Comprehensive Mobility Planning (CMP) and efficiency improvement in Urban Transport in India

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ENERGY, CLIMATE AND SUSTAINABLE DEVELOPMENT

Comprehensive Mobility Planning (CMP) and efficiency improvement in Urban Transport in India

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IIT Delhi

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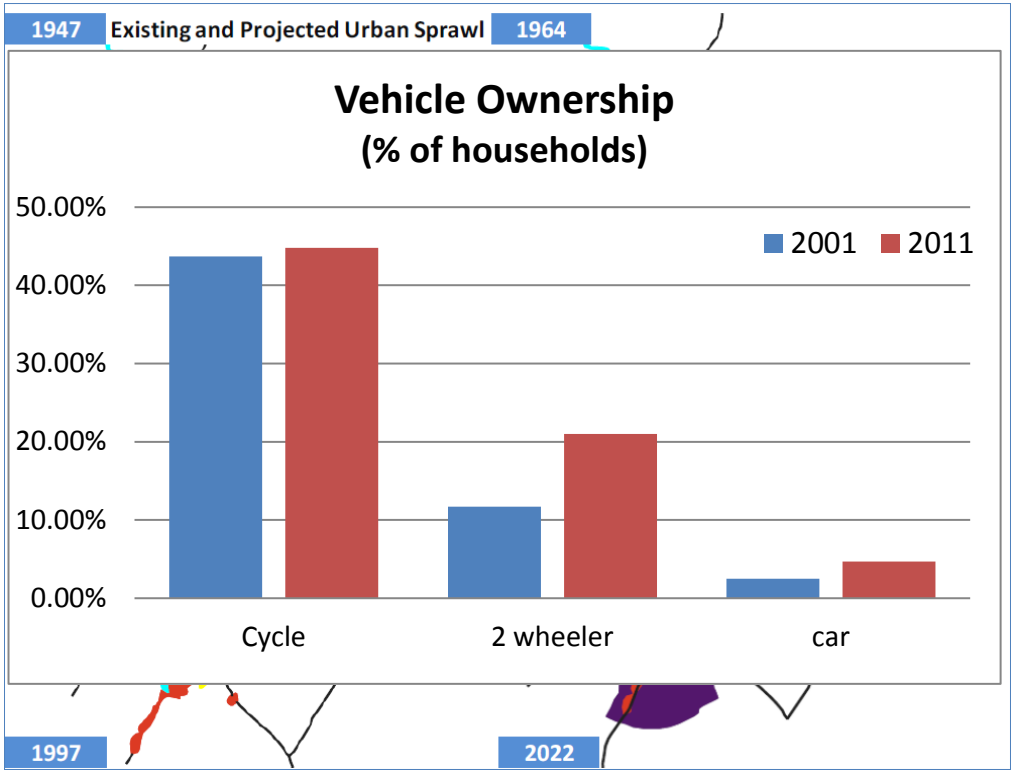
Contents

- Urbanisation Trends
- Low Carbon Scenarios for Urban Transport
- Comprehensive Mobility Planning Toolkit

Urbanization Trends

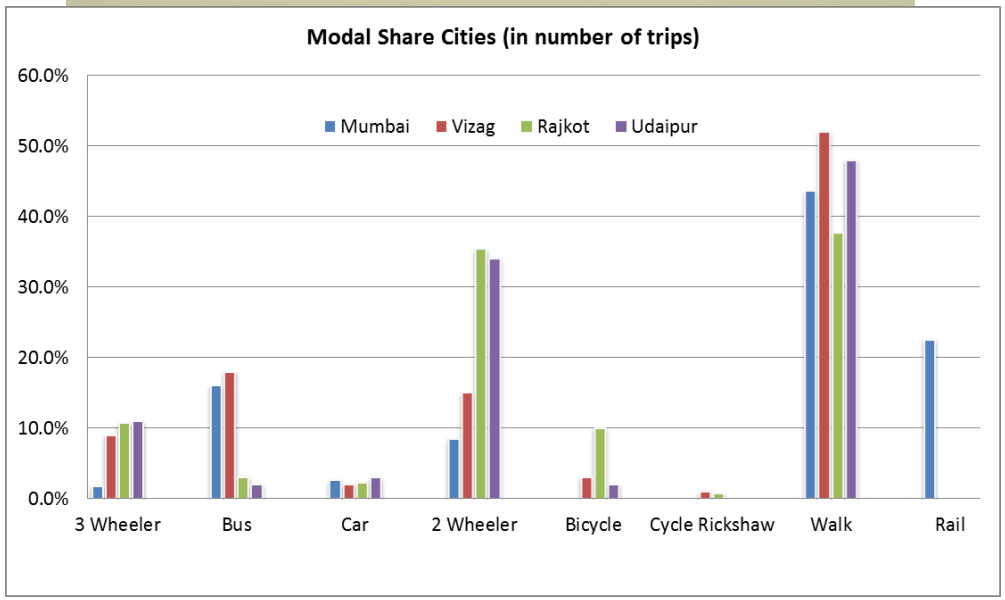
Size Category (population)	No. of cities (% of urban population)	
	1975	2000
>10 million	0 (0)	3 (15.5)
5-10 million	2 (11.3)	3 (6)
1-5 million	8 (13.7)	25 (14.7)
0.5-1 million	17 (8.3)	38 (9.4)
<0.5 million	≈ 3,000(66.8)*	≈ 4,000 (54.5)

- Fast growth in number of million plus cities
- Rapid expansion in cities above 0.5 million
- Increasing trip lengths and trip rates
- Increasing vehicle ownership (2 wheelers)



Source: LCMP Udaipur

Impacts of Urbanisation



Haze in Kaula Lampur
Source: Wikicommons

- Air Quality
  - 30% - 50% of PM from transport sector
  - 27 cities of India in top 100 cities with worst air pollution
- Safety
  - 231,027 deaths in road accidents in 2010 (WHO)
- Equity
  - Focus on roads & vehicles (See Graph)
  - PT use limited within (women and poor)
- Security

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Low Carbon Scenarios

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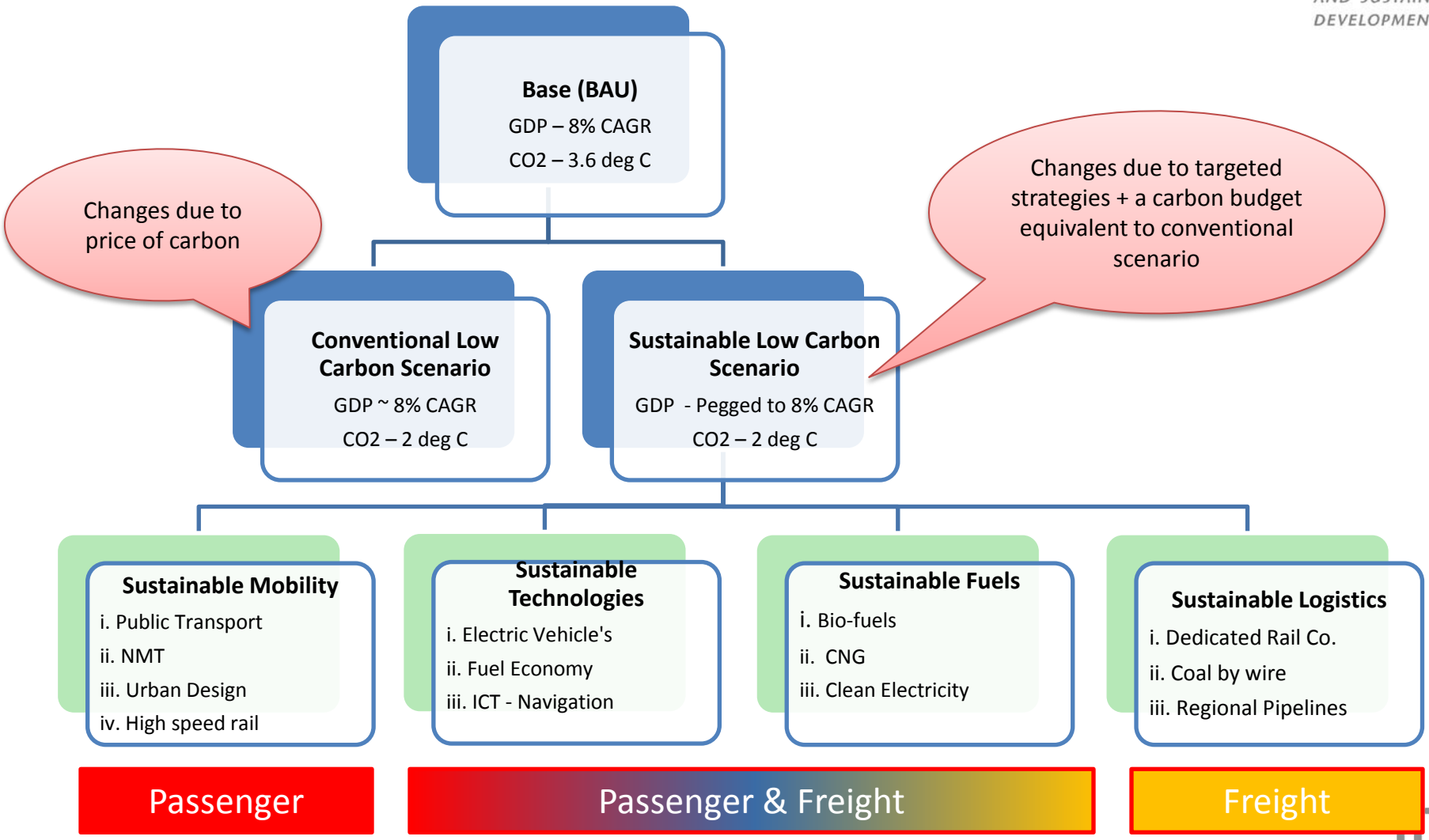
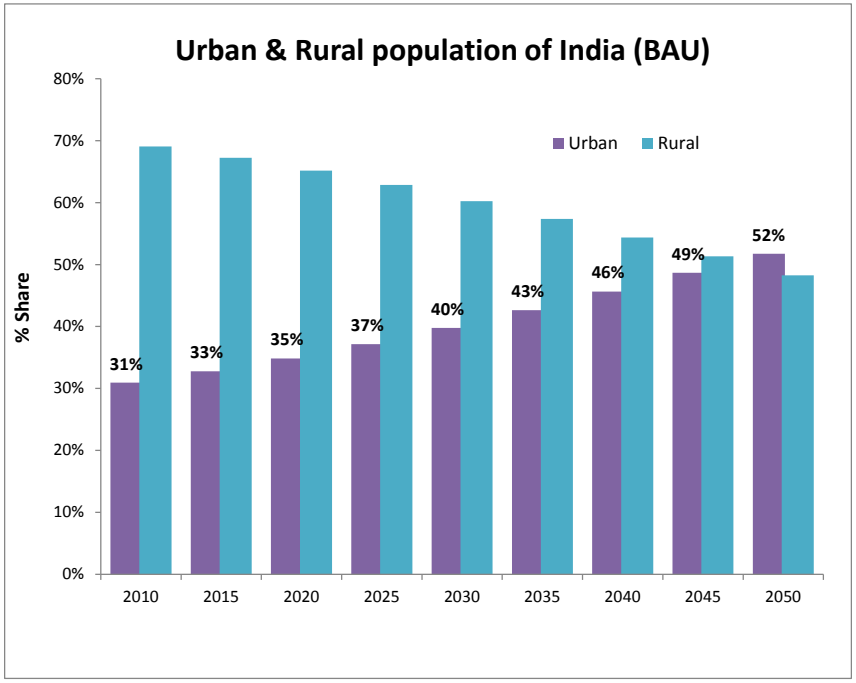
Transport Scenario Architecture



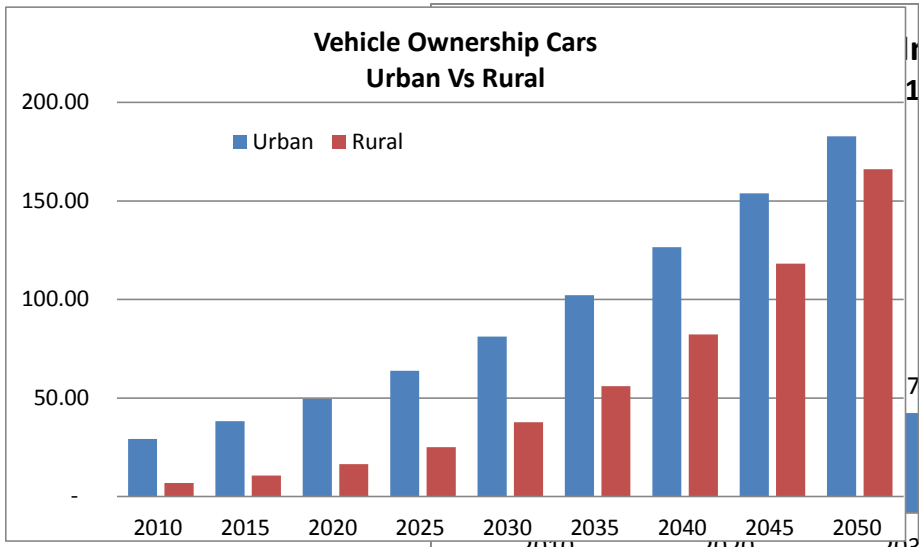
Demographic Transitions

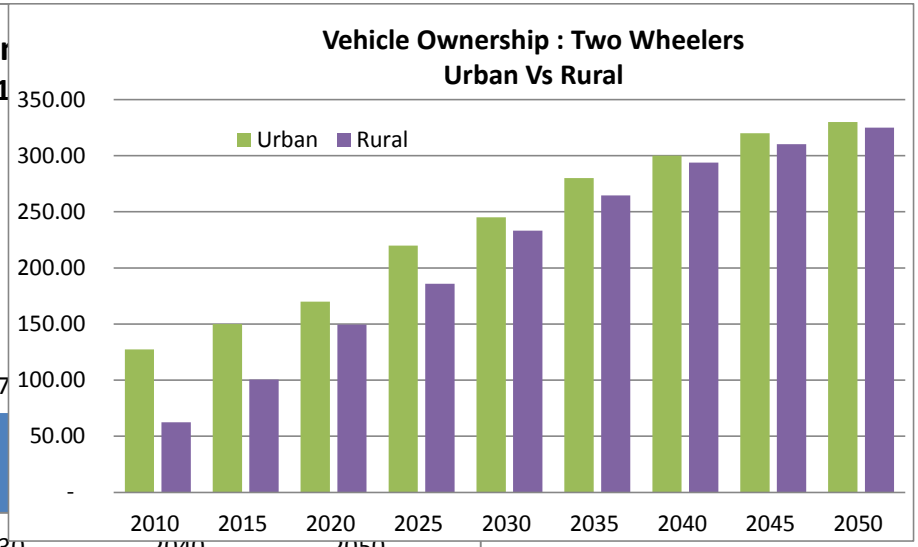


Year	Average Size of Household	
	Rural	Urban
2000*	5.40	5.10
2005	5.23	4.80
2010	5.06	4.52
2015	4.90	4.25
2020	4.75	4.00
2025	4.60	3.76
2030	4.45	3.54
2035	4.31	3.33
2040	4.18	3.13
2045	4.04	2.95
2050	3.90	2.76

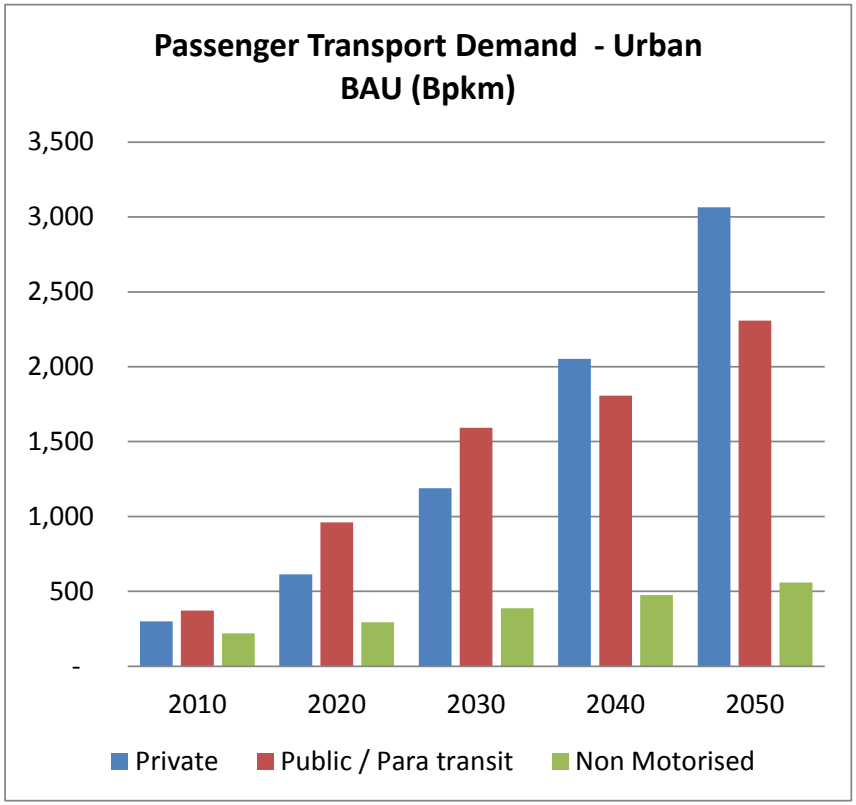
Data: UNPD, 2012

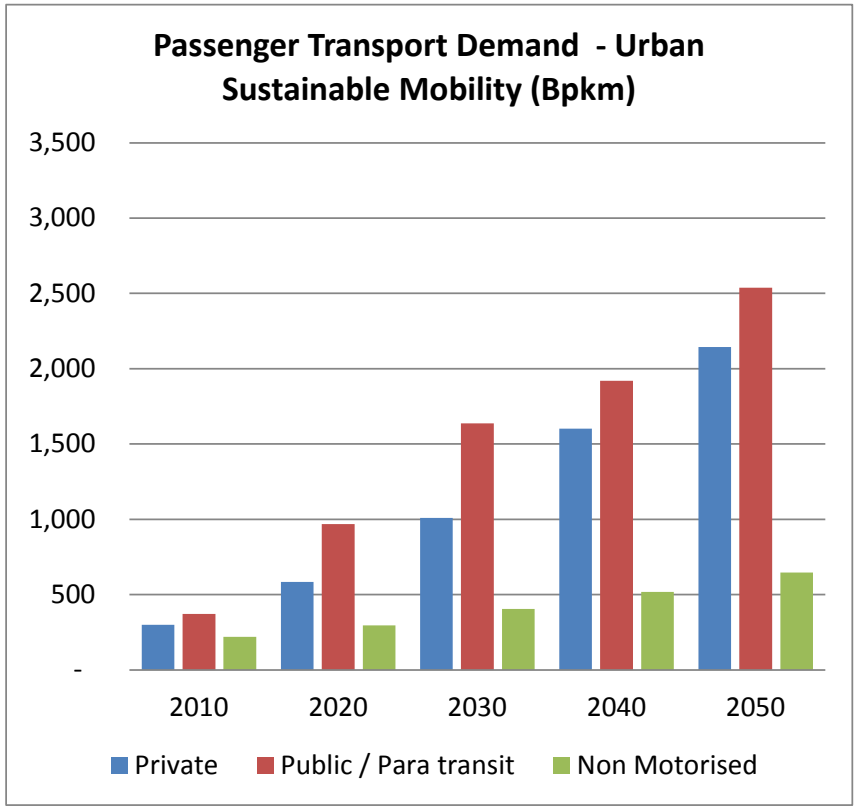
Income Transitions





Demand Transition: BAU & Sustainable Mobility Scenario

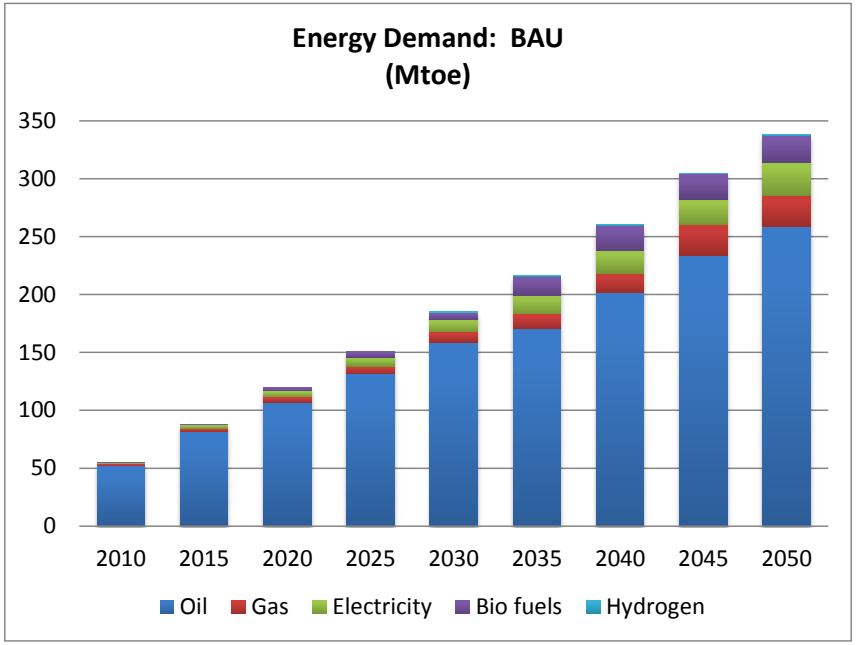


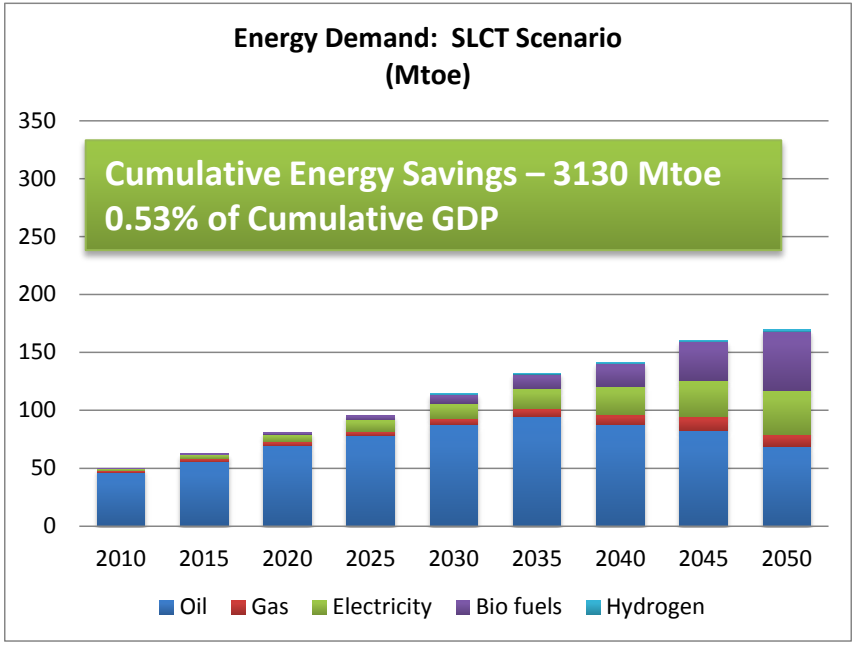


Sustainable Mobility Storyline

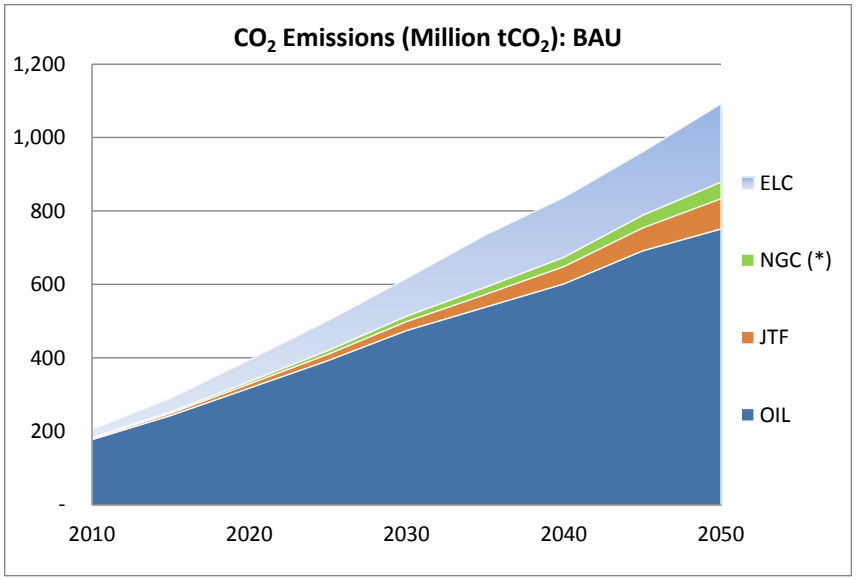
- **Modal Shifts** through better urban planning and creation of infrastructures for public transport (Metros, BRT) and advantaging of public transport
- **Demand reduction** through ***transit leverage***

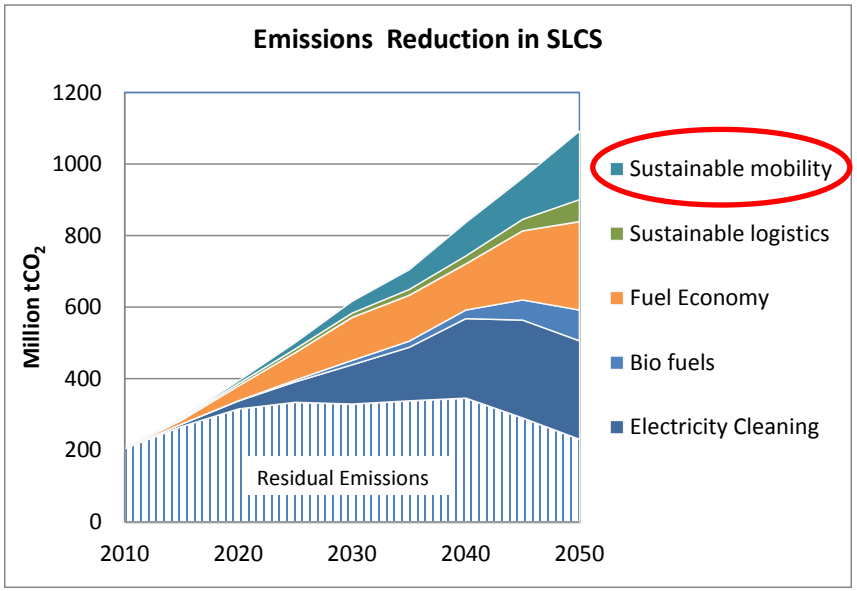
Energy Demand for Transport





CO_2 Emissions: Transport





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CMP Toolkit

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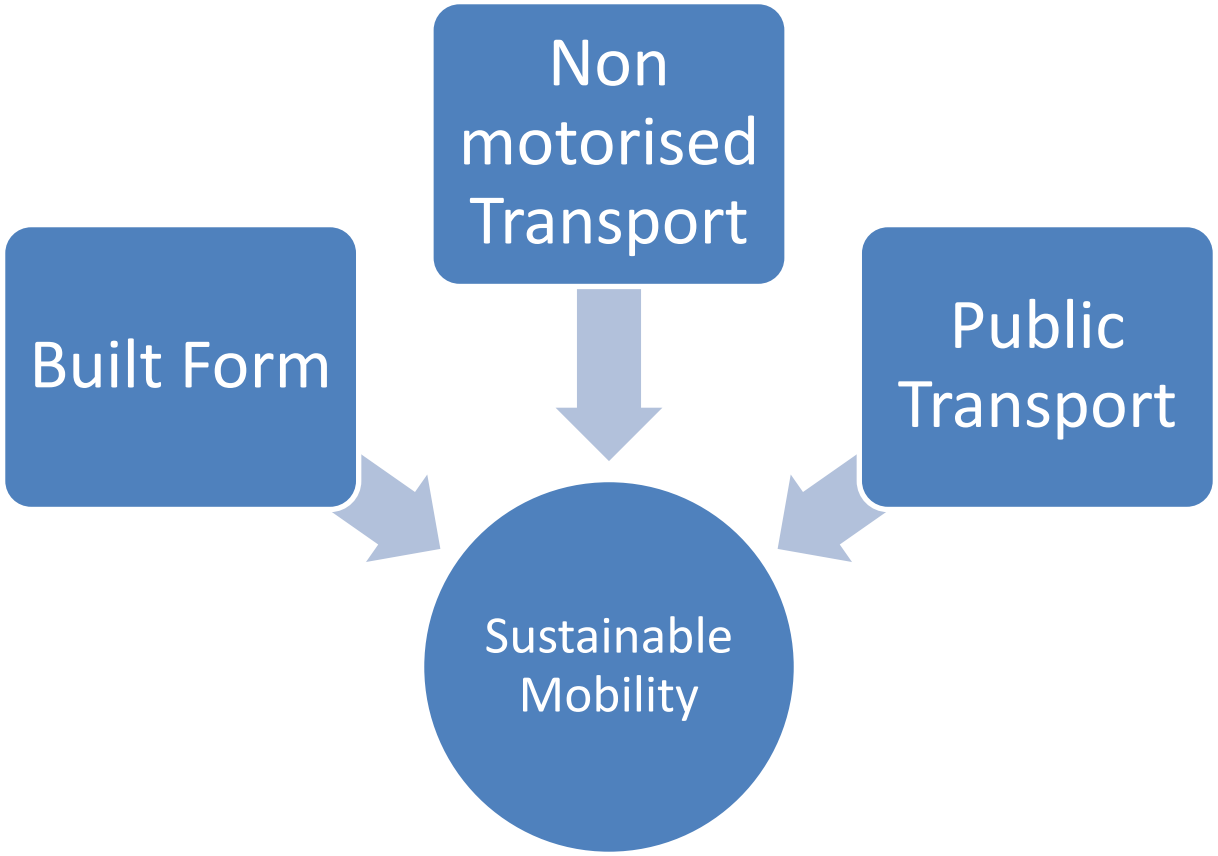
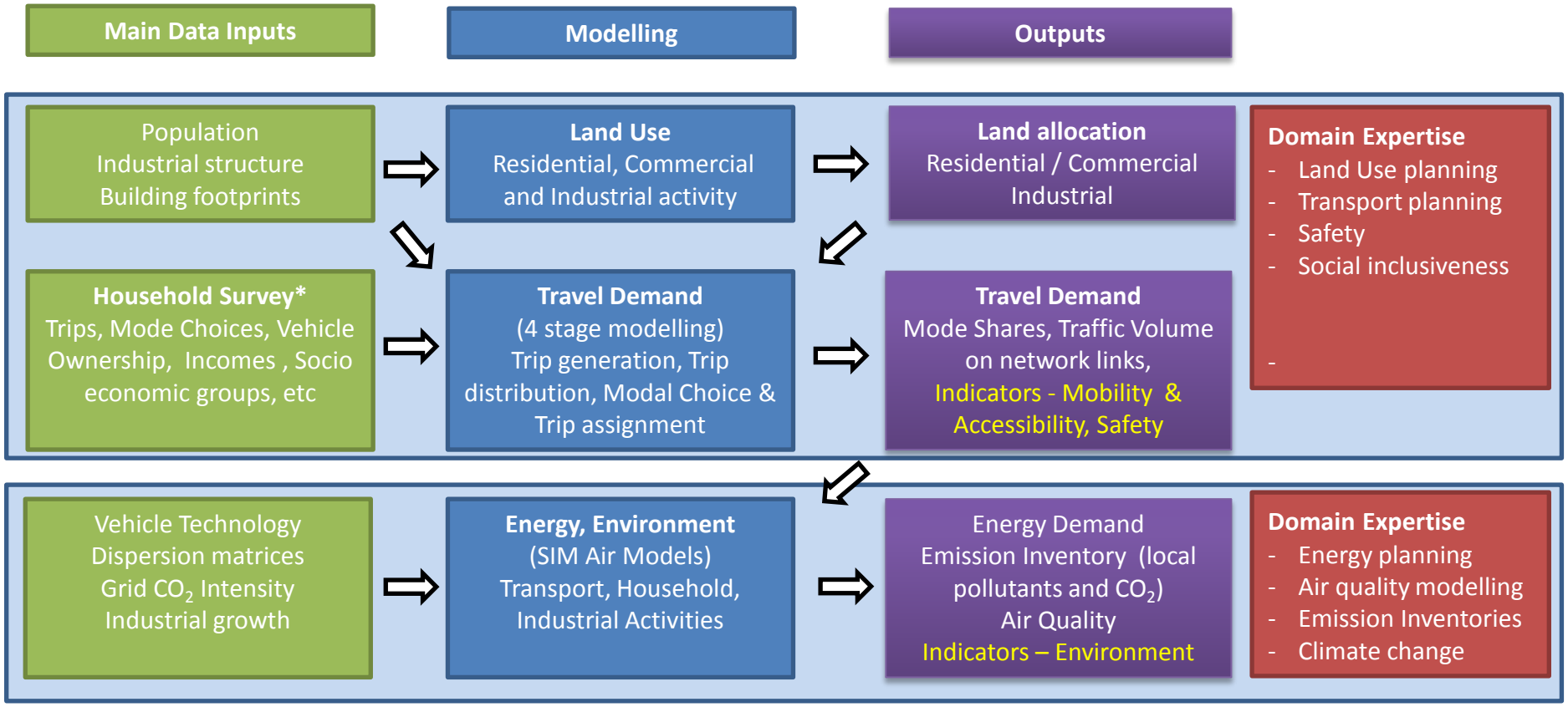
Strategies for sustainable mobility



Key Challenges for Mainstreaming

- Methodology
- Data
- Capacity
- Institutional

Modelling Framework for LCMP

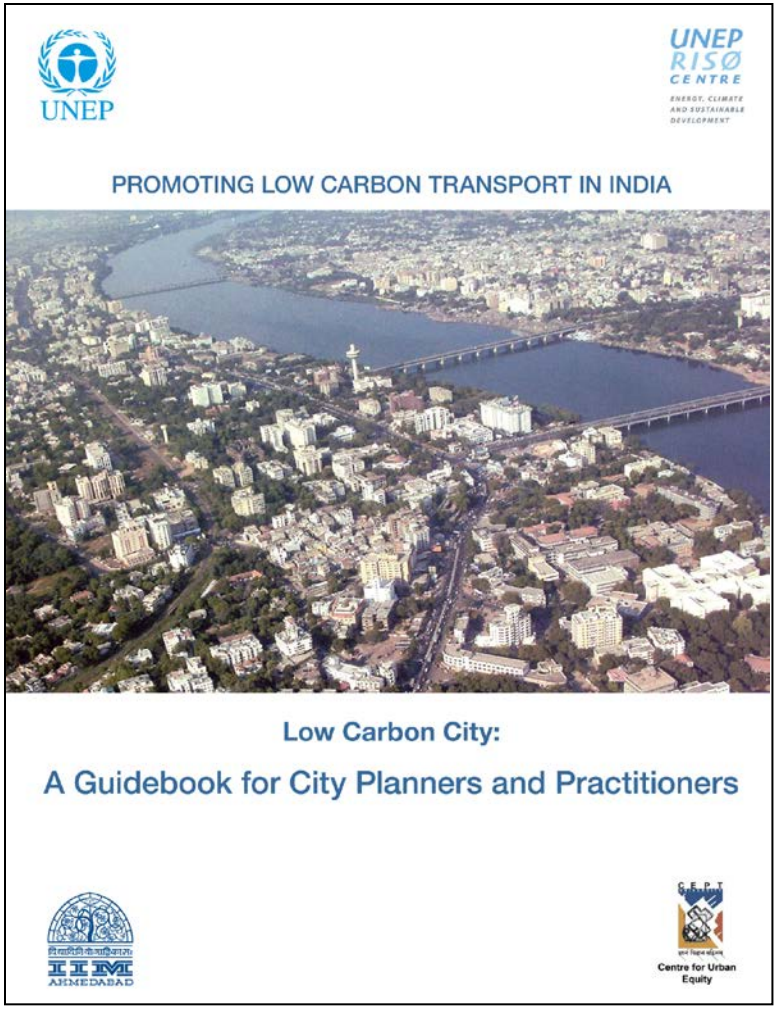


* Information of household surveys is collected using stratified sampling and all income groups , social groups, genders covered

⇨ Flow of information

Data

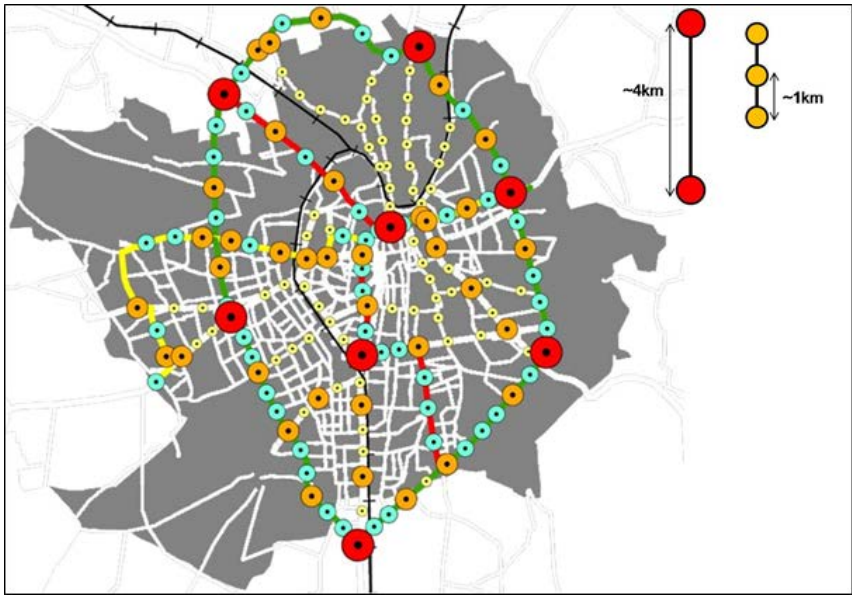
- City Level
  - Building, Safety, Vehicle Registrations, Income
- National
  - Fuel Mix, Electricity, Fuel Policies, Vehicle Standards
- Global
  - Technology, Climate Policy



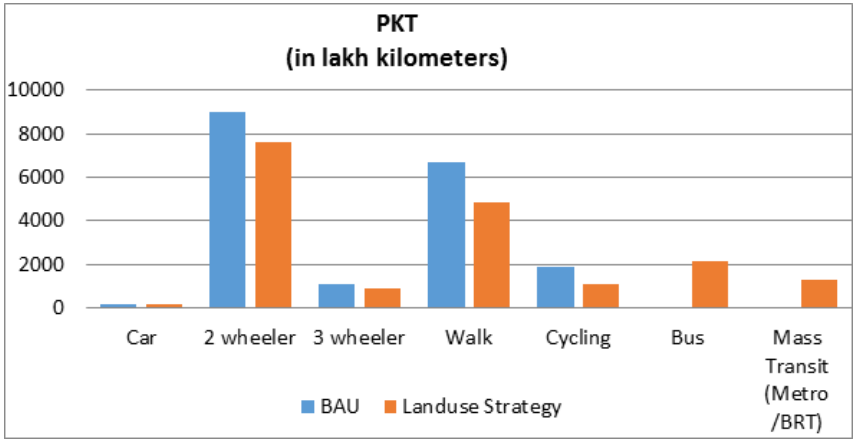
Download from:
http://www.unep.org/transport/lowcarbon/publications.asp

Land Use Scenario: Rajkot

Land Use Scenario



Travel Demand : 2030



Impacts: 2030

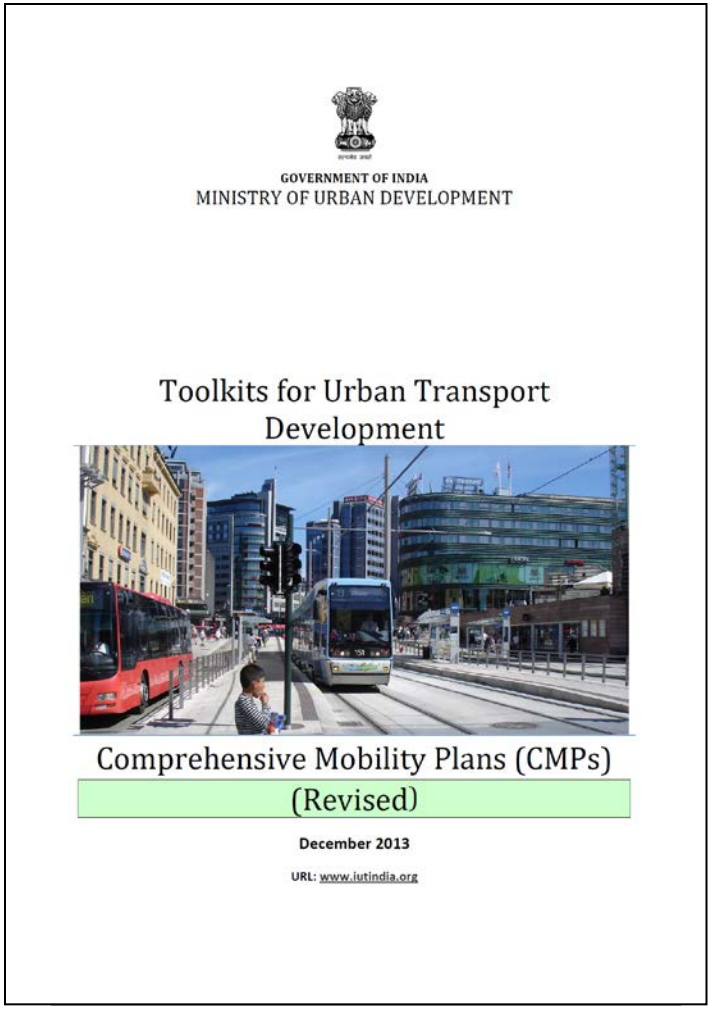
Indicators	BAU 2031	Land Use 2031
Accident rate (per million population)	217	190
PM 2.5 (thousand tonnes)	21535	13724
NO_X (thousand tonnes)	55696	35532

Cities

- Cities
  - Vishakapatnam
    - MoU with GVMC
    - Consultant : iTrans
  - Rajkot
    - MoU with RMC
    - Consultant : CEPT University
  - Udaipur
    - MoU with UIT
    - Consultants: Urban Mass Transit Company

CMP Toolkit (Revised)

- Links what India needs to do under its National Action Plan on Climate Change for urban transport and the Jawahar Lal Nehru Urban Renewal Mission
- Combines mobility and planning objectives with other goals such as improvements in equity, safety and environment
- Involved a multi disciplinary team of transport planning, urban planning, social inclusion, gender, safety and climate change experts
- Wide stakeholder consultations (Goa, Oct 2013, Delhi, Nov 2013 and Delhi, March 2014)
- **Impact : The toolkit is an official document to be used by cities in India**



Thank You for your attention.

For further details on project
http://www.unep.org/transport/lowcarbon/

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