Collaborative Framework for Sustainable Transportation: Role of Business and Industry

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Conserving Now, Preserving Future
A holistic approach to sustainable transport in India

Cities are considered as the Engines of economic growth where Urban transport remains the wheels of this economic engine.

Transport sector, one of the main drivers of climate change is responsible for 22 percent of Green House Gas emissions globally and fulfilling the targets of Paris Agreement would be out of reach if rapid actions are not taken to decarbonize the transport sector.

With the rising urban population, demand for personal Mobility is expected to triple by 2030 - Decarbonisation in the Indian Transport Sector is essential to meet the growing needs of Indian population, especially in cities while limiting negative externalities such as GHG emissions, congestion and pollution.

A collaborative multi-stakeholders approach including Government, Urban planning professionals, private sector and civil society is the key towards implementing innovative sustainable low carbon transport solutions.
Decarbonisation in the Indian transport sector

Emerging areas for business and industry

A multimodal transport system enabled by

- Digital technology
- Electric mobility
- Alternative fuels for transport
- Innovative business models for technological applications with a focus to reduce energy, water and Carbon footprint are the key towards decarbonisation in the Indian transport sector
- Demand for sustainable transport solutions growing – Sustainable fleet management, parking management using smart solutions and streamlining supply chain for green transport alternatives such as biofuels and Bio CNG
Digital technologies – Internet of Things (IoT)

Internet of Things (IoT)
• Combination of internet of things and big data is changing transport

• Introduction of Intelligent Transportation Networks (ITSs) offers a viable solution and can help urban planners reduce traffic congestion in cities

• From supply chain logistics to public transit, IoT solutions are being used in transportation to better business in a number of ways

• E.g. Sensors and smart software can also be used in a semi-truck or public bus to collect data that can be used to help the driver operate the vehicle in a manner that helps save fuel

• Smart Parking Management - Smart wireless sensors can be embedded in parking spots which are able to track if parking spot is occupied, empty or expired
Electric mobility

The National Electric Mobility Mission Plan 2020 - 5–7 million EVs/hybrid vehicles have been envisioned to be deployed on Indian roads by the year 2020.

The Government of India is aiming to have only electric vehicles operating in the country by 2030 which provides good opportunity to private players to set-up their manufacturing units in India for large-scale EV production.

*India can save 64% of anticipated passenger road-based mobility-related energy demand and 37% of carbon emissions in 2030 by pursuing a shared, electric, and connected mobility future* (Source: NITI Aayog, 2017)
Electric mobility : Overview & opportunities for business and industry

- **Current Scenario** - 200 community charging stations in India compared to the Electric Vehicles (EV) growth rate of 37 percent during the last years

  The ambitious target of becoming 100 per cent EV nation by 2030 would require...

- Charging infrastructure especially if the power used to charge is generated from a renewable, clean source like solar.

- Opportunities for private sector – Lacks a supportive ecosystem for high-mileage EVs (Charging infrastructure, including battery swapping options, and electrical grid readiness)

- In line with the Govt ‘Make in India’ policy, the EV programme will encourage local manufacturing of electric vehicles and development of ancillary industry business could explore the possibility of building electric cars on its existing platform

- Apart from electric vehicles, there are wide opportunities for business and industries (using alternate fuels such as Bioethanol, Biodiesel and BIO CNG) for sustainable transport

*Under Faster Adoption and Manufacturing of (Hybrid) Electric Vehicles in India (FAME-India) Scheme - 25 charging stations have been installed at six different locations in Bengaluru by Mahindra REVA Electric Vehicles*
Alternative fuels for sustainable transport

Biofuels in India – current scenario

• The current share of biofuels in total fuel consumption is confined mainly to 5% blending of ethanol in gasoline

• India’s biofuel production currently accounts for nearly 1 percent of global production. The biofuel policy of India has an indicative target of 20 percent blending of bioethanol by 2017

• If India is to achieve the 20 percent blending targets set out in the NPB, the country will need to produce 6.7 billion litres of ethanol by 2020 and 9.1 billion litres by 2030

• Such bulk demand would be met through second-generation biofuels derived from agricultural residues

Bio CNG - Produced exclusively from agricultural waste and plant material

• Bio CNG – Fuel of the Future can directly replace every utility of LPG and CNG in India and has the potential to be the future of renewable fuel because of the abundance of biomass in India

• Setting up tens of thousands of Bio CNG production plants and supply stations across the country can cover our fuel requirements substantially

Source: REN21 (2015), MNRE, UNEP
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Alternative fuels for sustainable transport – private sector initiatives

Volvo - India's First Hybrid Bus to Navi Mumbai

Volvo Buses has introduced its 8400 Hybrid City Bus to be part of the Navi Mumbai Municipal Transport (NMMT) fleet

Scania - Scania’s Ethanol Green bus pilot in Nagpur

Scania to build a large facility for 100 buses (50 running on ethanol and 50 on biogas) in the city of Nagpur

BIO CNG: Primove Engineering Pvt. Ltd, a clean tech company, based in Pune has built India’s first Bio CNG plant where Bio CNG is made using agricultural waste

Source: auto.ndtv.com; scania.com
Innovative business models for technological applications

Exploring innovative business models for ecological applications in the areas of IoT, Alternative fuels, energy storage solutions can help in setting up the ecosystem for greening the transport sector.

- **Mobility as a service** - Car-sharing, bike-sharing, carpooling and platform-based ride services (e.g., Uber, Zoom car) using smart solutions & digital technologies

- **Build swapping stations** managed privately or jointly by utilities, DISCOMS, and OEMs can help in scaling up business models while providing a rapid transition to sustainable transport solutions

**Resource Efficient business models - Waste to fuel applications**

- Currently, 94 percent of all solid waste and 72 percent of wastewater in India goes untreated straight to waste tips, into nature and down into the groundwater

- With a local biogas facility, cities can produce their own fuel using sewage and organic waste from industries – both agricultural and other – as well as from restaurants and households

- Recycled water for aprons and washing platforms and passenger train coaches - Nagpur division of Central Railway is already recycling 5 lakh litres per day
Next Steps

• Business and Industry play will play a leading role in decarbonisation of Indian transport sector in the era of digitalization and disruptive technologies.

• Successful transformation will require businesses, governments, standards organizations, and academia to work together, especially in the areas of demand generation for green transport alternatives as well as setting up ecosystem for wide scale adoption.

• Coherent policy initiatives on sustainable public procurement, manufacturing, subsidies, taxation between central and state governments will strengthen supply chain linkages and create markets, effectively stimulating decarbonisation efforts by businesses.

• A multimodal transport system enabled by digital technology, electric mobility, alternative fuels along with business models for technological innovation are the quick enablers for decarbonisation in the Indian transport sector.

• Involvement of stakeholders (Public, private and research institutions) at a national and global level will bridge the gap between research and industry allowing these solutions to proliferate at a much higher level.