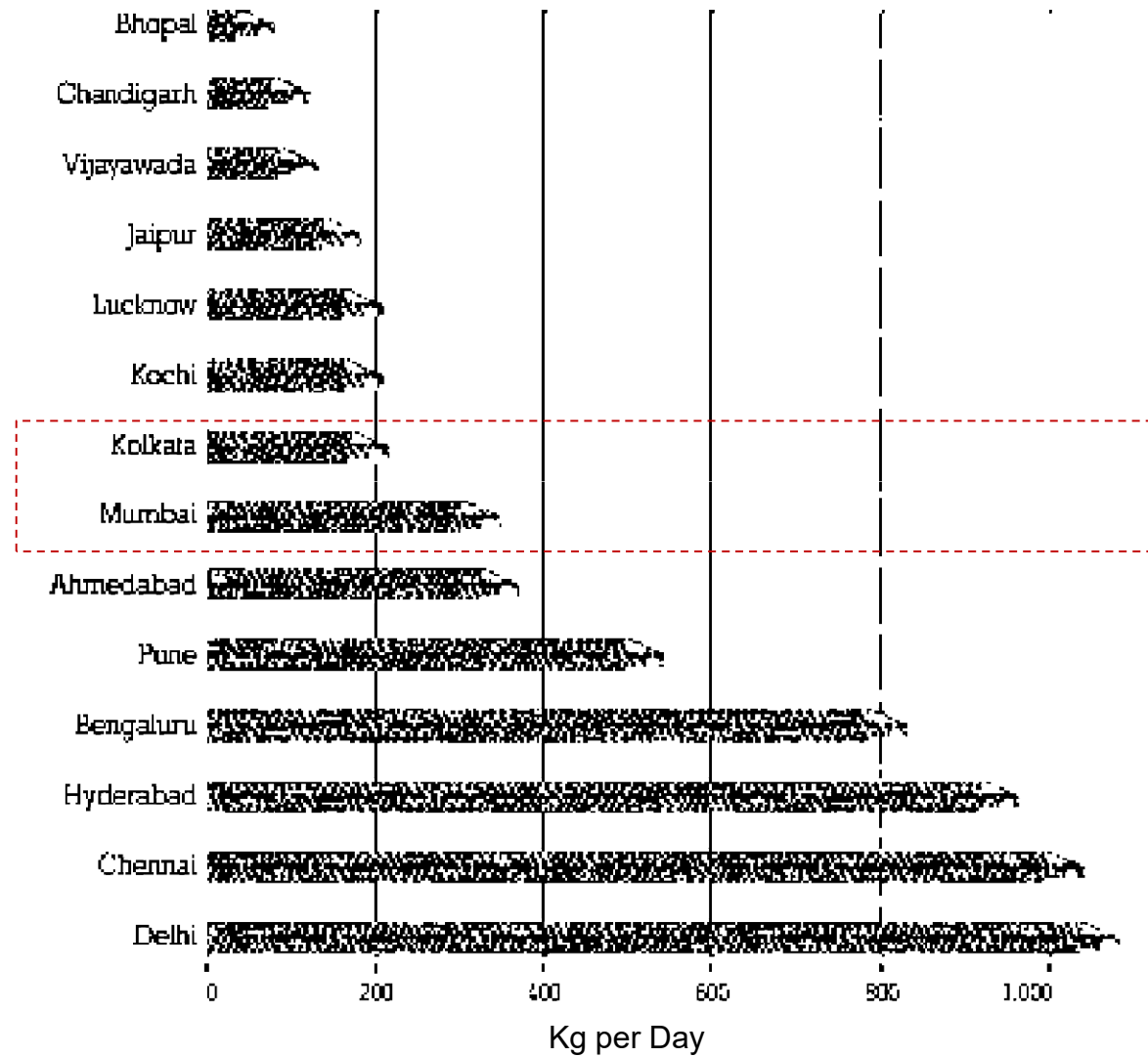*Source: Based on analysis of data provided in reports: 1) ICLEI-South Asia 2009 2) WSA/MOUD 2008*

Particulate emission load from Urban Commuting:
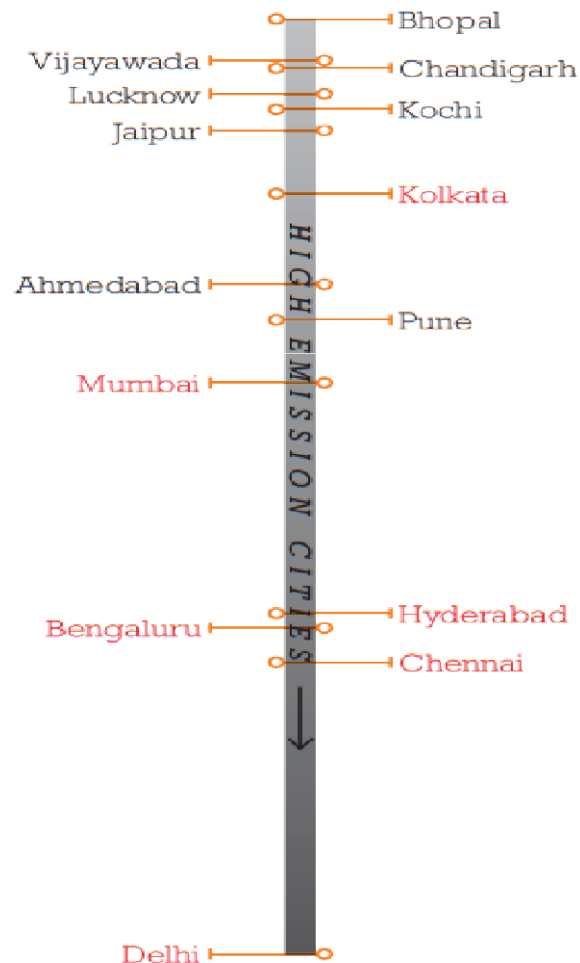## (14 Cities)

Kg per Day

Comprehensive Ranking of Cities: Emission from Urban Commuting:

Based on Overall emissions and energy consumptions.

Based on per travel trip emissions and energy consumptions.

Source: CSE Analysis

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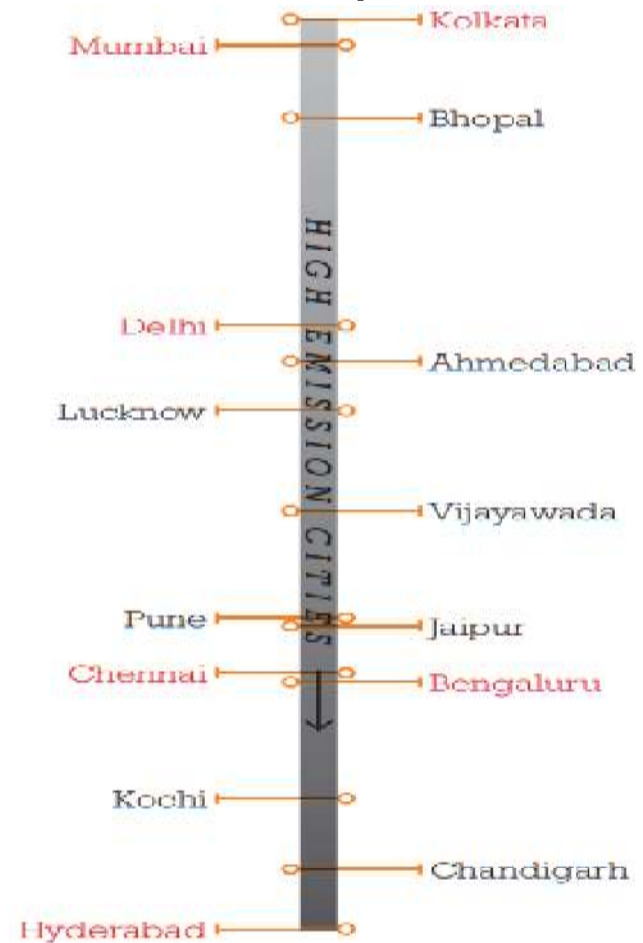
Share of private and Public transport (Motorised Trips):

Legend: ■ Public transport (motorized trips only) ■ Personal transport (motorized trips only)

Cities (top to bottom): Mumbai, Kolkata, Delhi, Bengaluru, Chennai, Hyderabad, Pune, Bhopal, Ahmedabad, Jaipur, Lucknow, Chandigarh

X-axis: -100% -80% -60% -40% -20% 0% 20% 40% 60% 80% 100%
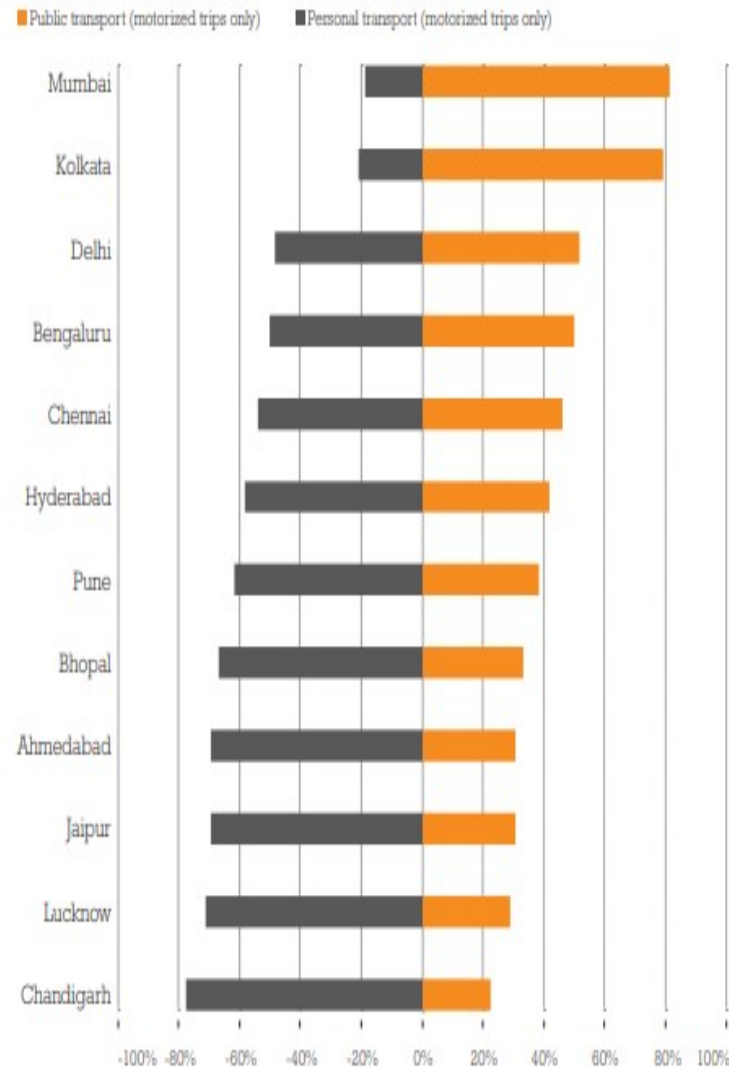
Source: CSE Analysis

Cities need multi-modal strategy:

Clean air action plans for different cities have identified the requirement of :

✓ Developing Public transport network

✓ Creating NMT infrastructure

✓ Use Parking as vehicle restraint measures

Why Buses?

-- **Spine of public transport:** Buses provide the bulk of public transport services – as much as 40-60 per cent – in cities that have city bus services.
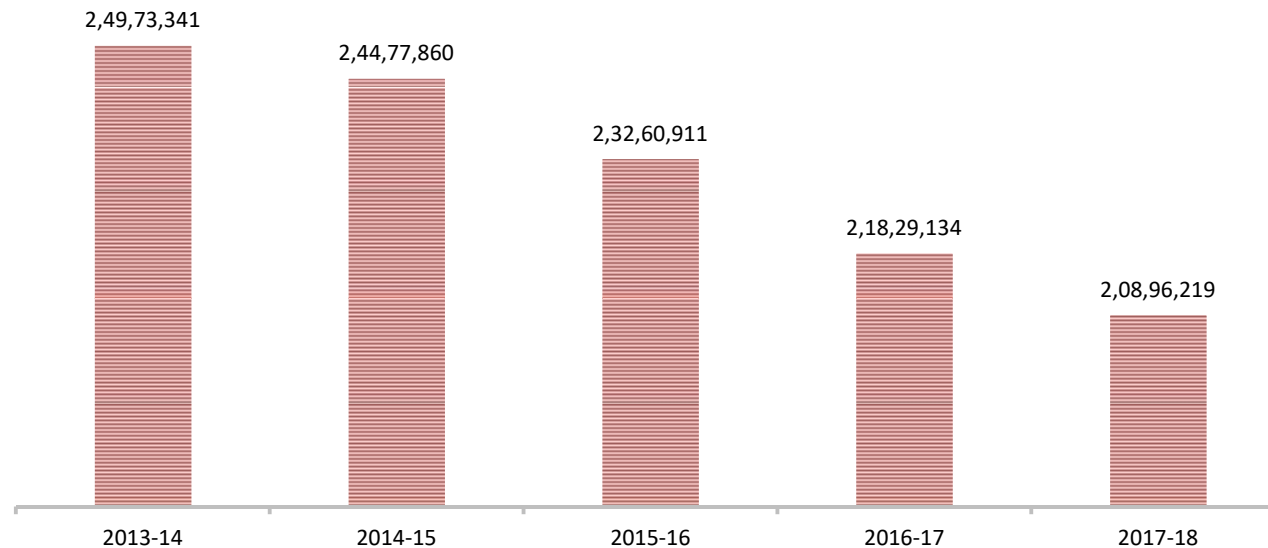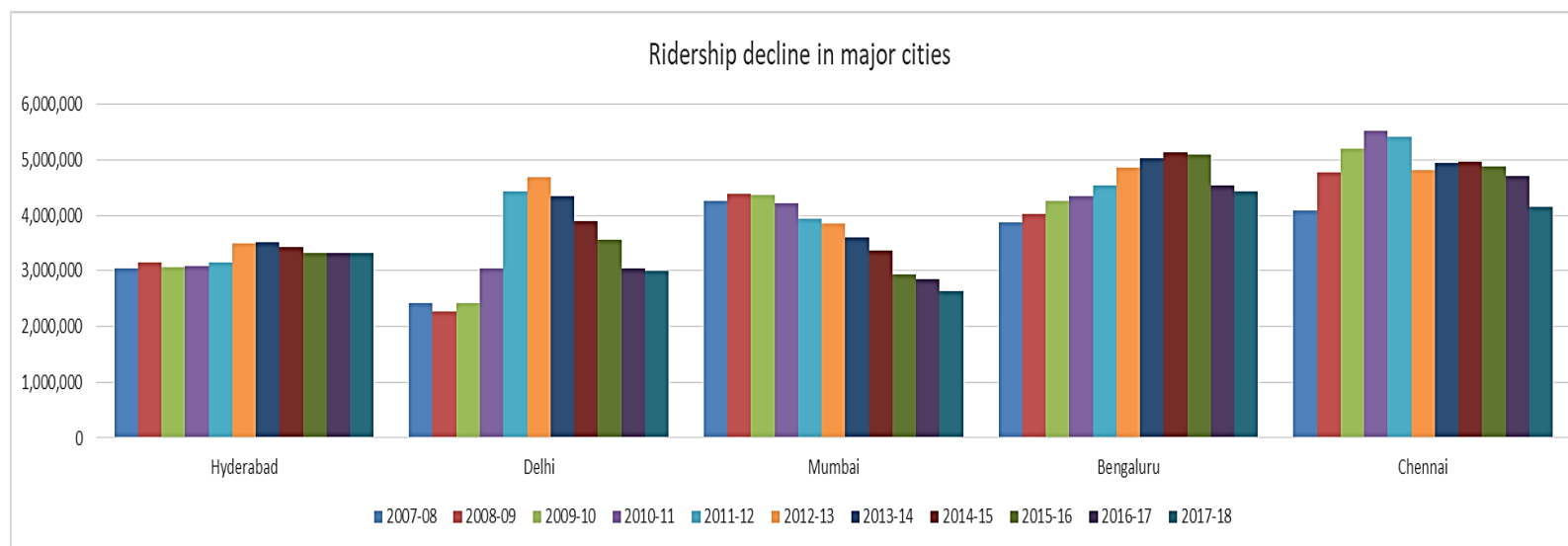
-- **High targets for public transport**: MPD 21 targets 80% public transport share by 2020; Pune 80%; Kolkata 90%... Delhi buses along with bus rapid transit system can help to meet at least 73% of the target.

-- **Buses allow greater flexibility, geographical coverage, cost effectiveness, and space efficiency.** Can flexibly and easily meet the needs of changes in demography and land use. It can cover areas with lower travel demand.

-- **A bus occupies twice the road space taken by a car but carries 40 times the number of passengers.** Bus can displace anywhere between 5 and 50 other vehicles and allow enormous oil and pollution savings (IEA).

-- **Poor people are most dependent on affordable and cheap public transport to access jobs and services**. Urban poor can use up to 25-30 per cent of their income on transportation.

-- **Per person emissions several time less than cars**

Challenges faced by Indian Bus Sector:

Combined Daily Bus Ridership in Indian Cities
(Ridership of 18 major cities in India)

Year	Ridership
2013-14	2,49,73,341
2014-15	2,44,77,860
2015-16	2,32,60,911
2016-17	2,18,29,134
2017-18	2,08,96,219

Source: CSE Analysis

Challenges faced by Indian Bus Sector:

Ridership decline in major cities

Challenges faced by Indian Bus Sector:

Ridership in smaller cities (I)

2007-08 2008-09 2009-10 2010-11 2011-12 2012-13 2013-14 2014-15 2015-16 2016-17 2017-18

Ridership in smaller cities (II)

2007-08 2008-09 2009-10 2010-11 2011-12 2012-13 2013-14 2014-15 2015-16 2016-17 2017-18

Challenges faced by Indian Bus Sector:

Fleet size in megacities of India

Legend: 2003-04, 2004-05, 2005-06, 2006-07, 2007-08, 2008-09, 2009-10, 2010-11, 2011-12, 2012-13, 2013-14, 2014-15, 2015-16, 2016-17, 2017-18

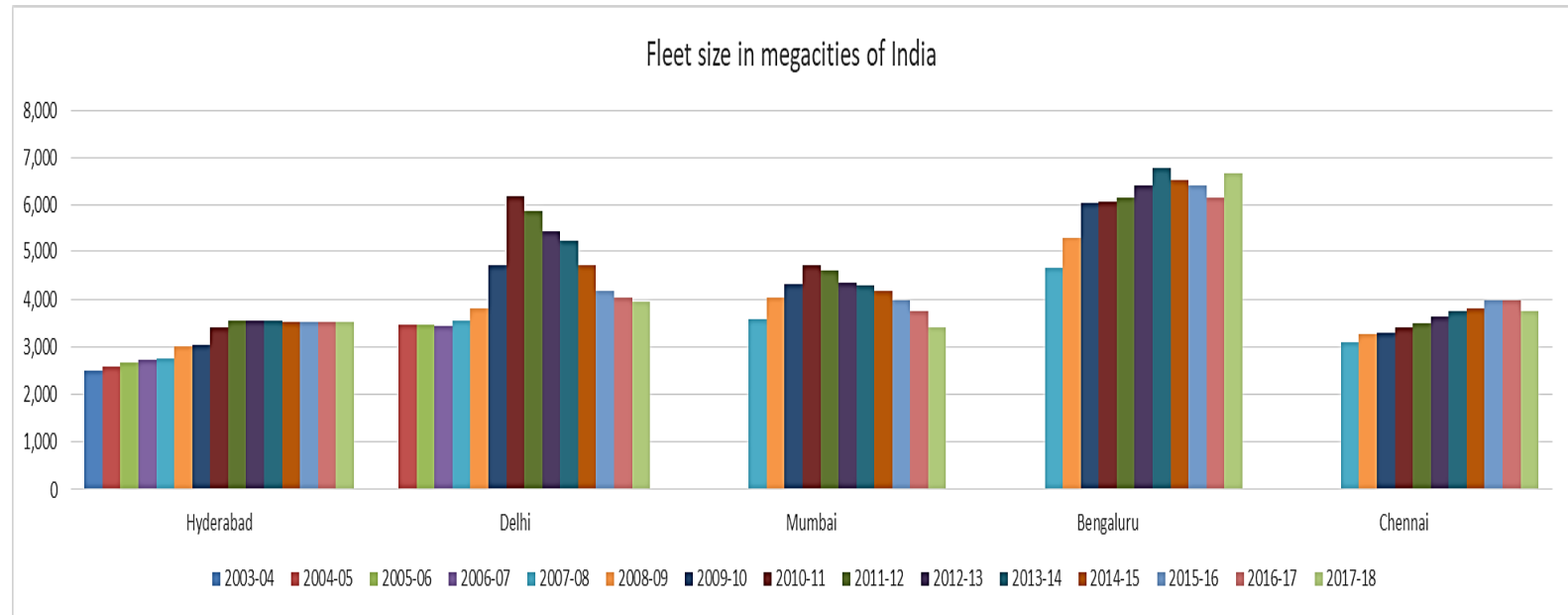Cities: Hyderabad, Delhi, Mumbai, Bengaluru, Chennai

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Challenges faced by Indian Bus Sector:

Ridership loss in between 2013-18

City	Value
Delhi	-16,91,000
Mumbai	-12,41,948
Chennai	-6,46,003
Bengaluru	-4,09,000
Vijayawada	-2,82,277
Hyderabad	-1,74,000
Pune	-1,18,867
Madurai	-56,923
Trivandrum	-41979
Kanpur	-20,469
Lucknow	-19,690
Mysore	-8,208
Faridabad	-3,956

Loss of Ridership percentage in between 2013-18

City	Value
Kanpur	-51.58
Vijayawada	-47.47
Faridabad	-42.46
Delhi	-36.16
Mumbai	-32.16
Lucknow	-25.15
Trivandrum	-14
Chennai	-13.44
Pune	-9.84
Bengaluru	-8.44
Madurai	-8.36
Hyderabad	-5.01
Mysore	-3.07

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Global vs Indian Scenario:

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Singapore	4.04 million (34%)	3.3 million (24%)
Seoul	5.8 million (26%)	2.3 million (10%)
London	6.5 million (14%)	5 million (11%)
Delhi	4.1 million	4.7 million
Mumbai	2.3 million	7.6 million

Need Big Transition:

- **Bus fleet requires massive renewal and modernization** This needs huge investment. Recently Bhubaneswar has modernize their city bus system with 200 new buses and planning to procure more buses in coming days. Delhi has announced to procure 2000 buses. BEST has decided to add 2500 more buses into their current fleet. Cities are going for electric transformation.

- **Need to develop Transit Infrastructures**, Stops, Terminals and Depots to maintain those buses.

- **Need credible, reliable and quality bus service;**

- **Improvement in service level of bus service --** Technical planning for route reorganization, frequency, reliability, coverage, reliable information, ITS enabled passenger information service, improvement in ticketing system, bus priority, signaling, GPS enabled deployment strategy, Performance monitoring system, Innovative contracting and tendering, among others.
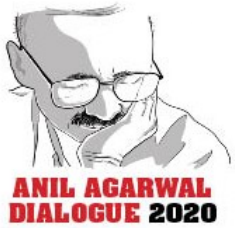
Need Massive Investments:

National Transport Development Policy Committee:
    -- By 2031, Rs 10,900-18,500 billion needed for urban transport; --- about 55% for public transport.

    -- Urban India needs about 1,96,000 buses with an investment of Rs 1,181 billion by 2031.

    Magnitude of Funding required: -- A pointless discussion without identifying the funding sources / implementation mechanism

Affordability is another area of concern:

How to meet this cost of investment and keep services affordable?
-- Even the existing public transport is unable to sustain itself financially
--- huge gap to be bridged

Affordability:
-- No absolute threshold for affordability

-- Globally it is accepted that about 10-15% of household income can be the upper cap for transport to be affordable

-- Or, where bottom 20% of households do not spend more than 10% of income transport

-- Compared to the threshold of 10- 15% of income, -- almost 1/3rd or 34 per cent of Delhi's population stands excluded from basic non-AC bus services as it cannot afford it.

Where do find money and how do we keep services affordable?