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Analysis of today
Assessment of tomorrow

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India Shifting into Higher Gear on Freight Traffic

India is moving fast to become a world leader in freight movement – and this shift has implications for other economies throughout the world.

US$1.65B Eastern Dedicated Freight Corridor (EDFC) is a freight-only railway line. It is one key part of the country's most ambitious railway project since national independence in 1947. India's contribution to the EDFC's budget is US$550 million. The World Bank (headquartered in Washington, DC) has provided US$1.1 billion.

The completion of the 1200-km Ludhiana-Mughalsarai stretch of the EDFC is a particularly significant piece of the puzzle. And it's especially so since the EDFC is a critical part of the Dedicated Freight Corridor (DFC).

In light of the problems plaguing the Indian Railway (IR), the government's development objectives for EDFC are two-fold:

-to provide additional rail transport capacity, improved service quality and higher freight throughput on the 393 km Kanpur-Mughal Sarai section of the Eastern Dedicated Freight Corridor (DFC);

-to develop the institutional capacity of Dedicated Freight Corridor Corporation of India Ltd. (DFCCIL) in a way which enables it to build, maintain and operate the entire DFC network.

The overarching goal is to increase freight modal shift to safe and low-carbon transport along the EDFC and to develop DFCCIL as a sustainable institution providing rail freight connectivity and multimodal logistics services.

India's economy depends on its logistics sector

Efficiency in freight transport is widely acknowledged as critical to India's future economic growth. India's economy depends heavily on its logistics sector, which has a current market size of US$150.1 billion.

According to one trusted source of national business data, India's "Economic Times", by 2029, the Indian freight and logistics market is expected to reach a total value of USD$484.43 billion annually, showing a substantial growth rate of 8.8% per annum. This robust growth curve is verified by others, including in The Times of India's own reporting.

Logistics in India generates about 4.6 billion tonnes of freight annually, resulting in a transportation demand of over 3 trillion tkm -- at a total cost of US$129.6 trillion.

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IR is, unquestionably, an essential part of India's freight transport system. As the 4th largest railway network in the world, IR has approximately 68,000 km of lines. It is the second-largest passenger railway and the fourth-largest freight railway in the world. According to two reliable sources, Indian Railways transported 1.3 billion passengers and 1,418.1 million tonnes of freight in the financial year 2022-23

IR's freight traffic has grown at a compounded annual rate (CAGR) of 3.7 per cent. This growth was limited by capacity constraints and congestion, limiting volumes and reducing the speed and reliability of shipments.

IR had revenue of about US$23.7 billion, of which about US$15.4 billion was from freight transport. IR has an operating ratio of 98.4 per cent.

How to reduce high logistics cost?

Railways are crucial to reducing India's high logistics costs. Logistics cost in India represents 14 per cent of GDP, much higher than in developed nations (8-10 per cent).

A majority of freight in India is bulk

commodities with long average leads - traffic that is suited to lower-cost rail transport. Nonetheless, around 73% of India's freight is transported by road, compared to 27% by rail. Shifting more of those goods to rail would reduce logistics costs.

High truck share comes at an environmental cost. Carbon Dioxide (CO2) emissions from freight transport in India are projected to increase by 451% - from 220 million tonnes in 2020 to 1214 million tonnes in 2050.

The freight sector is responsible for 132 kilotons of particulate matter (PM) emissions and 2.4 million tonnes of Nitric Oxide (NOx) emissions in 2020.

> India's announced targets from 2021 to 2030, aim for a reduction in the emissions intensity of GDP by 33 to 35 per cent by 2030, from 2005 levels

Road freight is the largest contributor, accounting for about 95% of emissions. Additionally, freight transport is one of the leading causes of road accidents. Trucks account for 12.3% of road accidents and 15.8% of total road transport-related deaths, most of which are due to overloaded trucks.

Increasing the share of rail transport is crucial to reducing GHG emissions from transport. India's announced targets, the "Intended Nationally Determined Contribution" (INDC) from 2021 to 2030, aim for a reduction in the emissions intensity of GDP by 33 to 35 per cent by 2030, from 2005 levels.

The 'reduction of emissions from the transportation sector' is a priority area. Rail emits about one-fifth the GHG emissions as trucks -- and improves air quality by emitting lesser Sulphur Oxide (Sox), PM, and NOx emissions. Thus, shifting traffic from road to rail would reduce GHG emissions.

Moreover, in July 2020, IR also announced that the national transportation system will target becoming a net-zero carbon emitter by 2030.

This would mean eliminating emissions of 7.5 million tonnes of CO2 equivalent each year.

Railway is losing market share

IR's network suffers from capacity constraints and is losing market share. Despite strong growth in freight traffic, IR has been losing market share to trucks. IR's network capacity is insufficient, and passenger trains are prioritised over freight. Freight service quality is impeded by having to fit freight trains into a busy passenger service schedule (passenger trains constitute almost two-thirds of all train km).

The main railway corridors in the "Golden Quadrilateral" connecting New Delhi, Mumbai, Chennai, and Kolkata account for less than a fifth of IR's lines but carry more than 60 per cent of its freight.

Over the last decade, IR has successfully adopted many measures to increase capacity - creating more capacity through the DFCs, squeezing more capacity from existing assets, increasing average train load, utilising equipment more efficiently, and improving railway labour productivity. Today, physical capacity is the most pressing constraint.

The National Rail Plan estimates that rail share can be increased to 45% if sufficient capacity allows for lower transit times and costs of rail transportation

IR has developed a long-term strategic plan, the "National Rail Plan", which aims to build capacity in time to serve anticipated demand.

The NRP estimates that rail share can be increased to 45% if sufficient capacity allows for lower transit times and costs of rail transportation.

The NRP has analysed freight flows across India and has identified major choke points along the High-Density Networks (HDNs) and Highly Utilised Networks (HUNs) for capacity expansion.

Rail infrastructure development is being prioritised under the “National Infrastructure Pipeline 2020 – 2025”. The NIP for FY 2020-25 has identified 682 investment opportunities across 3 railway subsectors (track, rolling stock, and terminals), with a cost of $224.8 billion over the next five years, including - rail track: 609 projects, $174.9 billion; rolling stock, 40 projects, $47.3 billion; terminals, 33 projects, $2.5 billion.

The World Bank’s support programme in the Indian rail sector focuses on developing commercial financing, private sector participation and entrepreneurial drive.