Clean and Sustainable Mobility for All Conference

Centre for Science and Environment

New Delhi, September 28-29, 2011
MOBILITY CRISIS

Cities are losing battle of car-bulge: The rapid increase in vehicles is destroying all gains of air pollution and health
Explosive numbers

Vehicle registration in India: India’s urban population has grown 4.6 times, vehicle numbers have increased 158 times

It took 30 years to reach the first million mark for personal vehicles in 1971.

Another 20 years to add two more million

Then in 10 years (1981-91) increased by 14 million

Another 10 years (1991-2001) – jumped by 28 million

This decade just in four years (2001 to 2004) we have added 16 million

Source: Computed on the basis of MOSRTH motor vehicle registration data
Strength of our cities....

Urban Mobility

PT and NMV based, MTW majority personal vehicles

Modal share

60-30% carbon neutral trips
Increase in PT will increase carbon!

City population (million)

Source TRIPP, 2010
Slide has already begun ........
Public transport losing ground

Delhi

Kolkata

Modal share

Private vehicles + IPT
Public transport
Non Motorised Transport

Hyderabad

Source: Wilbur Smith 2008

Source: RITES 2009

Source: Anon 2008, transport demand forecast study: study and development of an integrated cum multi modal public transport network for NCT of Delhi, RITES, MVA Asia Ltd, TERI, September

Source: Wilbur Smith 2008
Can building more roads help? Delhi has failed to solve the problem of congestion by widening road network

...... We can never build enough roads

Source: On the basis of Economic Survey, Delhi Govt
The average journey speed in Delhi (16 km/hr), Mumbai (16 km/hr) and Kolkata (18 km/hr): Abysmally poor compared to smaller cities.

Source: Anon 2008, Study on traffic and transportation policies and Strategies in Urban Areas in India, MOUD, p63
Even with fewer vehicles congestion is very high. Our cities are meant to be walkable...not motorable...

Source: Compiled from SIM AIR, and MOUD report
Half of the cities are critically polluted due to high PM10, even NO2 is rising in many of them – a twin trouble.

Source: Estimated based on CPCB data, comparison with residential area standard.
Our cities in the pincer grip of high pollution, energy guzzling and green house gases…

- Indian cities show strong correlation between emissions of air pollutants and GHGs
- As cities grow in size, transport emissions increase
- Importance of catching cities early before they start to grow.

Source: Analysis of MOUD- Study on Traffic and Transportation Policies and Strategies in Urban Area By CAI-Asia

Source: CAI ASIA 2008
More car centric growth - more guzzling

Highest fuel consumption in the transport sector of large cities

In all size class of cities personal vehicles – cars and two-wheelers -- guzzle the maximum

Personal vehicles account for about 65 – 90% of the total carbon-dioxide emissions – linked directly with the amount of energy burnt by all vehicles in cities

Cities big in scale and density make pollution control and public transport more efficient.....But efficiency gains can be limited in Indian cities due to poor urban governance.....

Smaller cities need preventive strategies

Source Based on Wilbur Smith 2008
Vehicles of the rich and the heat trap

Number of motorised vehicles co-relate strongly with CO2 emissions. Cities with less vehicles have less CO2 emissions.

Source: CSE (Data from SIM Air and Wilbur Smith)
Cities will continue to grow ..... Make enormous demand on infrastructure....
The scale of problem

• About 30 percent of India’s billion population in cities…. which is more than the population. Urban population will be close to 600 million by 2031

• Metro cities with population of 1 million and above has increased from 35 in 2001 to 50 in 2011 and is expected to increase to 87 by 2031

• Increased investment in urban infrastructure will demand sizeable part of GDP.

• This investment will define the liveability of cities…. 

MOUD’s High powered committee

Investment requirements estimated for eight major sectors of urban infrastructure at $0.9 trillion over 2012-2030. Of this 44% is accounted for urban roads and 11% for urban transport.

Mckinsey Global Institute

India needs to invest $1.2 trillion just in capital expenditure over the next 20 years. Transportation and affordable housing stand out as two most capital intensive sectors.


Source: India’s urban awakening: Building inclusive cities, sustaining economic growth, McKinsey Global Institute
But reforms have taken roots.............driven by national and state level policies

...... but are we on track?
Transportation account for a quarter of total allocated funds

Source: CSE Based on data provided in http://jnnurm.nic.in/
Spending signals the priorities.............
Spending on roads overwhelms

70% of the projects are roads-and flyovers

Source: CSE Based on data provided in JNNURM website, available in http://jnnurm.nic.in/nurmudweb/Project/sector.pdf
Annual trends reflect changing priorities

Initially only roads.....other projects followed.....

Source: CSE Project analysis based on data provided in http://jnnurm.nic.in/
Big cities in the grip of roads-flyover syndrome

Cities with 4 million + population have the highest number of projects. Majority are roads and flyover

Source: CSE: Project analysis based on data provided in [http://jnnurnm.nic.in/](http://jnnurnm.nic.in/)

<table>
<thead>
<tr>
<th>Category</th>
<th>07 cities</th>
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<th>28 selected cities/UAs</th>
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<td>B: Cities/UAs with 1 million plus but less than 4 million population</td>
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Only some states have cornered them all...

-- Delhi, Maharashtra, Gujarat and West Bengal have taken 75% of the total funds
-- 100% funding only for roads and flyovers in Punjab, Kerala, Arunachal Pradesh, Tamil Nadu, Nagaland, Uttarakhand and Himachal Pradesh
-- Mass rapid transit projects in Rajasthan (100%), Madhya Pradesh (76%), Andhra Pradesh (64%), Gujarat (76%) and Maharashtra (64%)

**State-wise approved cost (Rs crore) and with projects**

Source: CSE: Project analysis based on data provided in [http://jnnurms.nic.in/](http://jnnurms.nic.in/)
Delhi, Pune, Kolkata, Ahmedabad – the biggest beneficiary

A. Share of total approved cost Rs 14992 crore

<table>
<thead>
<tr>
<th>City</th>
<th>Share of total approved cost in %</th>
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<tbody>
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<td>Pune</td>
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<td>Share of total approved cost in %</td>
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Number of approved projects city-wise

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Source: CSE: based on data provided in http://jnnurm.nic.in/
Completed projects: Poor track record

Number of transport projects sanctioned and completed:
About 35% of total sanctioned transport projects complete
Bangalore and Ahmedabad: Good track record….

Source: CSE: based on data provided in http://jnnurm.nic.in/
Status of JNNURM transport project in Delhi
Have not missed much....

Flyovers on hold. Good.
These should be replaced with public transport and NMT projects

Source: CSE: based on data provided in http://jnnurm.nic.in/

--- Flyover at Africa Avenue and Arun Asaf Ali Road.
--- Flyover at Vivekanand Marg, Nelson Mandela Marg, Poorvi, Marg
--- Grade Separator at Raja Ram Kohli Marg Intersection on Marginal Bund Road Geeta Colony Delhi
--- Grade Separator for free flow Traffic at T-Junction of Marginal Bund Road and Master Plan Road over Disused Canal near Shastri Nagar in East Delhi.
What guided the investments?

............... City development plan.....
CDP was not compliant with National Urban Transport Policy… In fact preceded NUTP

Heavily biased towards roads and flyover projects…. The projects already in the pipeline were included….Project mode without a composite framework…. 

No public consultation…Consultant led…

Lack of ownership by the local government…..

Public transport and non-motorised transport listed in some CDP…. But no takers… Eg. Pune and Bhopal included 12 to 18 road development projects and only 1-2 public transport projects…..
The specific mandate for transport reforms came much later .......... in 2009
For the first time reform agenda with binding commitments:

-- Prepare city mobility plan for comprehensive planning
-- Form UMTA for integrated planning implementation
-- Form Urban Transport Fund (UTF)
-- Parking policy
-- Advertisement policy
-- Special purpose vehicles
-- Traffic management information centre
-- Bus priority lanes, revise bus fares
-- Waive off or reimburse state and local taxes

Economic downturn and bus stimulus package set the terms of reforms in the transport sector
Has this made a difference?

…. Too short a time to complete the reform process…..But the direction of change raises a lot of questions…. 
Who are the biggest beneficiaries?
Delhi tops the list

Bus Fleet Allocation for Mission Cities

Source: CSE: based on data provided in [http://jnnurm.nic.in/](http://jnnurm.nic.in/)
Largest recipients of low floor buses……

Top Ten Cities that have maximum number of low floor buses

Source: CSE: based on data provided in http://jnnurm.nic.in/
Status of reforms: A check list of action

• **UMTA in 10 cities**: Hyderabad, Vijaywada, Vishakhapatnam, Bangalore, Mumbai, Thane, Pune, Ajmer and Jaipur. Proposed in 32 cities

• **Parking Policy in 4 cities**: Mumbai, Nagpur, Pune and Kolkata. Proposed in 41 cities

• **Transport fund in 5 cities**: Ahmedabad, Surat, Jaipur, Asansol and Kolkata. Proposed in 33 cities.

• **SPV in 25 cities**: Hyderabad, Vijaywada, Vishakhapatnam, Raipur, Delhi, Ahmedabad, Surat, Jammu, Srinagar, Bangalore, Mysore, Bhopal, Indore, Jabalpur, Ujjain, Mumbai, Thane, Nagpur, Nanded, Pune, Bhubaneshwar, Puri, Jaipur and Chandigarh. Proposed in 11 cities.

• **Advertisement Policy in 8 cities**: Delhi, Panaji, Mumbai, Nagpur, Pune, Asansol and Kolkata. Proposed in 36 cities

• **No information on Delhi**

**Source**: CSE, based on data provided by MOUD 2011
Has this been a game changer?
Let us look at the buses.....

61 Mission cities got 15260 buses

Basis of allocation:
-- 4 million population cities need 50 buses per lakh of population
-- Cities with 0.5 – 4 million need 40 buses per lakh of population
-- 20% of buses to be low floor buses

Many lessons from this experience......
Rolling stock arrived without deployment strategy
   Cities without route planning, bus fare policy, or efficient management model. No plans for traffic priority to the buses; poor level of service.

MOUD review reveals lack of preparedness

Snapshots:

**Nagpur**: Buses dumped in open ground for a long time; caused damage; ITS not supplied in small and medium buses

**Bihar cities**: Buses sanctioned but not procured

**Jharkhand**: Buses sanctioned; but issues with selection of operators

**West Bengal cities**: City specific SPV not set up; buses not maintained; conditions violated

In many cities reforms pending………..
Market not prepared....

Constraints of supply....Huge captive market but manufacturers not prepared

• -- Tata and Ashok Leyland produce nearly 90% of the buses. But serious delays in delivery.
• -- As per contractual agreement between Tata and DTC there is delay penalty of 10 per cent per month. Tata has been fined for Rs 2 crore for this delay.

Diverse bus specifications fragmented markets, increasing costs

• -- Case of bus procurement in Delhi and Ahmedabad -- Wide variation in design specs from operators, and near monopoly pushing up prices – Height of bus floor, manual or automatic transmission, type of suspension, standard vs monochocque body, CNG vs diesel..... High costs

• Cities asked --- should we go for cheaper standard buses to reduce capital costs? Get more buses to achieve high frequency?
Mandate for improved buses

• Follow standardised specs ……..
  – Bus code of the Union Ministry of Shipping, Road Transport and Highways
  – Guidelines on bus specs of the Union Ministry of Urban Development
  – With standardisation cities can even do collective bargaining with bus industry to procure buses at reasonable standardised rates
  – Sale volumes should allow economy of scale and reduce prices further
  – Even the tendering process can be simplified
Buses arrived … but no users

- **Kanpur**: Around 300 buses inducted. Buses cater to 9% of the travel demand. Very few users

- **In smaller cities**: Congested cities with narrow streets – very small turning radius…..

- **Some mini/midi buses were allowed** in smaller cities (12% of all buses) – Kanpur and other cities of UP, Nanded, Pune etc

Source: CSE
Bus, autos, tempos—a unique combination of formal and informal systems .... .... But cities not prepared to integrate

High occupancy but low frequency buses competing with low occupancy high frequency autos in Kanpur and other cities.....

....In Kanpur high percentage of work trips in Kanpur are accessible within 15 minutes. Most trips fall in 0 to 2 km range. This makes autos affordable and convenient

But no plans of integration. Even plans to remove autos.

Need proper route planning, fare structure, and well integrated with autos and tempos as a feeder
Unique implementation challenges in cities

City expands bus fleet
1200 buses sanctioned for Kolkata under JNNURM stimulus package. Many are on the road.

Kolkata JNNURM franchisee issues
Franchisee of JNNURM buses to private operators after Calcutta High Court banned pre-1993 vehicles.

Transport department entered into a PPP with private operators for 630 JNNURM buses.

Under the incentive scheme the bus owners who replaced their vehicles with JNNURM buses got Rs 50,000.
Reduced monthly payment from Rs 26,000 to Rs 22,000.

Franchise operators were required to pay Rs 2 lakh as one-time security deposit and service tax as well as other taxes every month for eight years.

The state government is the guarantor of the loans secured by the franchisees. Nearly all of the 600 franchisees have stopped paying the monthly installments resulting in outstanding liabilities touched Rs 110 crore.
• Bangalore Metropolitan Transport Corporation is modernising bus deployment and operations
• Delhi transport department is restructuring bus sector –
  – All city bus routes have been bunched into 17 clusters. Private bus agencies will bid and operate these clusters within defined performance parameters.
• Indore bus service reforms etc
Reorganised road space to give more dedicated space to other road users.....

Bus Rapid Transport in Delhi:
Right of the way segregated according to users --- bus users, walkers, cyclists and motorised vehicles. Benefits nearly 60% of road users. Delhi working on the next phase of the network.

The Centre has approved the Bus Rapid Transport System in other cities as well.
Cities reporting improvement in bus ridership...Have arrested the slide....

**DELHI: Earning of DTC Buses**

**DELHI: DTC total passengers carried in different years**

Source: CSE based on DTC Operational Statistics April 2011 pg 6

**Ahmedabad**: Adding 900 new buses. 9 lakh passengers a day in contrast to only 2.5 lakh passengers in 2004.

**Surat**: Around 116 buses on 41 routes; an average of 50,000 passengers daily. Revenue to the Urban Local Body Rs 18,000 per bus per year as premium from operators. Additional revenue of Rs 32,000 per bus stand per year.

**Mumbai**: Ridership has increased by about 4% since 2010.
Bus stimulus is only a beginning. The MOUD high powered committee has estimated that in next 20 years 1.5 lakh buses costing Rs 60,000 crore will be needed for public transport in all cities and towns in India.....

Only rolling stock will not help. This demands urgent and guided reforms in cities....... 

-- Technical planning for route reorganisation 
-- Performance monitoring system 
-- Innovative contracting and tendering 
-- Application of technology for fleet management – GPS, central monitoring, electronic and integrated ticketing, etc 
-- Policy for targeted subsidy 
-- Ability of the bus industry to deliver clean and efficient buses............

......nurture this trend 
Build capacity for bus transport reforms
Funding of public transport
Delhi restructuring bus system…

- **Initial stage** -- The bid for the first bus route cluster -- cost at Rs 47/km with low floor buses. This can amount to Rs 85 crore per annum per cluster. Even higher for other clusters – Rs 50-60/km while the operating revenue will be half of this.

- The financial gap is estimated to be Rs 600 - Rs 1000 crore annually….. Government’s contribution to be enormous….

**How do we reduce the costs of capital and operations?**

- Negotiate bids to reduce both capital and operational costs……

- Should we move from low floor buses to semi low floor buses to reduce capital costs …? Renegotiate operational costs and make operators fully responsible for meeting that cost.

- Government is already paying hugely for the inefficiency of the state owned agency – Rs 66/km
Funding solutions

Fare box collection can never be enough.....

- Fare box revenues is determined by fare level, fare structure and the extent of cross subsidy. But fare box revenue cannot meet the full cost of bus operations. This will make bus unaffordable.

Huge demand for funding is pushing cities towards more reforms and innovative financing mechanism.....

The first steps.....

- **Advertising revenue**: Delhi, Bangalore, etc have come up with advertisement policy.
- **Rolling stock of buses, corridors, stations, are targeted for advertising. These rights may be sold based on a fixed fee or even revenue sharing basis. The rights can be renewed from time to time to get the best option and augment revenue.**

But even this is not enough............
Rationalise budgetary allocation

Percentage share of public transport in total transport allocation

Percentage allocation to Transport

Percentage share of allocation to transport

Source: CSE: based on data from transport department
Indian cities tax public transport buses more than cars…

Correct this distortions…
Buses are penalised for carrying more passengers

Kanpur and other UP cities have taken the lead to rationalise the taxes:

City buses are now exempt from the additional taxes that were 70% of total state taxes. New city buses pay lesser tax compared to older buses. Heavier and bigger cars pay higher taxes.
JNNURM mandates dedicated urban transport fund

Identifies the following as the possible sources of funds that can act as a fiscal brake on car centric growth……

- Waive off/reimburse all its taxes on urban buses and city bus service
- Need advertisement policy to tap newer source of revenues
- Need parking policy as a car restraint measure
- Additional cess on automotive fuels
- Additional registration fees on cars especially diesel cars and two-wheelers
- Annual renewal fee on driving license, vehicle registration
- Congestion tax
The beginning: Urban transport fund in Ahmedabad, Surat, Pune-Chinchwad, Jaipur, Asansol and Kolkata. Proposed in 33 more cities...........

- **Surat takes the lead:** Operational since 2011-12. Created through budgetary allocation. Its revenue components to include -- vehicle tax amounting to Rs 8 crore, pay and park charges of Rs. 2 crore and license fee for advertisement rights of all kinds amounting to Rs. 5 crore. There are plans to collect revenue from floating F.S.I. along the BRTS corridor.

- **Kolkata:** Kolkata has Transport Infrastructure Development Fund created in the state by statute for funding various Kolkata city related transport infrastructure projects. Say no urban transport fund in required.

- **Delhi:** Air Ambience Fund from environment cess on diesel fuel: a fee of 25 paise per litre on sale of diesel fuel has been implemented. Revenue from this cess is used to create Air Ambience fund to meet the cost of Delhi's clean air action plan.
Land Value Capture to fund public transport through the UTF mechanism:

• Generate revenue from land-use densification, through enhanced property taxes, betterment levies or purchase of land development rights etc along MRTs corridors.

Need policy advisory on risks and regulatory safeguards.

Make density the focus. Higher floor Space index should not be indiscriminately used for revenue collection.

• Ensure TOD principles are adopted for densification.
• Enforce travel demand management principles including parking caps etc to ensure that people in the TOD zone is transit oriented.
• High density offers the opportunity for average trip lengths to be short and increase public transport, walking and cycling.
• Need inclusionary zoning regulations that will require that all new housing developments include a portion of units as affordable housing.
• Zonal regulations and its stringent implementation should be made contingent to land based financing.
• Densification through redevelopment/ infill of existing urban areas to be prioritized.
Annual registration or road fees on personal vehicles.

**US** – Cars pay more taxes and also differentiates the tax according to engine size – fuel inefficient bigger cars pay more.

**Singapore** – Road tax differentiated by engine size, fuel type

**Germany** – Cars complying with older emissions standards pay more than the current standards.

**China** has a range of taxes on vehicles –

- **On purchase**- Excise, VAT, Tariff, Vehicle acquisition tax
- **On ownership** – New car check out fee, License plate fee, Vehicle usage fee,
- **Vehicle use** – Insurance fee, Road maintenance fee, Consumption tax


There is no one silver bullet. Need a package of fiscal strategy to make the difference
Urban transport very weak on travel demand management ....

.........Evidence parking policy
Principles of reduced travel and car restraints yet to take roots

MOUD reporting on reforms does not capture travel demand management principles ---

Eg. Parking policy
Cities are reported to have framed parking policy. But no judgment on the strength of TDM measure…..

Contradiction in national policy
National Urban Transport Policy (NUTP) has recognized land is valuable in urban areas. Parking fee must represent value of land to make public transport more attractive.

But:..... NUTP allows relaxation of FAR in million plus cities to accommodate more parking in building bylaws. Liberalized FAR norms. States multi level parking should be made mandatory in cities.

JNNURM funding is tied to building parking infrastructure. It treats parking as an essential infrastructure that must service all buildings and ties public infrastructure funding with it.

Cities creating enormous built up areas for parking -----

Hyderabad has set aside upto 60% of the built up area for parking……

• Pune: Parking area in all major residential areas have shot up by at least 15 to 20% following a new parking policy cleared by the Pune Municipal Corporation (PMC) on March 2011.
Reforms must get the principles right……

Flexible parking standards and parking limit to restrain parking supply

- Integrate parking design with multi-modal integration
- More stringent controls and enforcement in areas well served by public transport
- Parking pricing -- Minimise free parking, restrict on-street parking, use variable parking rates, avoid fixed annual payment, price parity between surface and multi-level parking etc.
- No parking on green spaces, pavement, NMT lanes, and service lanes. Non-negotiable.
- Need parking strategy for residential areas and mixed land use areas.
- Use parking revenue for other congestion reduction strategies and local amenities
- Stringent penalty on parking violations.
- Develop parking strategy for special localities like hospitals, railway station, cinemas, shopping malls, schools, high impact events etc
- Design parking strategy for buses, IPT, freight
Deepen public awareness about the benefits of parking management and restraint

The disconnect……..

Public support can be stronger if people understand the benefits of restraint measure

Car user will benefit: More reliable and predictable advance information about parking
Reduce cruising time and fuel cost. Efficient billing makes payment more transparent and accurate.
   Chances of finding a space improves; reduces waiting time. This decreases traffic chaos due
to indiscriminate on-street parking.

Non-car user will benefit: Protect footpaths and allow barrier free walking;
frees up public spaces for cycle tracks, rickshaw parking, autoriskshaw-parking, play grounds;
Improves access to bus-stops. Improve safety of children, women and elderly people.
Improves visibility of shops, shopping experience and throughput of customers. Improve overall
   environment, green areas and public recreational spaces. Make it easier for emergency
   vehicles like ambulances, fire trucks, police, etc. to reach all homes/ offices/ buildings.

Public health will benefit: Reduce car use/ dependency which can reduce air pollution and
congestion in the city. Noise level can also be controlled. Global experience shows that when
parking policy is designed as a travel demand management it reduces car usage and
therefore congestion, air emissions as well as fuel use. Boston, New York etc

Build public support for parking tool that restrains car usage
Cities making changes

Mizoram Regulation and Control of Vehicles Parking

• Purchaser/owner of a car, before purchasing any type of motor vehicle including two wheelers or the person intending to purchase any such motor vehicle shall obtain a certificate from the ….transport department…that he has a garage, within his own residential or business compound or in some other place, or a garage to hire from other person, for parking the vehicle he intends to purchase (*The Mizoram Gazette, Vol XXXIX, Issue No. 295, August 2010*)

**Bangalore**: proposed parking policy has included many travel demand management principles

**Kolkata**: Significant reforms in parking pricing… nearly highest in the country

**Delhi**: developing the policy… is stated to have incorporated demand management principle …. etc
Action on non-motorised transport
..........the weakest link in reforms
Gross neglect......

Poor policy understanding of the importance of walking in modal integration; compact city planning; enhancement of public transport ridership......
Road building can be done with a difference..
To reclaim spaces.....

- Delhi leveraged street design guidelines for a make over.....
- Road building can also be an opportunity
- Shift focus to walkable roads
Opportunity in Delhi to influence road building
Some good examples
Redesigned streets in a small town of Nanded in Maharashtra

Source: Pradeep Sachdeva
Walking needs policy strategy

Enforce mandatory pedestrian guidelines for new roads as well as rebuild, beautification of existing roads – transform the entire city network.

Delhi has adopted street design guidelines for approving road projects.

Public transport plan needs linkage with pedestrian plan.

Urban local bodies must conduct periodic walkability and safety audits.

Legislate right to walk: Should we have comprehensive road users act?

Need zero tolerance policy for accidents.

Involve communities on decisions on use of road space.

Need pedestrian network plan.

Adopt traffic volume reduction plan.
Bicycles are personal feeders to public transport, cycle rickshaws are zero emissions intermediate transport. Momentous court order in Delhi recently to protect these vehicles…..

Enormous captive ridership of bicycles but declining in all cities: 1980 - 2000: -- Bicycle ridership declined from 20% to 5% in Delhi; 45% to 35% in Nagpur; 33% to 18% in Indore; 3% to 16% in Ahmedabad.

Need well designed and safe NMT infrastructure under urban renewal missions programmes to induce NMT traffic

Bus-bike integration: Delhi experiment with BRT-rented bicycles as optional feeders

Need priority access to NMT. Eg. Delhi to implement bicycle master plan

Cities restricting cycles and cycle rickshaws

Kolkata: “…. with a view to providing for safe, and uninterrupted movement of vehicular traffic, ….no bicycle shall ply or remain standing between 09.00 hrs and 19.00 hrs on all days on the following roads”

Source: Kolkata traffic police, August 2008, Notification
Need compact cities……

….. But such indicators are not considered for assessment…
Our cities are built differently
High density, mixed land use, and narrow streets -- an opportunity to plan mobility differently

Create smaller block sizes, dense street networks to serve pedestrians, bicycles and public transport
-- In most cities the core is just be 5 km across and easily walkable within a reasonable time.
-- More than 40 to 50% of the daily trips in many cities have distances less than 5 kilometers.
-- Opportunity for transit oriented development to prevent sprawl and trip reduction...

Source: Urban age
Delhi is developing guidelines for modal interchange location

**Delhi-- UTTIPEC/DDA guidelines**

**Bus stop, cycle rental:** within 50 meter level walk from station exit

**Cycle and two wheeler parking:** within 100 meter level walk from station exit

**Auto rickshaw stand:** within 150 meter level walk from station exit

**Private car/taxi/auto rickshaw “drop off”:** with barrier-free of exiting pedestrians and NMT

**Pedestrian exits, bus-stops and Cycle-rickshaw stands** must be closest to main pedestrian exits from station.

**Car parking** if provided, must be BEYOND 250 M distance of Station/ or PT interchange point

**Pairing of Origin-Destination (O-D) Nodes:**

Provide cycle/ auto stands at nearby important destinations.
Some cities have started working towards it......

Plan integration at the early stages

Eg. Hyderabad is developing Multi modal Transport System.

**Common ticketing:** Hyderabad has introduced common passes for both road transport buses and local trains. Multi modal integration is also in the reform agenda of JNNURM. Suburban, urban railways to provide network connectivity in the region and single ticketing to provide seamless travel.

**Improve connectivity of multi-modal interchange points:** Commuters complain about lack of connectivity. Bus stops are not close. Need better links with APSRTC and more feeder buses.

Need system design and physical integration for easy transfers and access.
How reforms can be enabled and accelerated in the future........Is the new approach of city mobility plan to guide investments working?
National government has asked for a city mobility plan. Will it work better?
CMP vs CDP

- City mobility plans for comprehensive programmatic approach. Only a few CMP available. Most of them not approved yet......
- Is CMP a better approach than CDP?

- **Pluses in Kolkata CMP**
  - Primary surveys conducted to create base year data
  - Gives importance to public transport over road network etc.
  - Proposes several studies to enable planning of projects
  - Extension and restoration of the existing LRT infrastructure emphasized
  - Proposes to convert 7 important areas as “No car zones”.

- **Negatives in Kolkata CMP**
  - Projects proposed have not been prioritized and no implementation plan
  - Most of the pedestrian infrastructure projects are grade separated crossing facilities
  - TDM tools have not been discussed or considered for implementation
  - Transport demand modeling not used to generate target year data for different development scenario
CMP vs CDP

• **Pluses in Pune CMP**
  - Base line data collected and demand forecast tools used to create mode-wise travel demand scenarios
  - Index values based on NUTP objectives and stakeholder consultation calculated for base year and fixed for target year
  - Priority given to bus infrastructure augmentation and creation of pedestrian facilities in the first phase (2008-2010)
  - Integration of parking structures with public transportation emphasized
  - Demand management tools proposed
  - BRTS approved under JnNURM included in CMP

• **Negatives in Pune CMP**
  - BRT, metro and monorail proposed but the integration plan not studied
  - Only 4 inter modal transfer stations proposed without any detailed lay outs
  - A bicycle master plan to be integrated with PT included in CMP but not in the investment plan
  - Most of the pedestrian facilities proposed are grade separated
CMP vs CDP

- **Pluses in Kanpur CMP**
  - Different scenarios have been constructed using travel demand forecasting
  - Plans to integrate various modes of transport provided
  - Mobility corridors based on land-use transportation integration identified
  - 18 routes for city bus operations identified and detailed out
  - Parking policy has been cited as a TDM tool
  - A bicycle network has been proposed and detailed
  - TOD hubs on outer ring road with dense and mixed land use proposed
  - All road development include pedestrian and NMT facilities as well as considered dedicated PT lane in some cases

- **Negatives in Kanpur CMP**
  - Priority projects not identified
  - Individual project implementation time line not created
  - Project costs, financial viability and funding options not discussed
  - NMT plan proposed advocates grade separated facilities at crossing facilities
Surveys and studies have been conducted. Captured the information generated in other plans and studies for the cities in general. In some cases primary surveys

Focus on NUTP has been maintained throughout the plan in all cases. Both objectives and recommendations focus on modal shift to public transport and NMT.

Capital intensive mass transit systems have been propagated in some CMPs. But, when compared to CDPs, they have moved ahead in allocating resources to more sustainable modes of transport.

Project identification and implementation has not been adequately addressed in CMPs. The multitude of projects proposed and lack of prioritization is an evident problem for city administration to seek funding and implement projects.

Project costs and phasing have been missed out in many CMPs.

Land-use and transportation integration has not been used to propose regulations or policies to guide the same since most of the CMPs have followed the land-use described in the existing master plans or development plans.

Stakeholder consultation not conducted in most cities

All CMPs do not have targets or goals: The focus is more on listing out a number of projects rather on the holistic approach.
Not enough......Future is about real grassroots action ..... Possible only if cities take ownership...
The new debate….. How to find effective levers for change?

National action need more effective funding strategy... longer term lever

Improved guidelines and targets for better delivery

National Habitat Mission Standards to enable that:
  MOUD initiative to give more precise guidelines and targets on the following:
  – **Walk**: Develop neighbourhoods that promote walking.
  – **Cycle**: Prioritize cycle networks.
  – **Connect**: Create dense networks of streets and paths.
  – **Transit**: Support high quality transit.
  – **Density, Diversity and Compactness**: Optimize density and match transit capacity; Create compact regions with short commutes.
  – **Shift**: Shift to sustainable modes by using technology, regulating road use, parking and fiscal measures.
  – **Urban Transport Fund**: Institutionalise fiscal and funding mechanisms to ensure financial sustainability of investments in public transport and non-motorised transport.
  – **Impact Assessment**: evaluation and assessment measures to effectively measure impacts of urban transport policies and projects.

Enable capacity building
Cities need ownership and legal framework for action

Need single plan with a legal back up and time bound action plan

Focus shifting towards single land-use and transportation plan or master plan that has a metropolitan-wide scope

One plan with a legal back up like the Delhi Development Act

CMP to be administered by UMTA should be plugged to that

Plans need traffic impact assessment and mitigation strategies
MOUD has created service level benchmarking to assess performance in cities

But… cities do not have the capacity to generate data needed for monitoring

Cities need to assess trends in vehicle kilometers traveled by mode, trip distances, fuel use by mode, changes in usage of different modes, performance indicators of public transport, NMT and IPT etc.

Develop protocol for data generation and management on key indicators of sustainable transportation to assess and monitor the shift.
Not destroy what we already have.....walking, bus and tramway.............
Our cities need upscaled transition  
Avoid future emissions  
Shift to sustainable modes of mobility

Opportunity to provide scaled up alternatives  
  Public transport and integration  
  Infrastructure for walking and cycling

Reduce demand for travel and vehicle usage  
  Land-use planning  
  Road pricing  
  Tax rationalisation  
  Parking policy and charges

Leapfrog technology  
  Emissions standards  
  Fuel economy standards

Fund the transition: Need tax measures to allocate resources efficiently and raise revenue. Taxes on public transport is 2.6 times higher.

This needs support. Must not be allowed to fail..

Otherwise what???
Thank You...