



Structuring the Transit System

Examples from India

O.P. Agarwal
The World Bank

Damascus, April 13, 2010

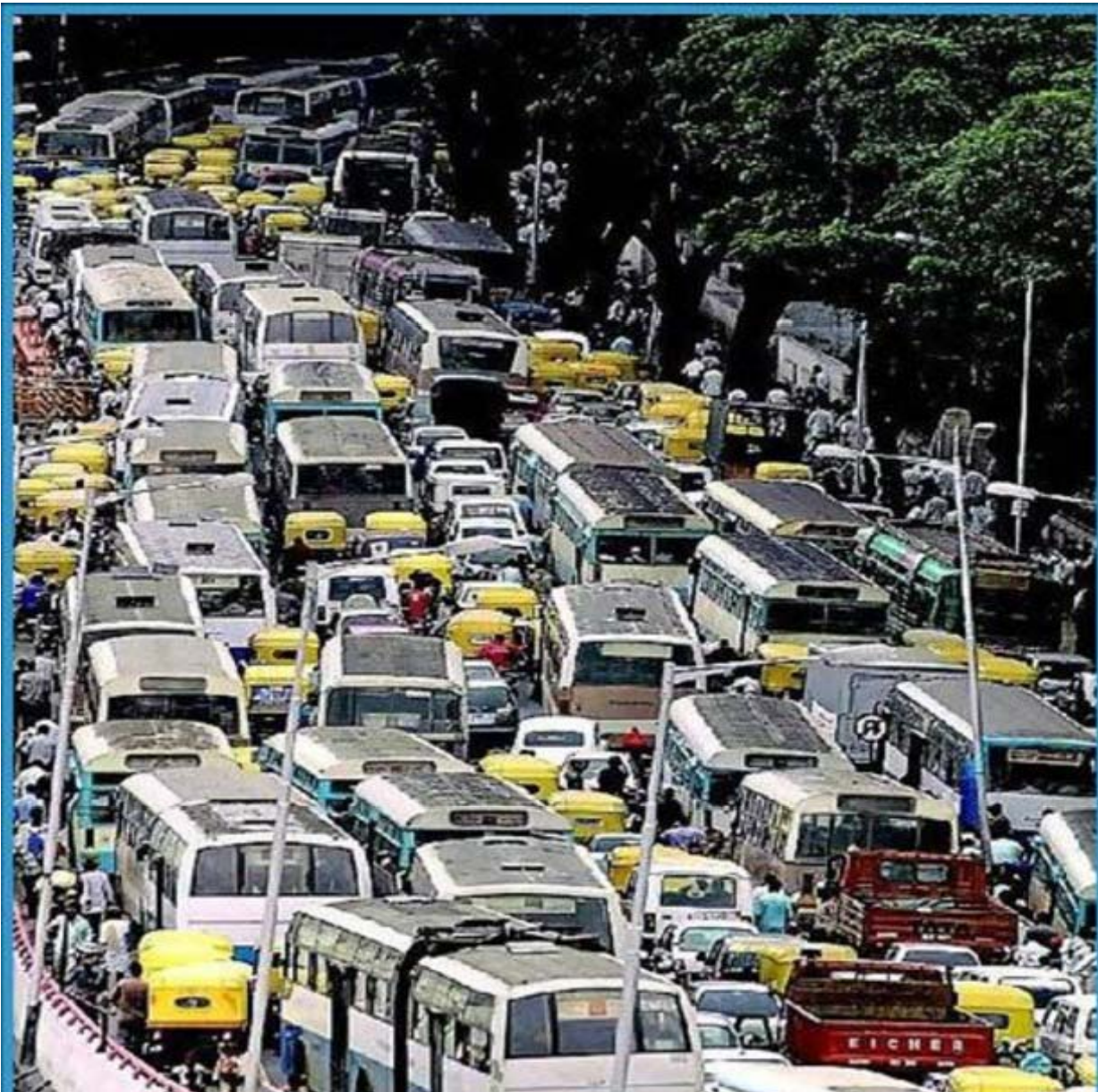


Cities in India are getting choked



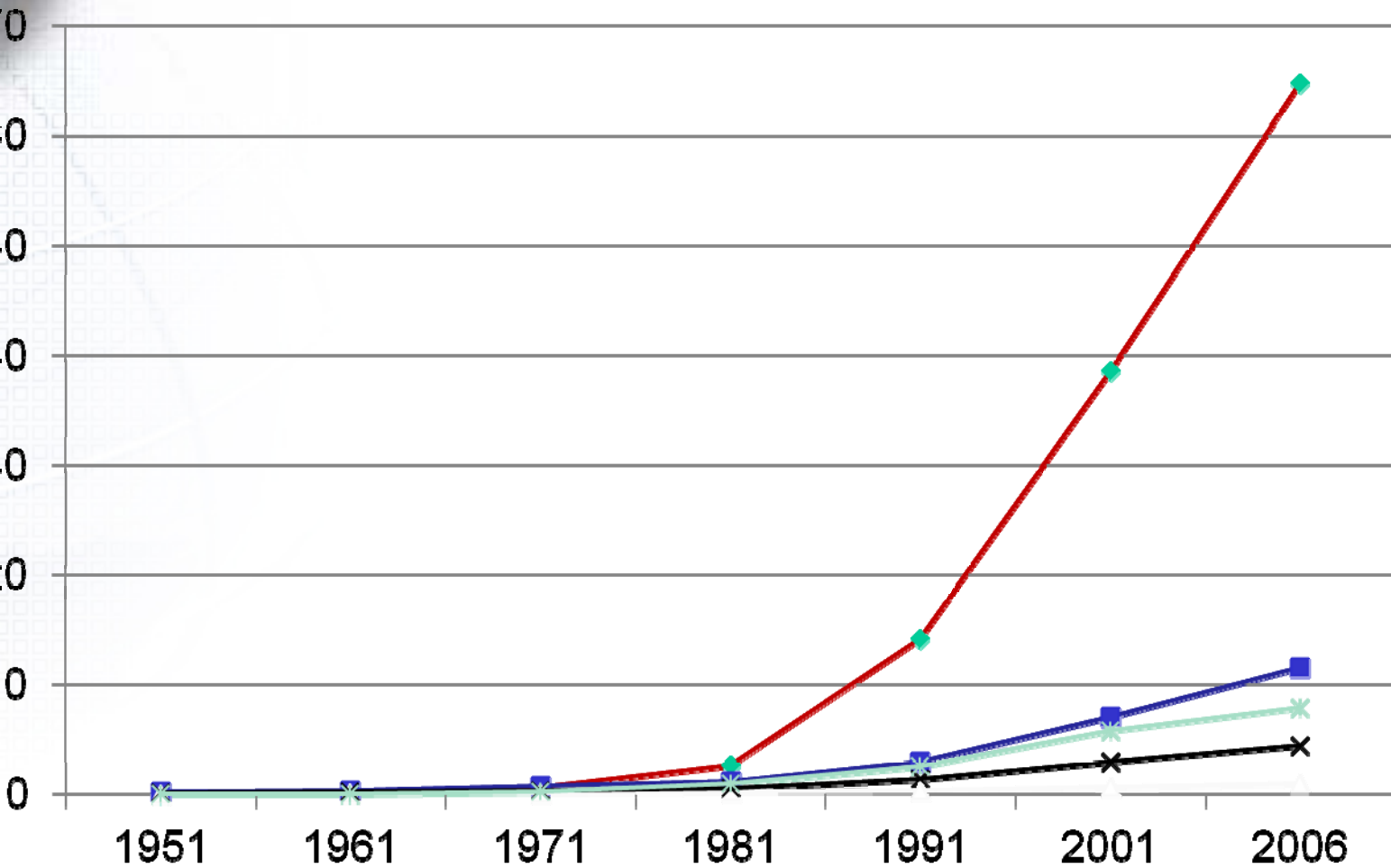




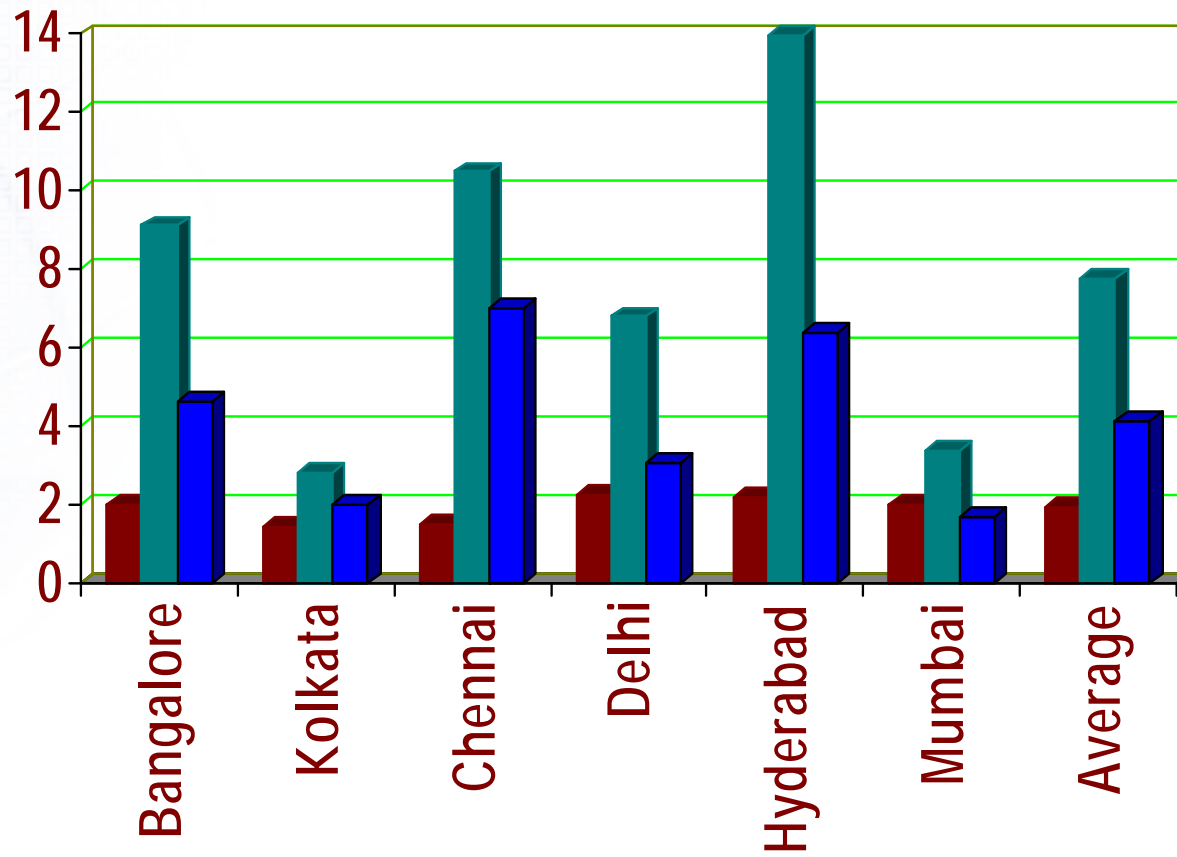




No. of registered vehicles (in 'Million')



Growth of Vehicles to Population (1981-2001)

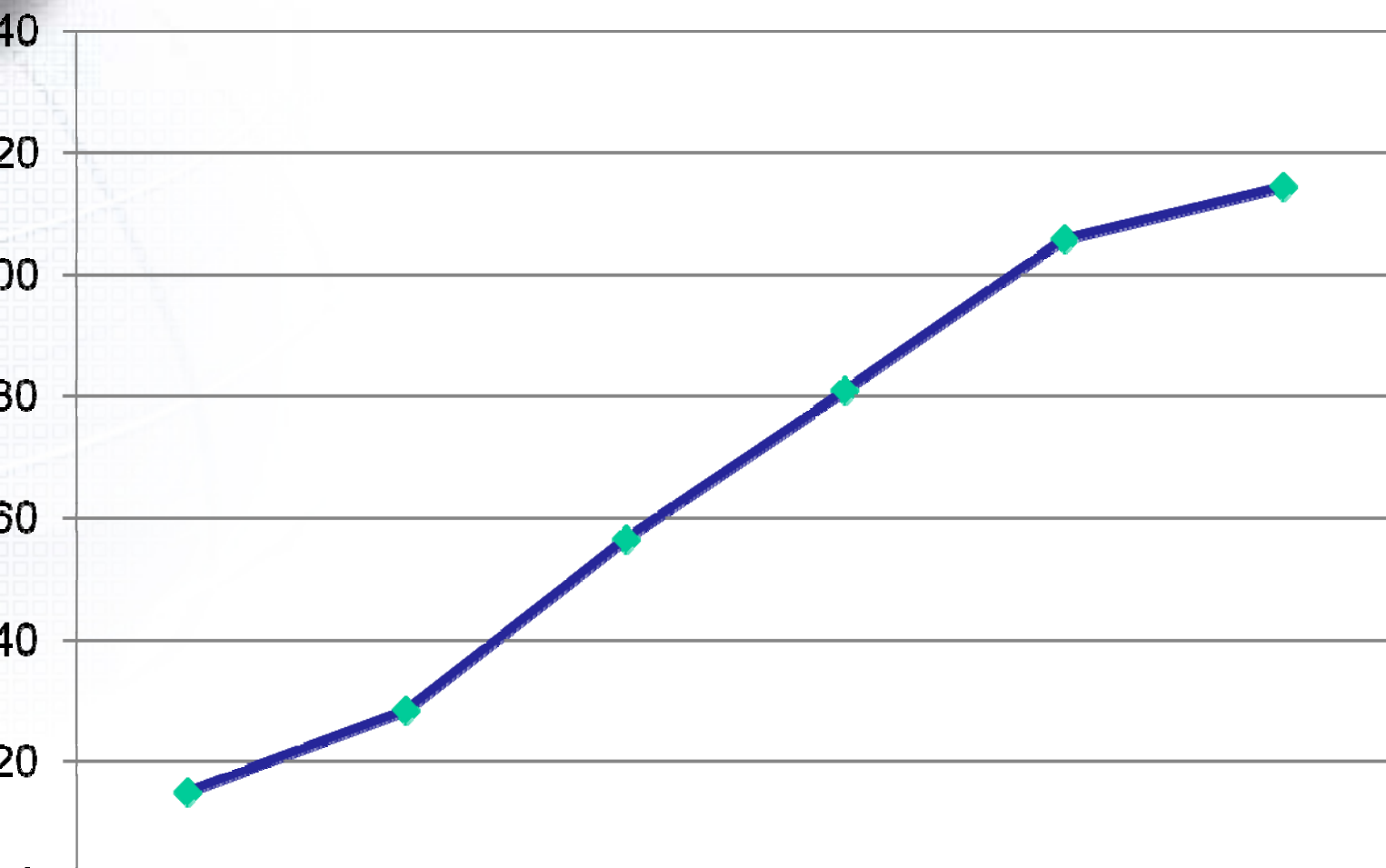




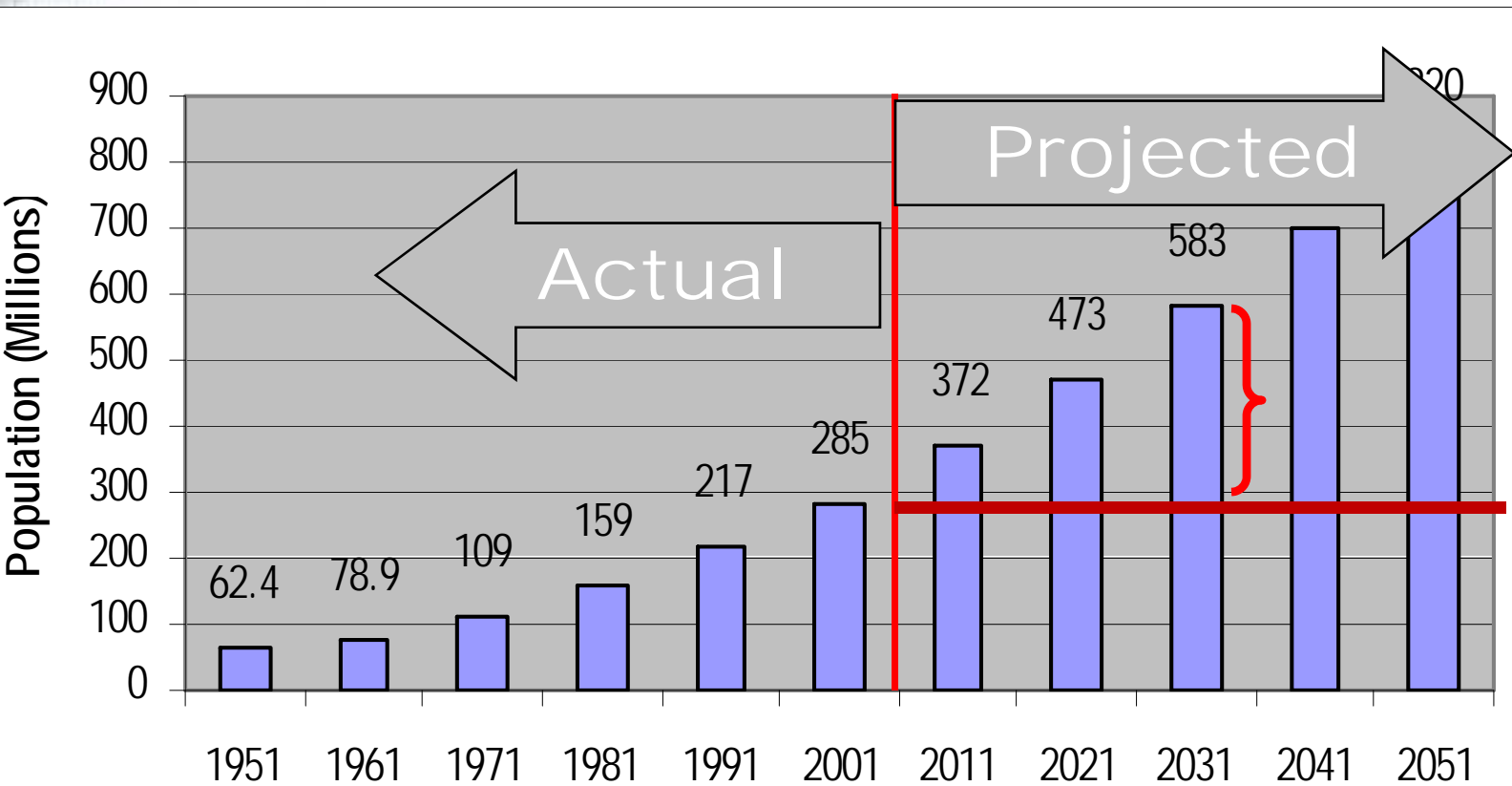
***Urban Transport is
also getting unsafe***

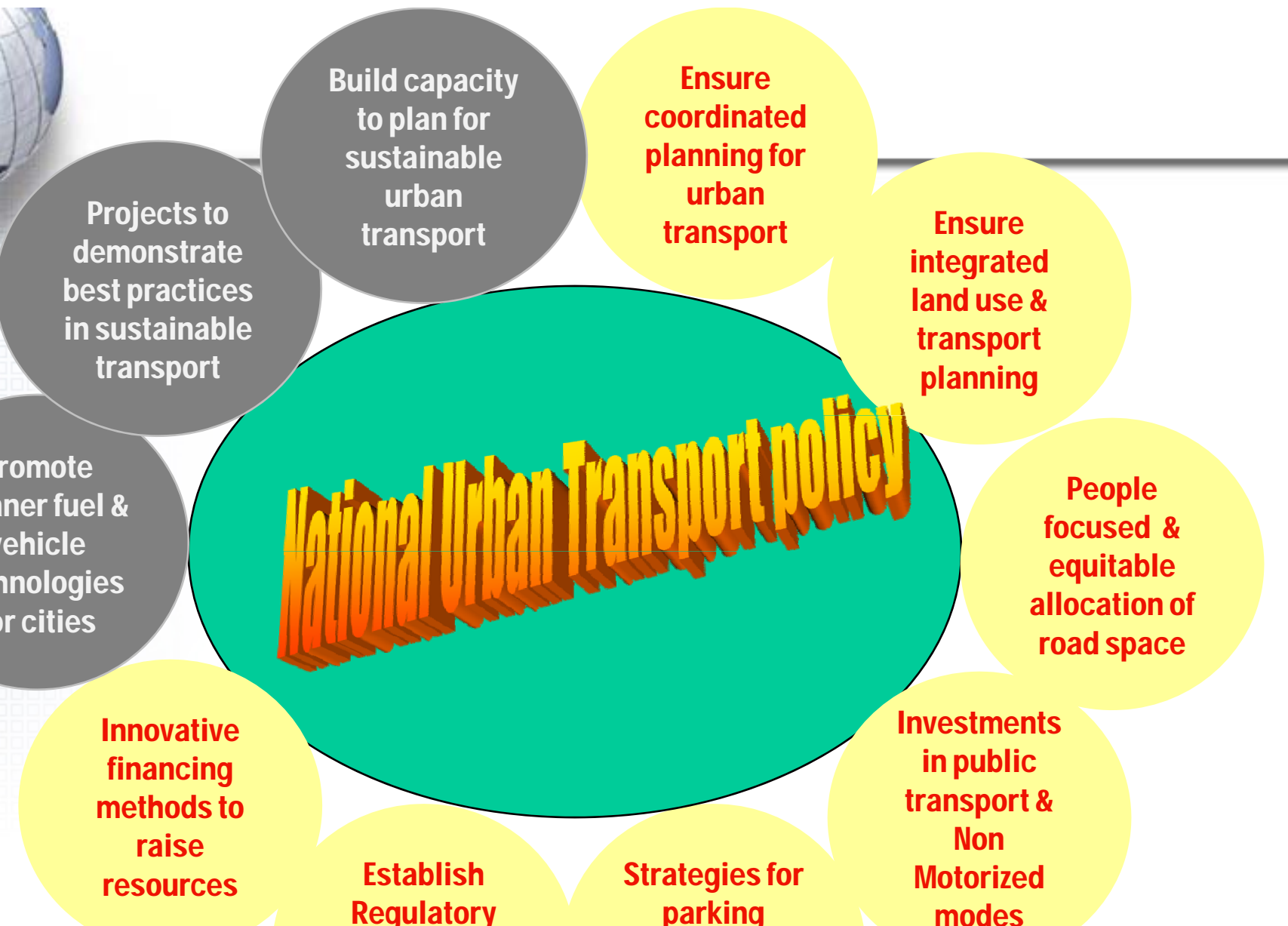


No. of fatalities in road accidents (in '000)



Urban population projections





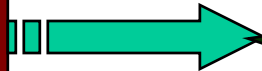


National Urban Renewal Mission

- Established a partnership for the national, provincial and local governments to finance the needed urban infrastructure
- National government commits \$ 12 billion over a 7 year period
- Equal amount leveraged from Provincial and local governments
- Linked to prescribed reforms
- Urban transport projects had to be aligned with the Policy

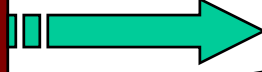
Thus:

**National Urban
Transport Policy**



**Established a
framework for action**

**National Urban
Renewal Mission**



**Created an incentive
for implementation**

is giving a boost to mass transit investments



Unique features of the Indian situation

Dominance of 2-wheelers – makes a shift to public transport much more difficult to achieve

- Door to door
- Marginal cost often lower than a bus
- Fast and efficient
- No waiting time

Rising income creates an urge to own a personal vehicle

Poor social image of the bus and cycling

Climate and terrain can be constraints for NMT in some cities

Public Bus Transport in India

City population	Number	Number with formal bus services
> 4 million	7	7
1.5 – 4 million	28	8
0.5 to 1.0 million	50	5
0.1 to 0.5 million	370	NIL

Out of 95 cities with over 0.5 million people

Mass Transit Investments

Metro Rail Systems

6 cities – 10 projects
2 functional – 6 ongoing, 2 in the pipeline

RT Systems

11 cities – 3 functional, 8 ongoing, more in the pipeline

Modern Bus Systems

Over 60 cities

- Improved buses
- Pass. Info System
- Separation of planning



Other Initiatives

National pressure for Unified Metropolitan
Transport Authority

Emphasis on a Comprehensive Mobility Plan

Large capacity building program launched
with World Bank and GEF support

- Training, Education, Legal frameworks, Institutions,
standards and manuals

Metro Rail projects - Implementation Structure & Financing

Project	Ownership	Financing
Kolkata – 1	Indian Railways	Fully by National Govt.
Delhi – 1	JV - National and Provincial Govt.	Equity + debt from JBIC
Delhi - 2	JV - National and Provincial Govt.	Equity + debt from JBIC
Bangalore	JV - National and Provincial Govt.	Equity + debt from JBIC
Mumbai – 1	Private consortium	Private equity, MMRDA equity and viability gap support
Delhi Airport Link	JV company - National and Provincial Govt. + Private consortium	Civil structures by DMRC Operating structures by private consortium
Kolkata – 2	JV - National and Provincial Govt.	Equity + debt from JBIC
Chennai	JV - National and Provincial Govt.	Equity + debt from JBIC
Hyderabad	Yet to be firmed up	



Experience with Delhi Metro

- Extremely well executed
- Pride of the city
- However, low ridership is a big concern – is the investment worth it
- Lack of feeders and integration with other systems
- Needs people with a different mindset



Experience with BRT

- 11 cities are implementing
- Two cities have started pilot operations
- One city has started first phase
- Very adverse public reaction when pilot BRT operations commenced in Delhi and Pune
- Cities were not prepared for this
- Adverse impact created doubts in other cities as well
- Phase I of Ahmedabad BRT has been encouraging



Lessons learnt

1. Need for integrated planning – not just civil engineering
2. Be prepared for adverse reaction – influential section of society is adversely impacted
3. Public awareness very important
 - Win some constituencies
4. Importance of feeder systems
5. Even parking lots and good footpaths serve as feeders
6. Need for a strong champion, with a broad



Transit Oriented Development

- Improves integration
- Make access more convenient
- Enhance ridership for the mass transit system
- Raise finances, using land as a resource
 - Importance of timing the development



Some initiatives towards improved integration

- TOD strategy made a condition for National Govt. funding
- Extension of corridors looking for densification
- A few projects looking at land development to make system more attractive
- Renewal of heritage areas being taken up in some cities

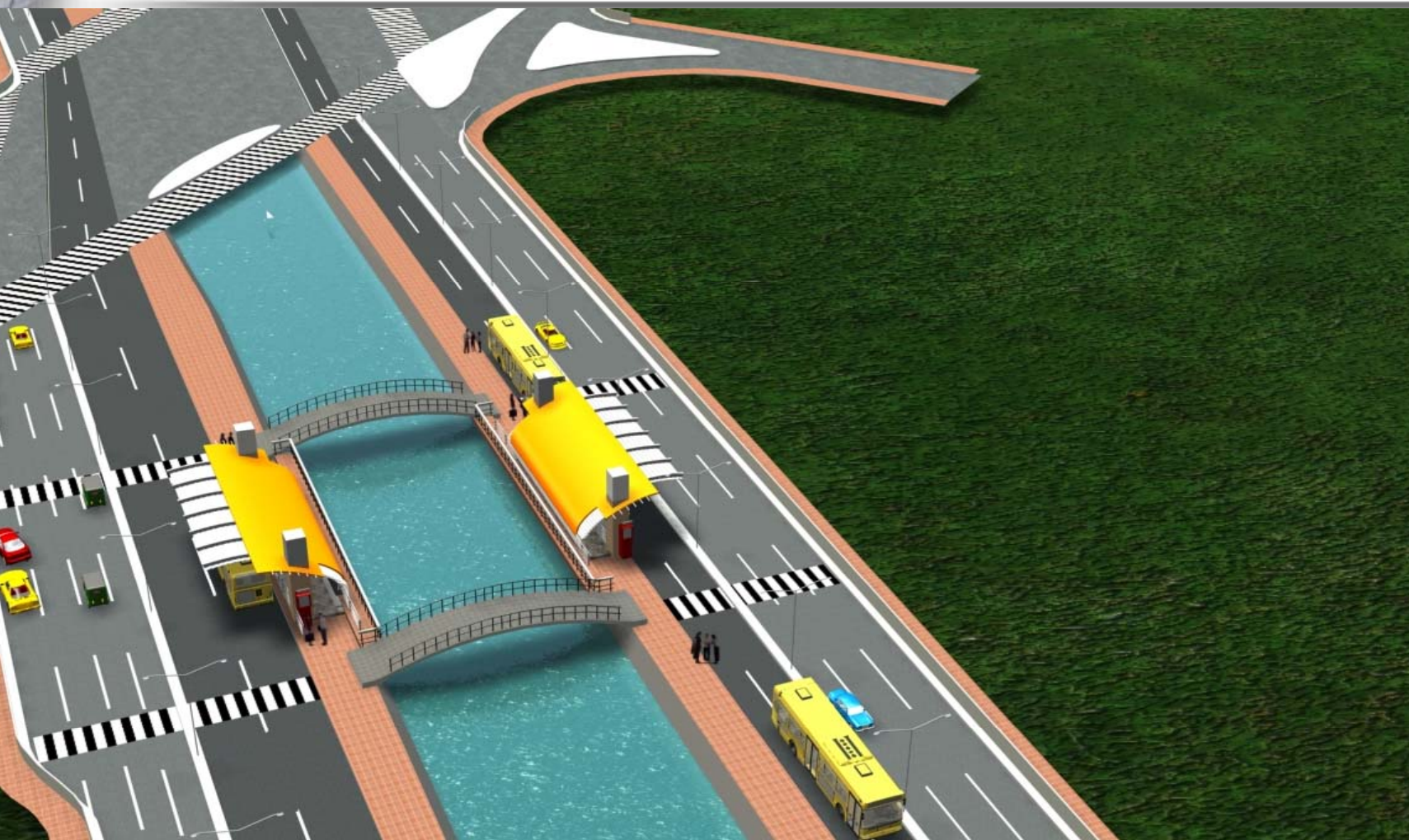
Surat - Canal Road



of canal road design



of canal road design



The hub of the Delhi metro





THANK YOU!

