

India's Energy Security and Climate Change related issues

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ROLE OF TRANSPORT SECTOR

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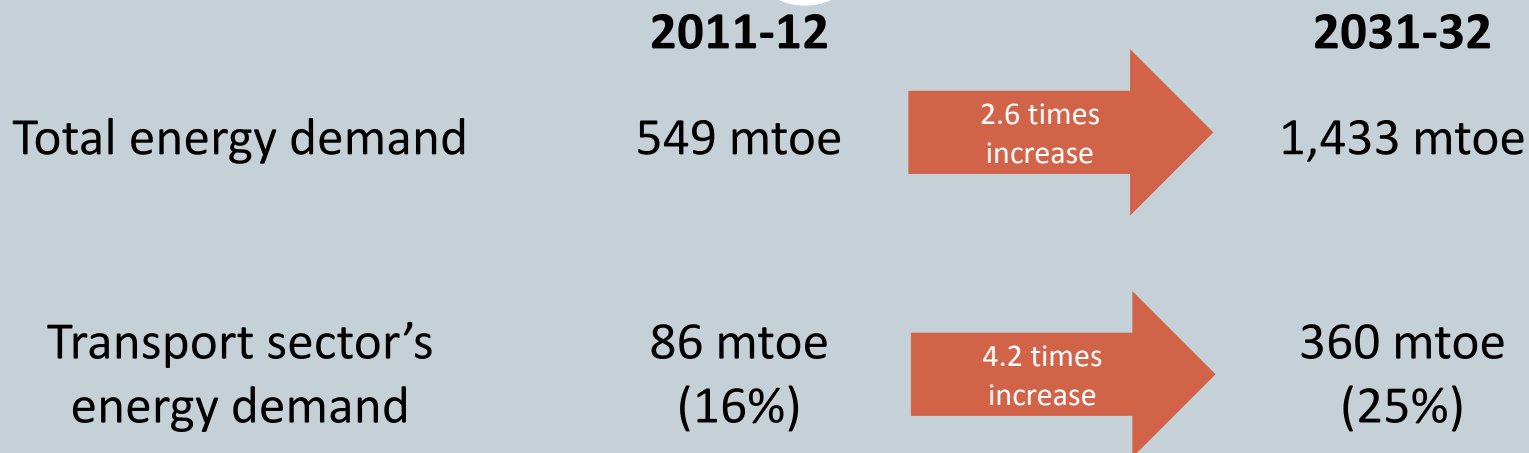
21 August, 2015

Transport and energy security

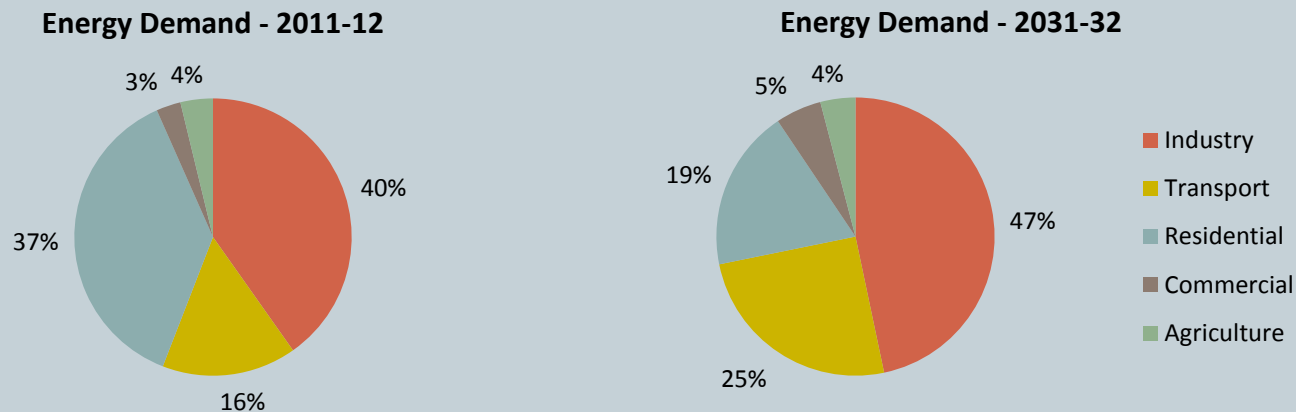
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Transport sector: share in total energy consumption

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Transport will be the second fastest growing sector in terms of energy use after commercial sector



Transport sector: heavy dependence on oil

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Transport sector's share in oil consumption

2011-12

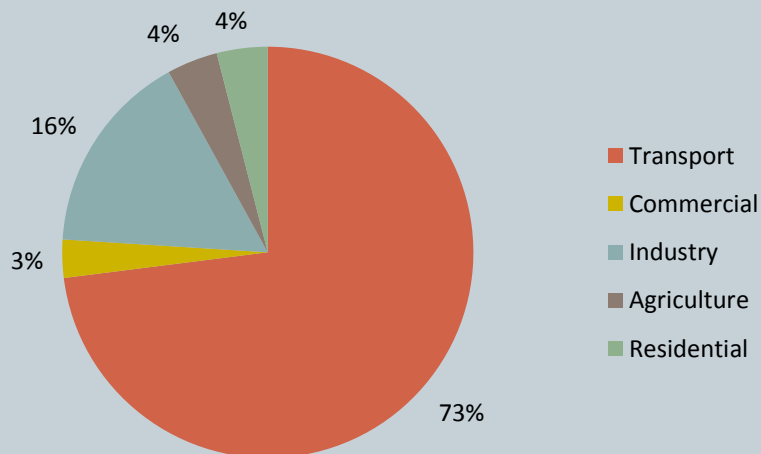
57%

2031-32

73%

Transport sector will have the maximum share in oil consumption in 2031-32

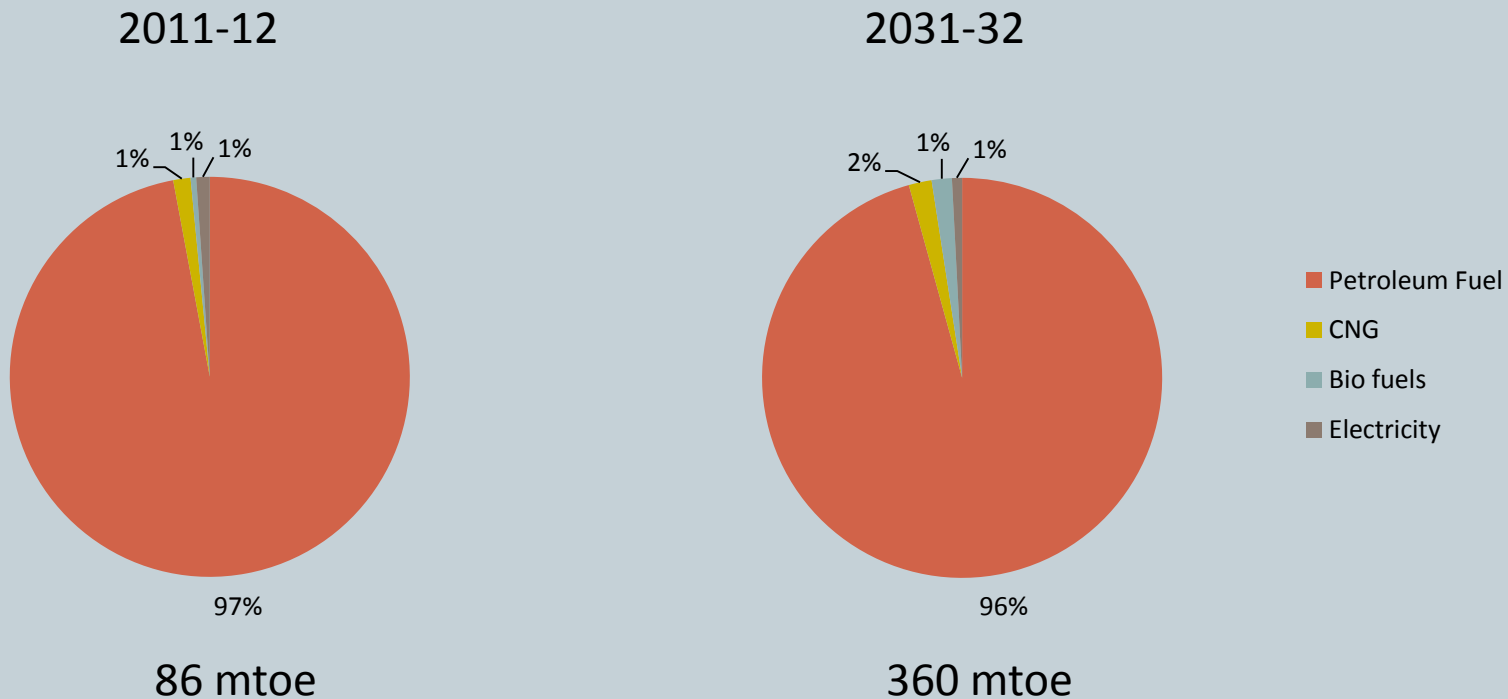
Sectoral share in oil consumption 2031-32



Fuel basket for transport not diversified

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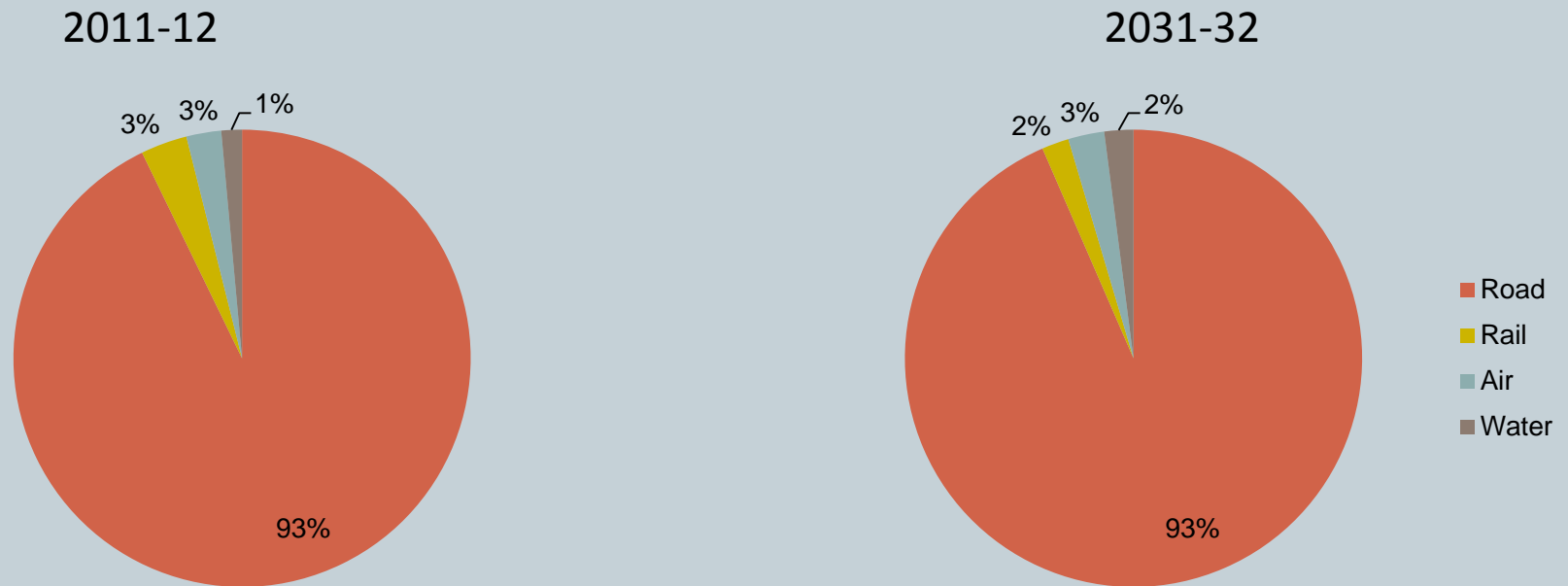
Very low penetration of alternative fuels like electricity and biofuels



Road transport sector: largest consumer of energy within transport

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Road transport consumes over 90% of the energy within transport sector



Why should this concern us? (1)

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Because,

- Oil import dependence will increase from current level of 76% (122 mtoe) in 2011-12 to 91% (479 mtoe) in 2031-32
- Oil import bill will rise from Rs. 5.6 trillion in 2011-12 to Rs. 32.5 trillion in 2031/32*

Issues related to geopolitical instability

*Costs as of 1999-2000 year constant prices

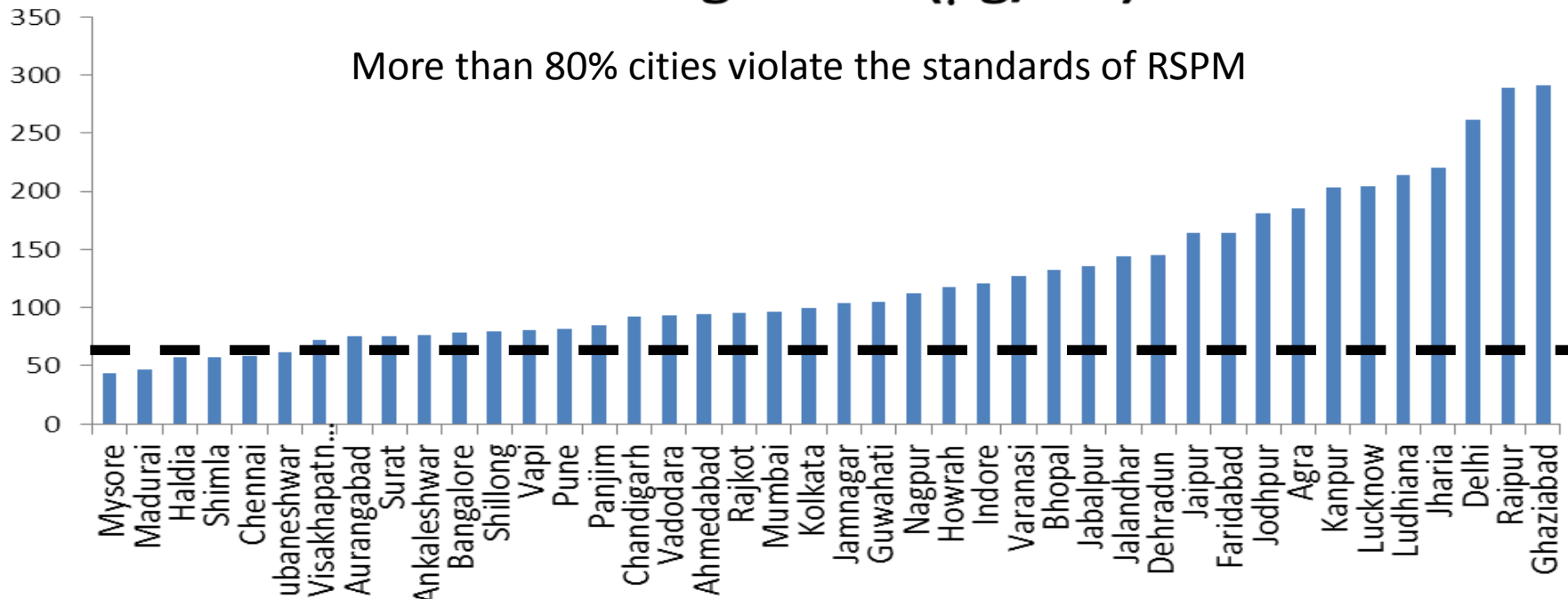
Why should this concern us? (2)

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- Transport sector will continue to be the second largest contributor to greenhouse gas emissions
- Impact of vehicular emissions on air quality will increase; most cities exceed the ambient air quality standards set by the Govt. of India

Annual avg. RSPM ($\mu\text{g}/\text{m}^3$)

More than 80% cities violate the standards of RSPM



Source: CPCB, NAMP data

Transport and climate change

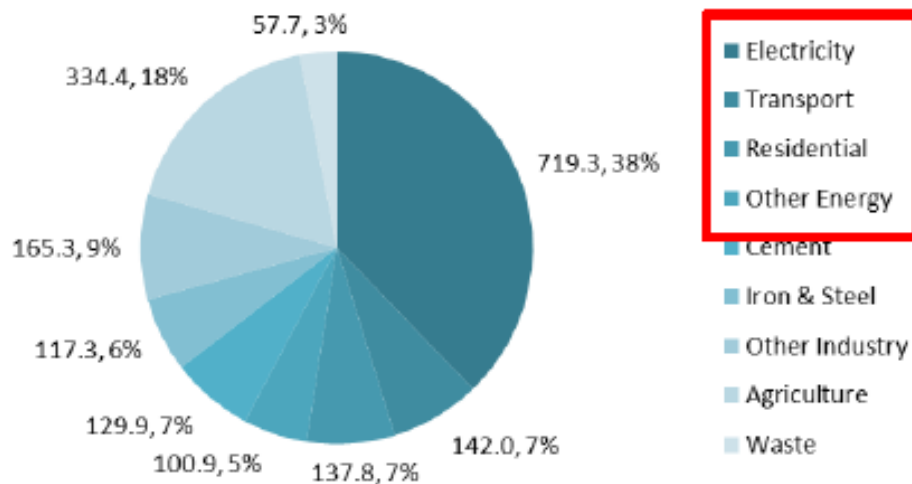
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What is the estimate of CO₂ emissions from transport sector?

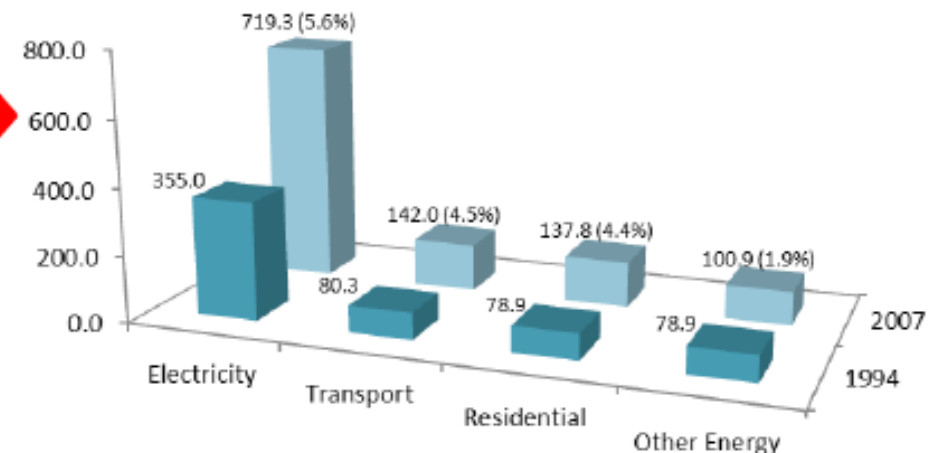
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- As per the second NATCOM of India, transport sector was contributing **7% in India's gross GHG emissions** in 2007 and was the **second largest contributor in energy related GHG emissions**

Gross CO₂ equivalent emissions (MT) in 2007



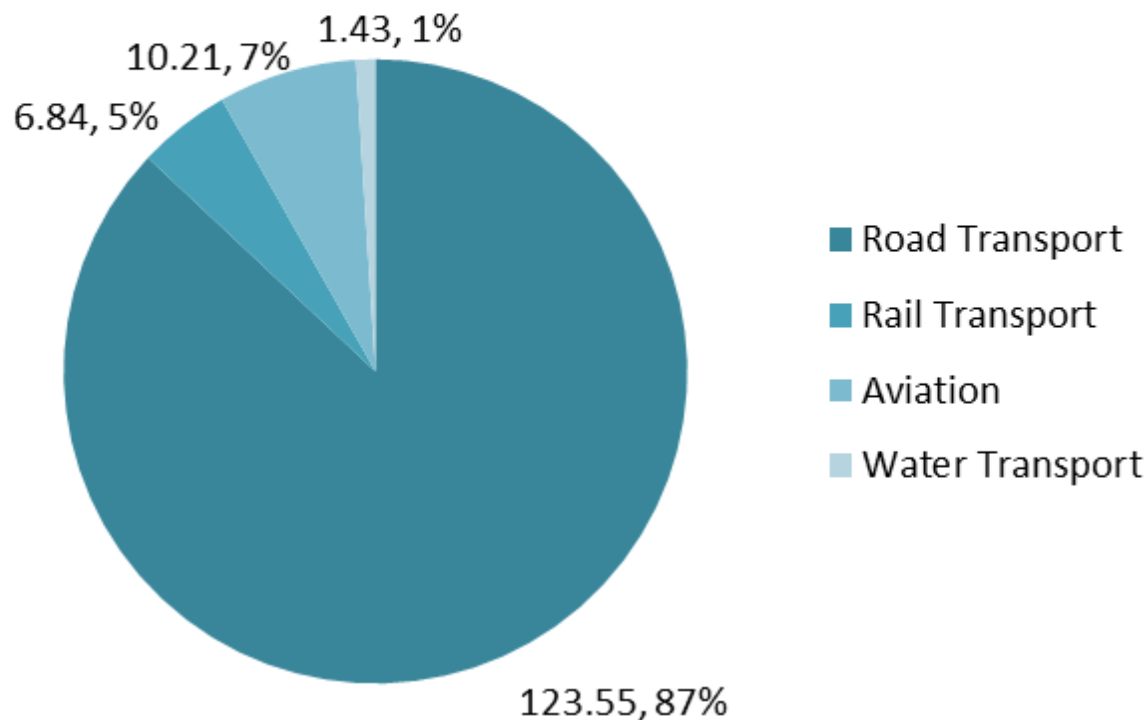
Energy related CO₂ equivalent emissions (MT) in 2007



Figures in () indicate CAGR between 1994 & 2007

142 MT CO₂ from transport – How is it distributed?

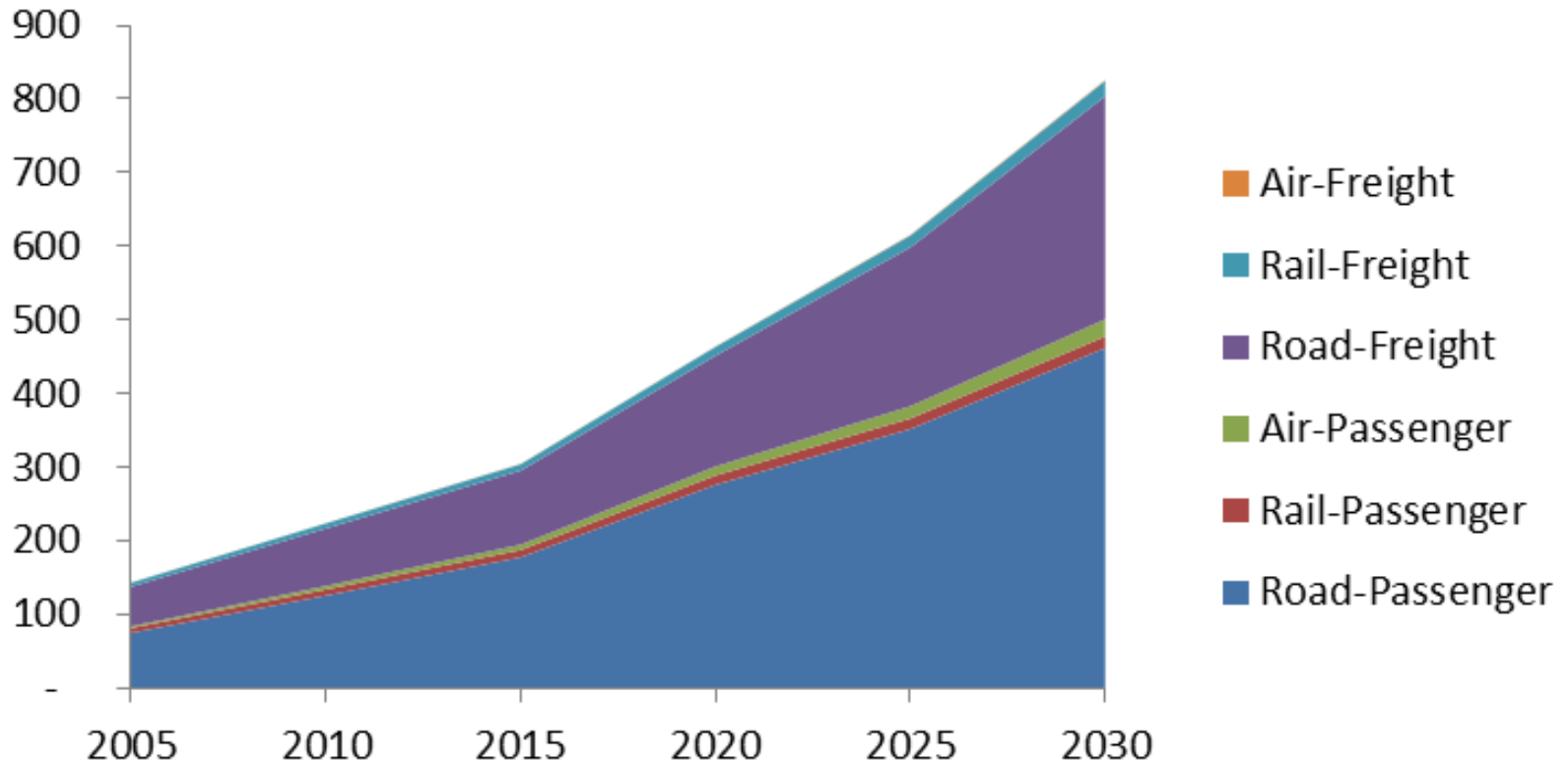
Distribution of CO₂ eq emissions (MT) within transport sector in 2007



How are the CO₂ emissions from transport expected to increase?

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Emissions from different transport modes
(million tCO₂)



Can we reduce transport sector's oil consumption and Co2 emissions?

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Need to move away from Business As Usual (BAU) to reduce transport sector's oil consumption and CO2 emissions

How to move away from BAU?

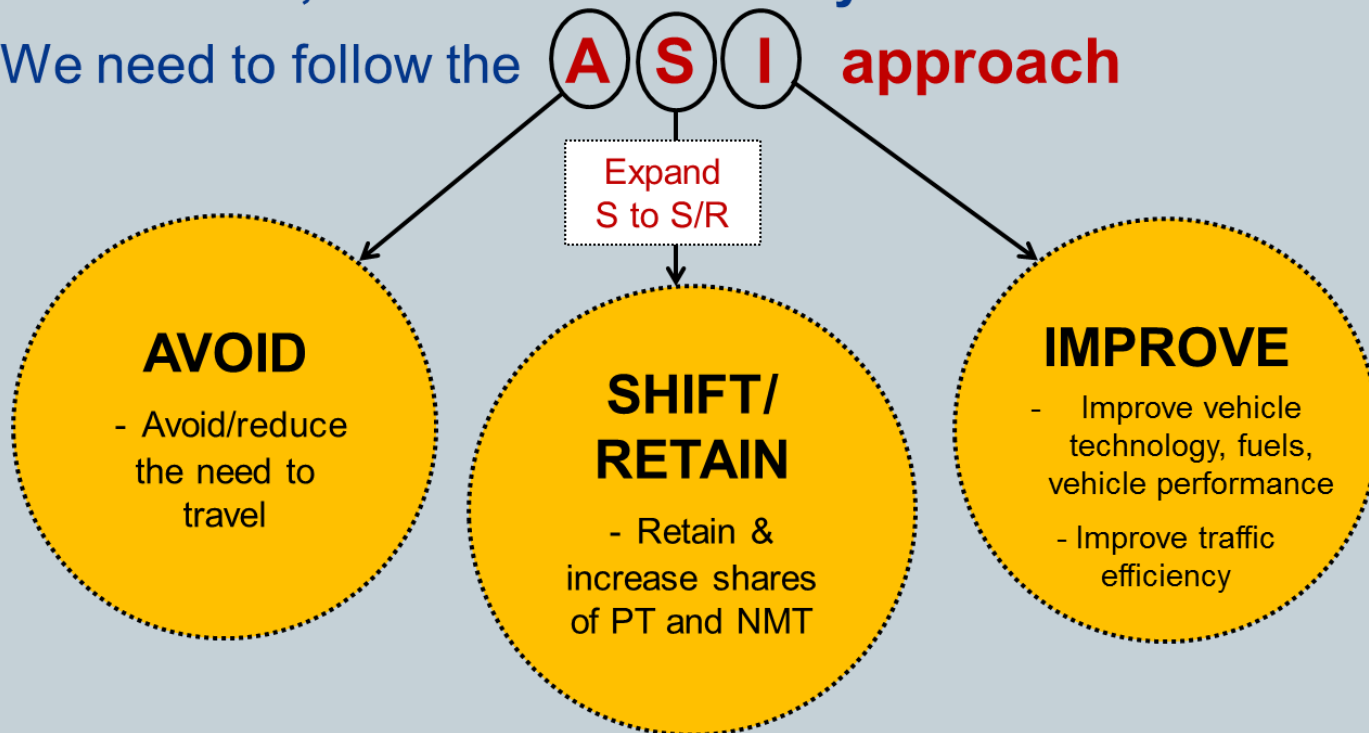
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- Improvements in road sector
 - Improve energy efficiency of road transport operations
 - ✦ Set fuel efficiency standards and streamline I&M regime
 - ✦ Modernize truck fleet and restructure trucking industry; ensure seamless movement on highways
 - ✦ Improve efficiency of SRTUs
 - Introduce alternate fuels – electricity and biofuels
 - Promote shift from private to mass/public transport modes
- Promote coastal shipping and IWT
- Promote initiatives to improve market share of railways
- Promote inter-modal shift from road to more energy efficient modes

How to move away from BAU?

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- Improvements in urban transport sector
 - Given the current trends, what are the solutions that are **sustainable, environment friendly and low carbon**
 - We need to follow the **A S I approach**



Thank you

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