

## Session 03: Towards Decarbonization of Freight Transport in India

**Date:** 24 September 2020 | **Time:** 2:30 PM to 04:30 PM IST

### Background:

Road transport is the dominant mode of transport in India, both in terms of traffic share and in terms of contribution to the national economy. Transport sector accounted for 4.85 percent of the country's Gross value addition (GVA) in 2016-17 with road transport accounting for 3.12 per cent of the GVA, Railways accounting for 0.77 percent and Air Transport accounting for 0.16 percent (Transport Research Wing, MoRTH 2016-17).

Apart from facilitating the movement of goods and passengers, road transport plays a key role in promoting equitable socio-economic development across regions of the country. It also plays vital role in social and economic integration and development of the country. Easy accessibility, flexibility of operations, door-to-door service and reliability have earned road transport a greater significance in both passenger and freight traffic vis-à-vis other modes of transport.

From 2005 till 2015, there has been significant growth in the surface freight activity in India due to growth in logistics market mostly attributable to favourable policy reforms, continued investment in infrastructure by government and private sector, influx of foreign players in the market, increasing consolidation and investing in innovative technologies. Table 1 provides a snapshot of increase in the travel demand in India in terms of passenger and freight activity:

**Table 1** | Percentage growth in the travel demand of passenger and freight activity in India

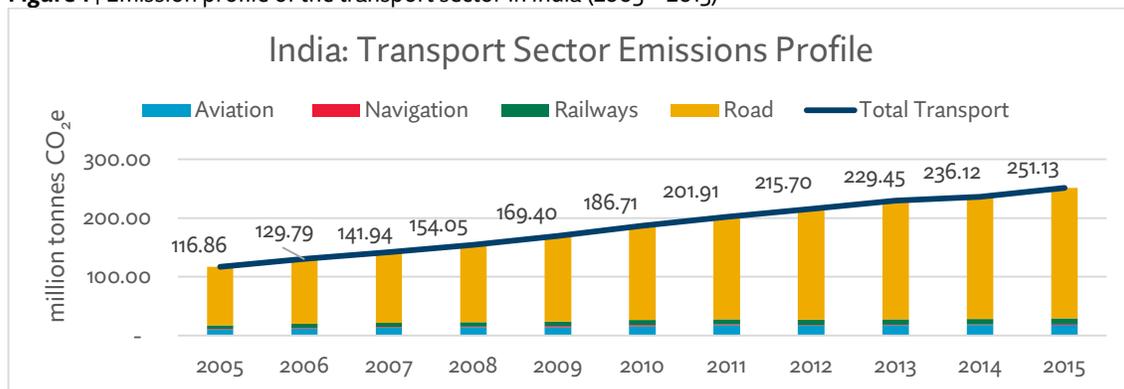
| Parameter                | Unit                 | 2005 | 2015 | Percent change |
|--------------------------|----------------------|------|------|----------------|
| Passenger Activity       | Billion passenger-km | 867  | 3189 | 267%           |
| Surface freight activity | Billion tonne-km     | 706  | 1975 | 179%           |

**Source:** (MoRTH 2018) The figures are rounded

The phenomenal increase in surface freight has been possible due to improvements in road connectivity, projects such as Bharatmala and Sagarmala, Eastern and Western Dedicated Freight Corridors, improving trade relations with many countries, revision in Goods and Services Tax (GST), axle norms and scrappage policy by government.

The transport sector is the largest consumer of commercial fuel energy within the transportation system. In 2018-19, of the 80 million tons of diesel consumed, 70% went to transport, of which 28% was consumed by Heavy Duty Vehicles (HDV). Road transport represents 90% of India's transport sector emissions and absolute GHG emissions from the transport sector doubled between 2005 and 2015 in India.

**Figure 1** | Emission profile of the transport sector in India (2005 – 2015)



**Source:** Adopted from the data published in GHG Platform India (Mohan, et al. 2019)

Road transport has a large impact on India's transport sector emissions but remains largely untouched by transitions toward decarbonization till now. One of the challenges in decarbonization of the sector is that the surface freight transport in India is extremely fragmented with more than 70% of India's overall fleet being held by Small Fleet Operators (SFOs), accounting for majority of the volume of goods transported.

Another challenge is the heavy inclination of freight transport towards road. Some advances have been made on this front with Ministry of Commerce and Industry, Government of India introducing the Draft National Logistics Policy in February 2019 with an objective was to optimize the current modal mix (road-60%, rail-31%, water-9%) and align it with international benchmarks (25-30% share of road, 50-55% share of railways, 20-25% share of waterways) (Logistics Division, Ministry of Commerce and Industry 2019). The Ministry of Railways is also implementing policies and strategies to incentivize rail transport for freight shipping (Parliamentary Standing Committee on Railways 2017-18), and has recently introduced new policies to boost railway modal share for freight transport during Unlock 3.0 (Business Standard 2020).

While a modal shift to rail is a solution, and though India's NDC document does envision an increase in rail share of transportation to 45% (presumably by 2030), yet since Paris Agreement, there has been a degrowth in the share of rail for both passenger and freight per km. The main reason for that is the competitiveness of road transport which eases consigner experiences, as well as cross-subsidization and rail capacity issues. This trend needs to be reversed through appropriate policy measures.

Further, there is a lack in academic research to understand the manner in which the sector operates, truck ownership patterns, distances travelled per day, driver behaviour, and the impacts that all these factors can have on technological needs that will potentially enable transition. The barrier to the transition in this sub-sector of transport, therefore, remains a technological one, with no viable alternative technological solution to diesel operated trucks.

To tap the potential of freight decarbonization in India, 3 things need to happen: (i) making long distance freight more efficient through a modal shift to rail (ii) efficiency improvement with emissions norms to be tightened on heavy duty vehicles (HDVs), and (iii) a shift to electrification of heavy duty vehicles (HDVs).

This webinar will look at initiating a discussion between stakeholders currently involved in the freight sector, including government organizations, logistics and service providers, goods transportation companies, truck fleet users and owners, as well as city authorities through which the trucks pass. The initial conversation on removing the barriers will also convene those that can potentially be part of the solution. It will include railways, state authorities to look at potential dedicated corridors equipped for e-trucking, fuel developers (e.g. Hydrogen) for long distance freight transport, and inland water transport operators. Inland water transport is cleaner and cheaper, with a few key subnational players in Assam, Kerala and Goa; though there are a few barriers such as policy directives, infrastructure development and finance.

### **Objective:**

This webinar will convene all the relevant stakeholders involved in the ecosystem of freight transport to foster an inclusive discussion for identifying technological, operational and governance opportunities that may steer the transition toward a decarbonized freight transport sector in India. The webinar will explore different stakeholder priorities, objectives and solutions available including the need for indigenization, to chalk out a roadmap in India's national interest toward decarbonization of the freight transport sector. It will specifically look at which policies and incentives would be required to accelerate and facilitate the transition.

- What are the challenges (technological, behavioural, economic and social) and opportunities specific to Indian freight transport sector that hinder the implementation of modal shifts from road to rail?
- Specifically, are there any organizational and institutional challenges to the shift?
- What kind of coordinated policy and planning would enable the shift?
- What are the finance requirements?
- How effective are PPPs?

- What are the options to include low-carbon freight transport/ rail targets in India's NDC?
- What specific technology tailored to the requirements of India's freight transport sector can enable mass electrification of the sector or its shift to rail?