National Orientation Workshop

Strategy for Transforming Mobility

June 28th, 2018
Objectives of today’s Workshop

Achieve a common understanding of the principles of transformative mobility

Facilitate cross-pollination of ideas between States

Enable dialogue on state, regional and national level Strengths, Challenges and Opportunities

Lay a roadmap for formulation of National Policy on Transformative Mobility
Mobility Vision

To seamlessly provide inter-modal, shared, clean, connected, inclusive, safe, and economical transport to citizens across urban and rural areas.
Mobility vis-a-vis Transport

Transport has more of an infrastructural connotation and Mobility is holistic solution oriented approach and involves multiple dimensions.
Why is mobility important

- Connects people to jobs, education, healthcare, recreation
- Connects goods to markets
- If cities are the “Engines of Economic Growth” its mobility systems are the “wheels of that engine”
- It is like the circulatory system in the human body
  - If blood stops flowing a person is dead – if the transport system stops moving the city is dead
- Provides a framework for the spatial growth of the city
Mobility has direct impact on SDGs

Sustainable Development

- #1 – Poverty Reduction
- #2 – Food Security
- #3 – Good Health & Well-being
- #5 – Gender Equality
- #9 – Industry, Innovation & Infrastructure
- #10 – Reducing Inequalities
- #11 – Sustainable Cities & Communities
- #13 – Climate Action
Manifestation of the problem
Rapid Motorization

- Population (million)
  - 1981: 683
  - 2011: 1210
  - 2017: 1320

- Number of motor vehicles (Million)
  - 1981: 5.4
  - 2011: 142
  - 2017: 245

Growth 77%

Growth 2529%

* 2017 figures are projections
Reasons for rapid motorization

- Cities are sprawling – longer travel distances mean need for motor vehicles
- Urge to demonstrate higher income status
- Poor public transport
  - Quantity
  - Quality
  - Coverage
- Walking and cycling are no longer safe
Inefficient use of assets and resources for all modes of mobility

- Underutilization of existing Railway Infrastructure

- Inland Waterways have huge potential for development

- Efficient usage of Coastal Areas and development of Shipping Industry

- Hundreds of unused airstrips

- Personal motor vehicles utilization at 5%—use up valuable urban land paying a small fraction of the opportunity cost

- More efficient occupation of available seat capacity - improved transportation service with a virtually zero marginal cost of resources used
Emerging trends

- Limited Options
- Own the car
- IC Engine
- Public or Private
- Supply management
- Users pay
- Corridor approach
- Independent systems

- Multiple Options
- Own the ride
- Electric Vehicle
- PPP
- Demand management
- Beneficiaries Pay
- Area wide approach
- Connected systems
Strategic Levers (1/5)

Shared Mobility
- Exploring different business models: Intermediary services, Ride sharing, Vehicle sharing, Aggregators and Fixed-route commuter services

Intelligent Transport Solutions and Digitization
- Platforms for seamless planning, booking, and payment of multimodal trips
- Application of frontier technologies
Shared Mobility

Challenges

• Low Asset utilization (<5%) for private vehicles

• Last mile connectivity does not exist

• Safety issues are an impediment to rapid adoption
Shared Mobility

Desired Paradigm Shift

• Remove distinction of private and public ownership

• Creation of technological backbone for all owners to join

• Creation of a robust Data security framework

• Think beyond cars- Autos, buses, boats, ferries, Rail

• Electrification of public transport
Focus Areas - Transforming Mobility through ITS and Digitalisation

- Supporting Infrastructure & Technology
- Interoperable ITS Solutions
- Big Data and Privacy Issues
- Open Data Framework in ITS
- Standards for Interoperability
- Capacity Building
Strategic Levers (2/5)

Zero Emission Mobility and Renewable Energy Sources

- Prioritize electrifying market segments based on TCO
- Supported by energy measures: SMART grid, energy storage solutions, optimization of the energy mix

Non-motorized Transport and Inclusive Mobility

- Pedestrian and cycling infrastructure
- Cater to special sections of the society such as differently abled, senior citizens, children, and pregnant women
Need for Zero Emission Mobility

Air Pollution
- 14 out of the 20 most polluted cities in India
- ~87% of the CO2 emissions due to vehicles

Ambitious INDCs as declared at COP 21
- Reduction of emissions intensity by 33 to 35 per cent by 2030 from 2005 level

Energy Security due to Reduced dependence on Oil imports
- Net savings of about Rs 3.9 lakh crores in 2030.

Leveraging India’s Renewable Energy Mission
- Target of 175 GW renewable power installed capacity by the end of 2022

Embracing an Inevitable Disruption
- To retain India’s primacy as an auto hub
## Automobile Sales Projections for 2030

### Present Sales (In Millions)

<table>
<thead>
<tr>
<th>Segment</th>
<th>% Share</th>
<th>Present Sales Volume</th>
<th>CAGR</th>
<th>Projected Volume</th>
</tr>
</thead>
<tbody>
<tr>
<td>2- Wheeler</td>
<td>78.73%</td>
<td>19.92</td>
<td>8.90%</td>
<td>60.35</td>
</tr>
<tr>
<td>3- Wheeler</td>
<td>3.09%</td>
<td>0.78</td>
<td>3.53%</td>
<td>1.23</td>
</tr>
<tr>
<td>Passenger Vehicle</td>
<td>14.98%</td>
<td>3.79</td>
<td>13.36%</td>
<td>19.35</td>
</tr>
<tr>
<td>Commercial Vehicle</td>
<td>3.20%</td>
<td>0.81</td>
<td>12.19%</td>
<td>3.61</td>
</tr>
<tr>
<td>Total</td>
<td>100.00%</td>
<td>25.30</td>
<td></td>
<td>84.53</td>
</tr>
</tbody>
</table>

### Auto Industry Projections (2030)

- Total Automobile Sales in 2017 - 24.5 mi
- Total Automobile Sales in 2030 - 84.53 mi
Growth of Indian Automobile Sector is Huge

Nearly 6 Crore vehicle will be added between 2017 to 2030

1.3 crore cars would added by 2030

• Every second car of the world would be sold in India*

Price range of vehicles would be diverse

• Even Cars(price >10 L) would increase by 30 Lakh- based on present mix
  • This is more than 10% of all vehicles sold annually presently

*Source: Morgan Stanley
Sales Projections for 2030, with EVs

- EV Sales to be 30% of total Sales in 2030
- EV- ICE Sales split in 2030: 25.36 million & 59.17 million
- Total Automobile Sales to be 84.53 million, in 2030

Source: SIAM India & Morgan Stanley
Opportunity for Make in India

Make in India

Key BEV markets, in 000’s

<table>
<thead>
<tr>
<th>2030</th>
<th>7,400</th>
<th>2,500</th>
<th>3,000</th>
<th>3,000</th>
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</thead>
<tbody>
<tr>
<td>2017</td>
<td>400</td>
<td>100</td>
<td>130</td>
<td>2</td>
</tr>
</tbody>
</table>

Source: Goldman Sachs Global Investment research, September 2017

India likely to become the 2nd largest EV market in the world

MAKE IN INDIA

- R & D
- Manufacturing
- Infrastructure
- Demand creation -
Focus* on small and Public vehicles

- Two-wheelers and three-wheelers should be key focus
  - Including three-wheeler goods vehicles

- Bus should be second focus

- Small and medium Cars, used in fleet should be next focus

- Efforts needed to get these vehicles become economically viable and flourish using charging and swapping

* use of small vehicles to be governed so that it does not become a traffic hazard to other road users
EV Policy for 98% of vehicles

- India’s auto-segment is different from that in most of the world: small and affordable vehicles
  - Domination of 2-wheelers: 79%
  - 3 wheeler Autos including small goods vehicle: 4% (rickshaw not included)
  - Buses and large goods vehicle (including trucks): 3%
  - Cars below ₹1 million: 12%
  - Large Cars above ₹1 million: 2%

- 98% of public and affordable vehicles: not the focus of the rest of the world; India would attempt to get leadership here

- 2% vehicles (premium four-wheelers): similar to that in rest of world; India would learn and adopt; encourage multinationals to manufacture them in India
Soft-incentives for EVs (some through States)

- **Waiver of permits for e-Auto, e-taxi and e-buses for next ten years**
  - Reduce road-tax for limited period
  - Allow aggregators to buy electric vehicles
  - Carriers / aggregators obligated to increase EV use by 10% every year
  - Faster depreciation for EV fleets

- **Encourage EVs by**
  - Green number plate for EVs
  - Preferential parking (with slow-charging) / preferential roads
  - Charging at road-side parking
  - Charging Infrastructure in multi-storied building made compulsory
  - Free Charging at employer’s premise not a perk
Non Motorized Transport

Challenges

• Marginal Growth in cycle ownership. (Cycle ownership per 100 rural households in India is 46 versus 96 in China)

• Last mile connectivity does not exist

• Lack of focus on walking and cycling

• Urban design & form not encouraging cycling and walking

• Social Demonstration Effect- move towards motorized personal vehicles
Non Motorized Transport

Desired Paradigm Shift

• Integrate urban planning with non-motorized solutions

• Improving safety of walking and cycling using technological and legislative solutions

• Promote and Encourage new business models centered on asset sharing – Example- Bicycle sharing networks

• Assess performance of ULBs on NMT
Strategic Levers (3/5)

Freight Movement

• Promoting Zero/Low emission vehicles
• Leveraging the potential Inland Waterways
• Adopting technologies or seamless freight movement

Mobility Financing & Entrepreneurship

• Priority Sector Lending
• Specific emphasis on developing affordable, inclusive rural solutions
Freight Movement

Challenges

• No Centralized body for Transport- Rail, Road, Water & other forms are managed by different agencies

• Government clearances hurdle for speedy freight movement – eg. > 3 days for a shipment to get cleared from JNPT v/s a few minutes in Singapore

• Dedicated Freight corridor moving slowly
Freight Movement

**Desired Paradigm Shift**

- Need for a unified body across sectors/modes
- Allow private players to operate in rail sector
- Impetus to multi-modal freight aggregators
- Large multi-modal logistic hubs at ports
Entrepreneurship & Mobility Financing

Entrepreneurship

•• Promoting schemes like Ajeevika Gramin Express on a country wide basis

•• Promoting new business models - shared & connected mobility

•• Envisage & develop support infrastructure ecosystem for Electric & Connected mobility
Entrepreneurship & Mobility Financing

Mobility Financing

• Provide Infrastructure status to “Charging Stations Networks and Battery Swapping Stations”

• PSL lending for bicycles, e-3 wheelers and e-boats

• Govt to support PPP initiatives
Rural Mobility & Farm Logistics

- On-demand mobility
- Increasing frequency, penetration, quality & safety
- Maintenance of existing infrastructure
- Last Mile connectivity
Rural Mobility & Farm Logistics

Desired Paradigm Shift

• Shared mobility in waterways (& other forms) - including electrification

• Create electrified shared mobility ecosystem for farm logistics - including agriculture, construction & forestry machinery

• Use of AI & Satellite imaging to create unique village level solutions
Strategic Levers (5/5)

Skilled Manpower
- Re-skill and skill the workforce in the transportation value chain
- New courses at Educational Institutes, and under PMKVY

Advanced manufacturing
- R&D for cost effective solutions
- Advanced design, materials, modular platforms, and 3D printing

Cyber/ Data Security & Safety Mechanisms
- Protocols for medical emergencies & disaster management
- Solutions for safety and security of people, processes & systems
INDIA – Well Positioned

Leadership In Global Mobility Movement
• India’s scale capability and entrepreneurship unmatched
• Policy alignment with public good

Mobility is the Next Frontier
• Conference achieves Policy clarity
• Promotes initiatives
• Designing the Plan of Action

India’s Readiness & Capability To Adopt Efficient Mobility Solutions
• Synergy between existing indigenous industries such as Auto, IT, Electronics, and Telecom

Mobility As A Key Driver For Jobs, Economic Growth & Innovation
• Develop indigenous manufacturing
• Leverage existing capabilities and capacity in the Auto industry

Learn From Global Experiences & Best Practices
• Bring together leaders, thinkers, innovators
• Spark a mobility innovation economy with smart policy

Enabling Policy Clarity
• Design roadmap for future and growth
• Policy alignment with public good
• Promote initiatives
GLOBAL MOBILITY SUMMIT
7-8th September 2018

Summit
at Vigyan Bhawan

Expo (with Partners)
at India Gate Grounds

Parallel Events (with Sponsors)
at Vigyan Bhawan
Maximizing Asset Utilization
Comprehensive Electrification
Alternative Fuels
Reinventing Public Transport
Logistics and Goods Transport
Data Analytics and Mobility
OUR APPROACH

Policy has to be grounded in the diverse reality of our country
Consultations – Unique Features

- **Diverse Stakeholders**
  - **New Policy Paradigms** – Governance and Market forces to be aligned
  - **Benchmarking with Developed Countries** – Think-tanks & Academia’s expertise
  - **Cutting edge technology** – Need for closer Industry-Academia linkage
  - **Inter-departmental outlook** – Policy & Implementation level effort integration

- **Bottom-up policy making**
  - Away from one-size fits all approach; captures state diversity
  - Geographical, topographical, Income, Mix of Trip Purpose, Degree of Urbanization, Population size and density and it’s spatial distribution, Power supply situation, access to natural resources, etc.
  - Unique opportunity for states to chalk out their own road-maps
Status

- Broad Contours of Transformative Mobility and Background Note on the constitution of State Task Force by NITI Aayog shared with states
- (16) states have reported to have constituted their task force
- 30 Preliminary State Task Force Meetings held
Deliberation with States

1. Governance
   - Institutional Structure – Integrated Mobility Task Force - Inter-modal (To be chaired by the CS)
   - Need to factor in existing state-wise mobility plans and related policies
   - Integrate land use planning with mobility solutions

2. Rural-Urban Integration
   - Develop networks to facilitate freight movement to markets
Deliberation with States

3. Industrial Promotion & Skill Development

- Industrial Promotion & incentivization of R&D efforts

- Convergence with skill development schemes to fill up gap in semi-skilled and skilled manpower, current & futuristic

- Capacity building of key stakeholders / ULBs on transformative mobility
4. Connectedness

- Establishing common user interface for multi-modal trip bookings

- Enhanced use of non-motorized solutions in last mile connectivity

- Innovative community-driven rural connectivity and farm logistics solutions

- Enhanced utilization of inland waterways capacity
5. Connectivity

- Adoption of frontier technologies like Artificial Intelligence, RFID & GPS, Blockchain, etc.

- Connected mobility solutions like real-time passenger information, live tracking, e-parking, etc.

6. Inclusiveness

- Focus on scalable solutions to promote disabled-friendly and gender-sensitive mobility systems

- Infrastructural addition and law-enforcement focus to drive safe and secure mobility

- Mobility solutions to mandatorily have behavioral change strategy
7. Holistic Development

- Innovative financing models like value capture finance to be experimented

- Shift to EVs without change in the electricity generation source may not lead to emission free mobility

8. Monitoring and Evaluation

- Inbuilt M&E – data, mechanisms
Discussion