

Study on multimodal logistics market in India, with a focus on rail containers

Pristine Logistics & Infraprojects Pvt Ltd

Final report

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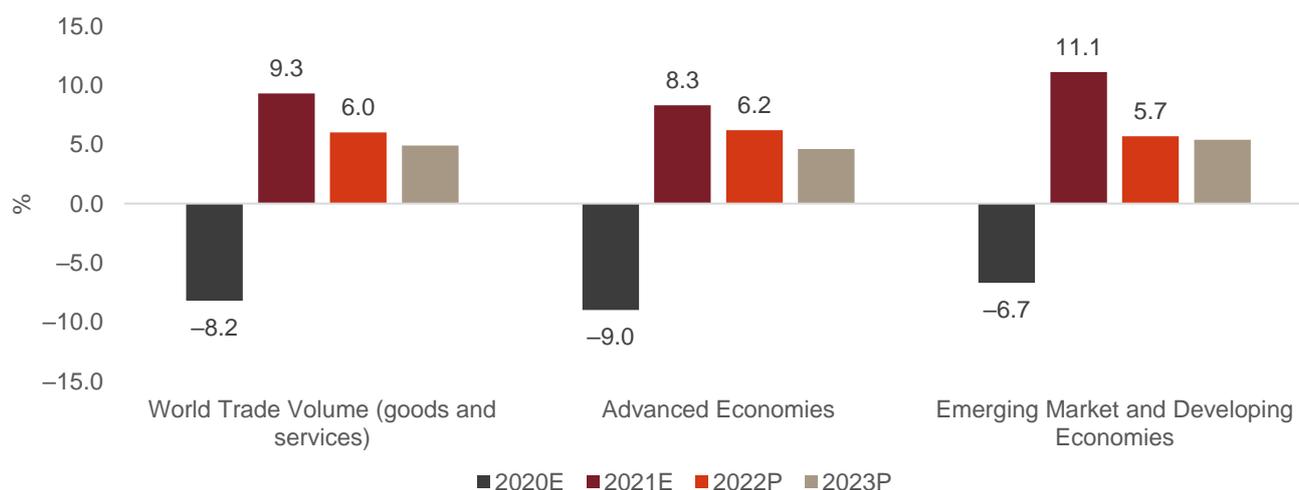
1. Macro-Economic scenario

This section does not incorporate the any material impact due to ongoing Russia-Ukraine crisis.

Global macroeconomic overview

Despite near-term supply disruptions, global trade volumes are projected to expand 9.3% in 2021, moderating to 6.0% in 2022. The merchandise trade recovery is set to broaden after being initially concentrated in pandemic related purchases, consumer durables and medical equipment. Services trade is expected to recover more slowly, consistent with subdued cross-border travel until virus transmission declines to low levels everywhere

IMF estimates of world trade growth

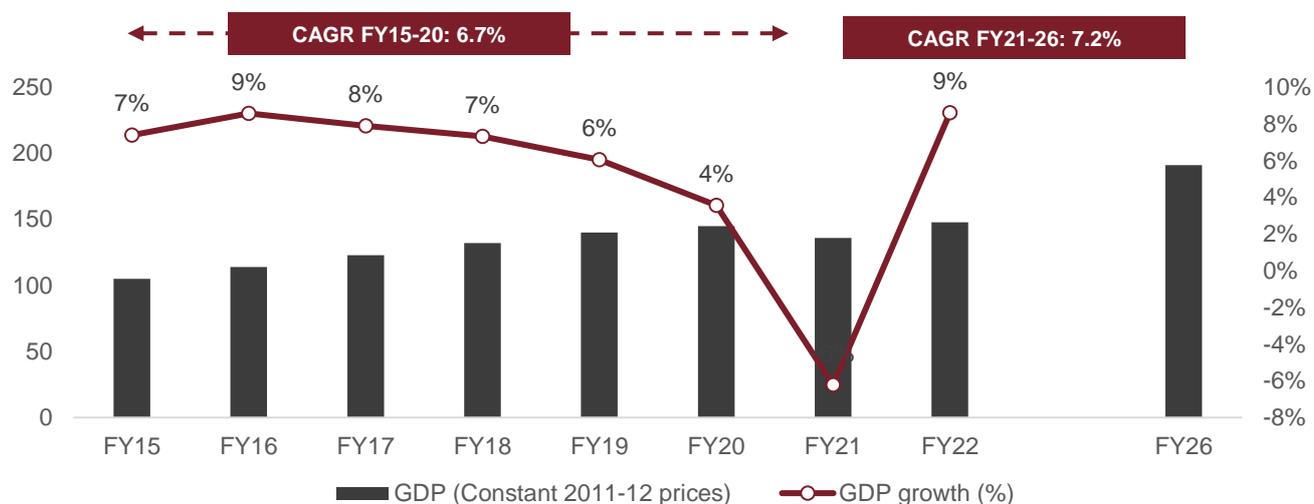


Source: IMF (World Economic Outlook – January 2022 update), CRISIL Research

India macroeconomic overview

Indian economy recorded a robust 6.7% CAGR over fiscal 2015 to 2020 period driven by rising consumer aspirations, rapid urbanization, government's focus on infrastructure investment and growth of domestic manufacturing sector. FDI into India grew from 45.1 billion USD in fiscal 2015 to 81.0 billion USD in fiscal 2021.

GDP growth review and outlook



Note: E - Estimated and P - Projected

Source: National Statistics Office (NSO), IMF, CRISIL Research estimates

Contact-intensive services still feel the pinch

- Gross value added (GVA) - the supply-side and a firmer measure of the economy - rose 8.3% in fiscal 2022, compared with a 4.8% contraction in fiscal 2021.
- Private final consumption expenditure (PFCE) - the largest demand-side driver - which was hitherto estimated to be lagging the pre-pandemic level, is now estimated to have recovered some of the lost ground. At Rs 83.6 trillion in fiscal 2022, PFCE is now 1.2% above the fiscal 2020 level of Rs 82.6 trillion.
- The government consumption expenditure, investment and exports, did well in fiscal 2022.
- On the supply side, performance of the manufacturing sector stands out. At 9.8%, manufacturing GDP has grown the most compared with other supply-side components – to above the pre-pandemic level. To some extent, this is a reflection of sharper focus on goods, and away from services, due to the pandemic. The agriculture sector is expected to maintain a healthy growth momentum - growing 3.3% in fiscal 2022, same as in fiscal 2021.

Macroeconomic outlook for fiscal 2022

| Macro variables | FY20 | FY21 | FY22P | FY23P | Rationale for outlook |
|-----------------------------------|------|-------|-------|-------|--|
| GDP (% , y-o-y) | 4.2% | -6.6% | 8.9% | 7.8% | CRISIL maintains its real GDP growth projection for fiscal 2023 at 7.8%, with downside risks. |
| Consumer price index-linked (CPI) | 4.8% | 6.2% | 5.5% | 5.2% | In this fiscal so far (April 2021-January 2022), CPI inflation has averaged 5.3%, compared with 6.4% in same period last year. We expect the headline number to stay around these levels next fiscal, too. |

| | | | | | |
|------------------------|--|--|--|--|--|
| inflation (% y-o-y) | | | | | |
|------------------------|--|--|--|--|--|

Note: P- Projected

Source: Reserve Bank of India (RBI), NSO, CRISIL Research

GDP to recover over the medium term

CRISIL Research expects GDP to grow at ~8.9% in fiscal 2022 and at an average of 7.2% between fiscals 2023 and 2026. India to emerge as one of fastest growing major economy across the globe. This growth will be supported by the following factors:

- Union Budget 2021-22 has also laid out clear focus on mid-term growth trajectory. The government has set the fiscal glide path to 4.5% in fiscal 2026 from 6.8% in fiscal 2022. This underscores government’s continued focus on expenditure over mid-term.
- Reforms undertaken over the past few years such as:
 - The production linked incentive (PLI) scheme which aims to incentivise local manufacturing by giving volume-linked incentives to manufacturers in specified sectors
 - Steep cut in corporate tax announced by government in fiscal 2021 is expected to attract more investments into the country and boost domestic manufacturing sector output over mid to long term
 - Key structural reforms such as implementation of Goods and Services Tax (GST) and Insolvency and Bankruptcy Code (IBC) will begin to show its impact over the longer term
 - Reform measures aimed at enhancing financial inclusion like Pradhan Mantri Jan Dhan Yojana will broaden the base of the banking ecosystem, leading to higher lending and investment
 - Government initiatives like Digital India Initiative will aid digitalisation in the country. This will improve the efficiency in the economy leading to faster growth.
- Raft of reform measures by the government along with a more expansionary stance of monetary policy leading to a steady pick-up in consumption demand
- Policies aimed towards greater formalisation of the economy are bound to lead to an acceleration in per capita income growth
- The total length of Nation Highways in India has grown from ~97.8 thousand km in fiscal 2015 to ~136.4 thousand km in fiscal 2021. Under National Infrastructure Pipeline, investments in roads and highways sector are likely continue at robust pace in near future. These initiatives are likely to strengthen supply chain as well as reduce transit time and logistics costs for the manufacturing sector.

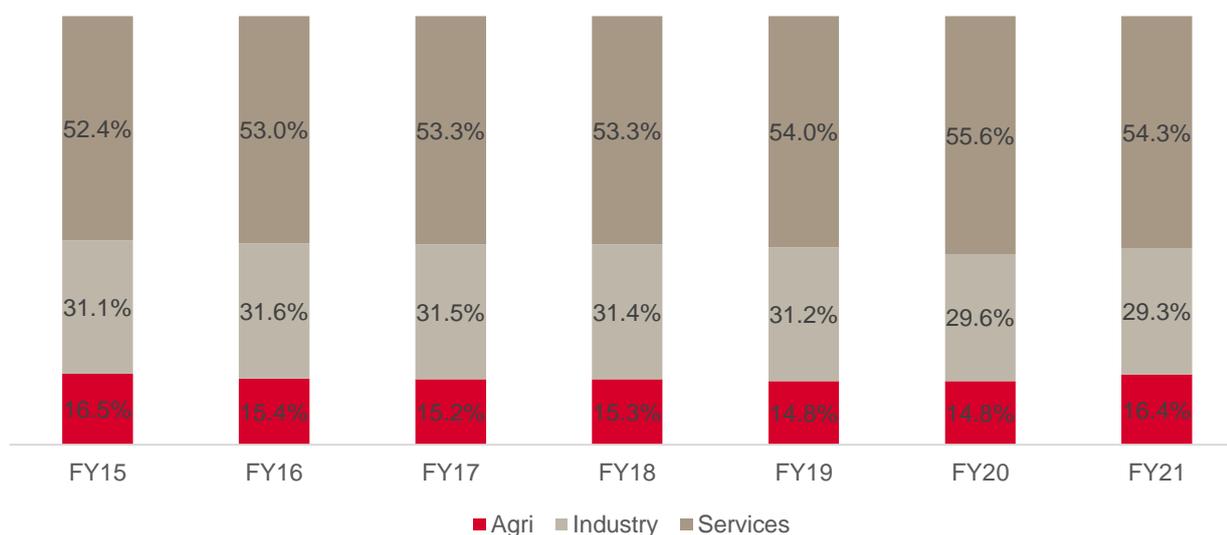
India’s GDP will still grow faster than the world’s

Rapid urbanisation, rising consumer aspirations and increasing digitisation, coupled with government support in the form of reforms and policies, are expected to support long term growth. As per IMF’s forecasts India (as per World Economic Outlook – January 2022 update) is likely to emerge as the fastest growing countries among major global economies over 2022 and 2023 period.

Contribution of various sectors to India's GDP

Services sector alone contributes ~55% of India's GDP. Over the fiscal 2015 to 2020 period services sector expanded at 7.7% CAGR increasing its share in overall GDP by from ~52.4% in fiscal 2015 to ~55.6% in fiscal 2021.

Share of sector in GVA at constant prices



Source: RBI; CRISIL Research

Key macroeconomic trends and long-term growth drivers

India has the world's second largest population

As of 2020, India has one of the largest young population in the world, with a median age of 28 years. India's urban population has been rising consistently over decades. This is expected to reach ~37% by 2025. The average household size of the country has come down to 4.91 in 2011, from 5.57 in 1991.

Investments in smart cities will lead to better urban infrastructure

The government approved a budget of Rs 480 billion for the development of 100 smart cities over five years, beginning fiscal 2017.

Increasing per-capita GDP

As per IMF estimates, India's per-capita income (at constant prices) is expected to grow at 6.7% CAGR between fiscals 2020 and 2025.

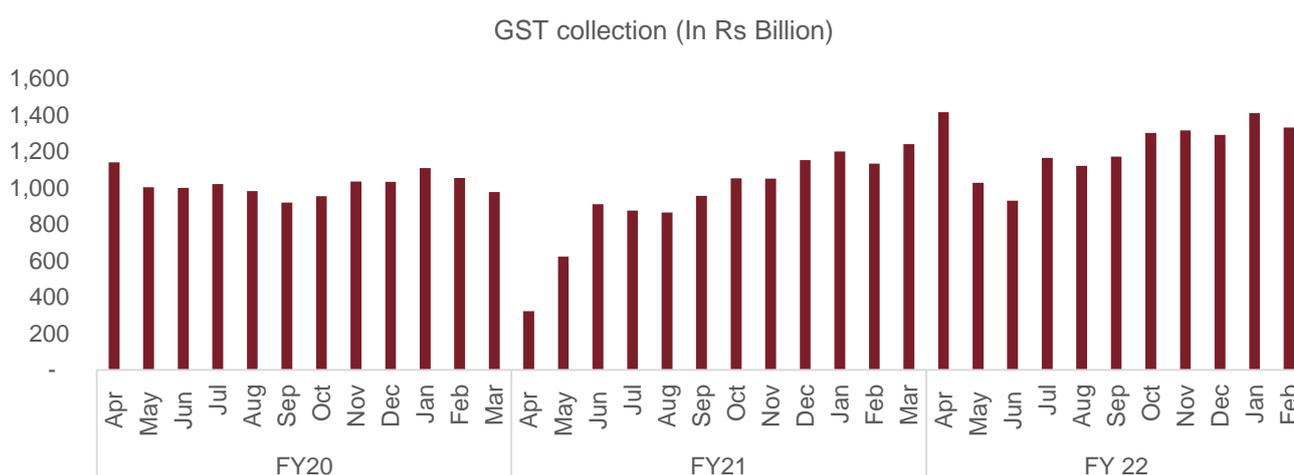
Inflation outlook

In this fiscal so far (April 2021-January 2022), CPI inflation has averaged 5.3%, compared with 6.4% in same period last year. We expect the headline number to stay around these levels next fiscal, too.

GST Collection

Economic activities more or less normalized during the second half of the year and GST collections witnessed a 50% growth vis-à-vis collection in the first half.

Trends in GST collection



Source: Press Information Bureau, Government of India

USD 5 trillion GDP target to provide push to infrastructure and trade

In 2019, government unveiled an ambitious plan to increase India’s GDP to USD 5 trillion by 2025. The total capex of the central government (budgetary capex plus revenue grants for capital creation and CPSE capex) is budgeted to rise 14.5% next fiscal compared to only 3.1% in this fiscal.

Government has initiated various projects/ policies like Bharatmala Pariyojana, Sagarmala, Logistics Parks etc. (These initiatives have been discussed in detail in later chapters.) Such initiatives are expected to accelerate the infrastructure development in India and in turn support the EXIM trade.

Capacity addition at major ports to increase at 4-6% CAGR in five years

CRISIL Research expects capacity addition at major ports to increase at 4-6% compound annual growth rate (CAGR) between fiscals 2022 and 2026, expanding by 300-350 MT. This is lower than ~400 MT capacity added between fiscals 2017 and 2021 (E), without considering the re-rating of capacities.

CRISIL expects utilization levels to rebound to ~55% levels in fiscal 2022 following a recovery of 5-7% in traffic growth. Port capacity and capex which was deferred in fiscal 2021 due to the COVID-19 pandemic would also recover.

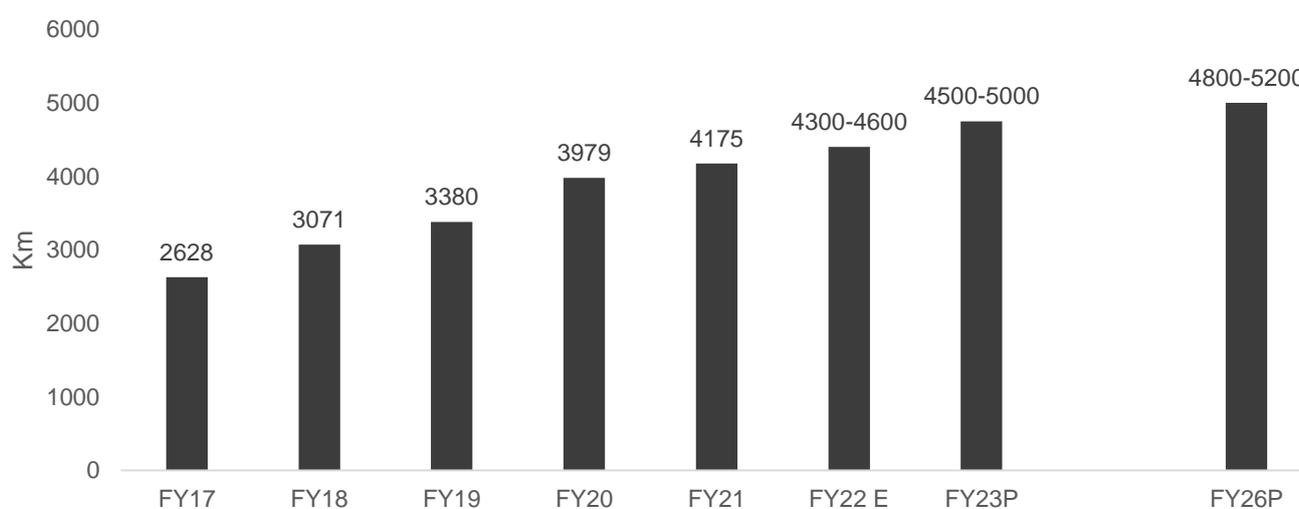
National Highway construction is also rising steadily with focus on swifter execution

Despite the lockdowns and labour-related issues, developers made up for lost time and construction at NHAI projects rose 5% on-year to 4,175 kms in fiscal 2021. Given the acceleration in project awards, sharper focus on resolving land acquisition issues, and the 'Atmanirbhar Bharat' initiatives to ease liquidity (monthly milestone payments, release of retention money, reduction in performance security & extension of 3-6 months in milestones & SCODs) for EPC road players, the pace of construction should continue to increase steadily.

By the time the nationwide lockdown was announced, highway construction under the NHAI in fiscal 2020 was already at 3,979 km, 18% higher than the 3,380 km constructed in fiscal 2019. A shift in focus to swifter execution has paid off for NHAI.

CRISIL Research expects fiscal 2022 NHAI construction to be in the range of 4300-4600 kms and rise steadily to 14-15 km per day by fiscal 2026.

NHAI's pace of construction rising steadily



Source: NHAI, CRISIL Research

Push to rail transport

Government has introduced various policies to support growth in rail movement including national logistics policy, national rail plan which are expected to provide a push to rail transportation in the long run.

Below are the budgetary announcements pertaining to railways:

- Railways capex for next fiscal is 14% higher than fiscal 2022RE. The rise in GBS is 17%, while that in IEBR is only 11%. Between fiscals 2019 and 2021, the capex allocation for the sector has logged a healthy CAGR of 23%, thereby doubling the spends. The healthy rise for the next fiscal is led by new lines, track doubling and deployment of the Kavach system across a further 2,000 km of tracks
- The budget proposes to introduce 400 Vande Bharat trains over the next three years. But the allocation for rolling stock is down 29% over fiscal 2022RE and up just 14% over actual spends in fiscal 2021

National rail plan to add capacity in the long term

National rail plan was drafted in Feb'21 with the following objectives:

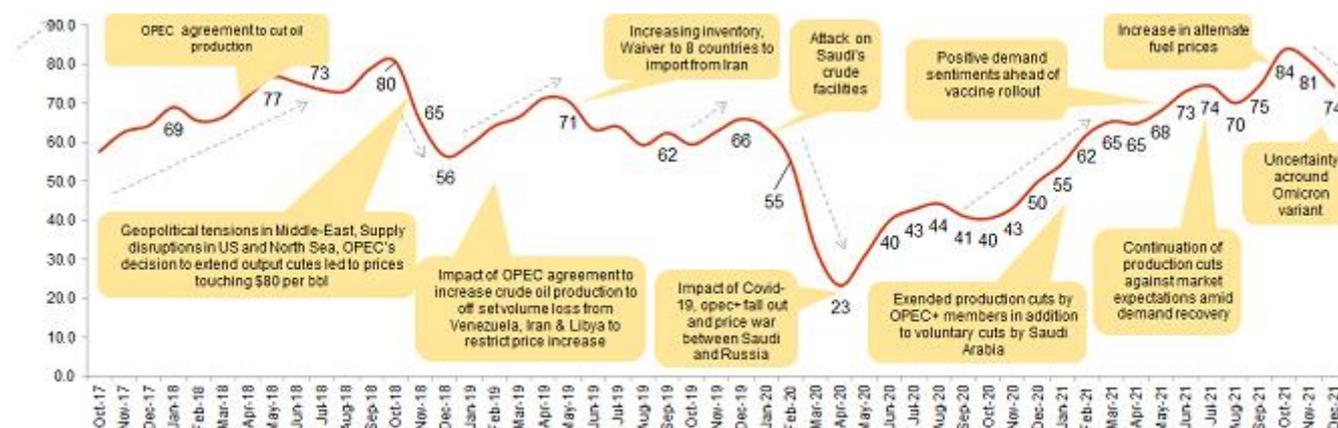
- To create capacity ahead of demand by 2030, which in turn would cater to growth in demand right up to 2050.
- To increase the modal share of Railways from 27% currently to 45% in freight by 2030 as part of a national commitment to reduce Carbon emission and to continue to sustain it.
- Reduce transit time of freight substantially by increasing average speed of freight trains from present 22Kmph to 50Kmph.
- Reduce overall cost of Rail transportation by nearly 30% and pass on the benefits to the customers.

Review of allied sectors

Crude prices expected to rise to \$80-85 per barrel in 2022

Crude oil prices are likely to increase 15-20% on-year to \$80-85 per barrel in 2022 from \$70.4 per barrel in 2021.

Crude oil prices trend (\$/barrel)



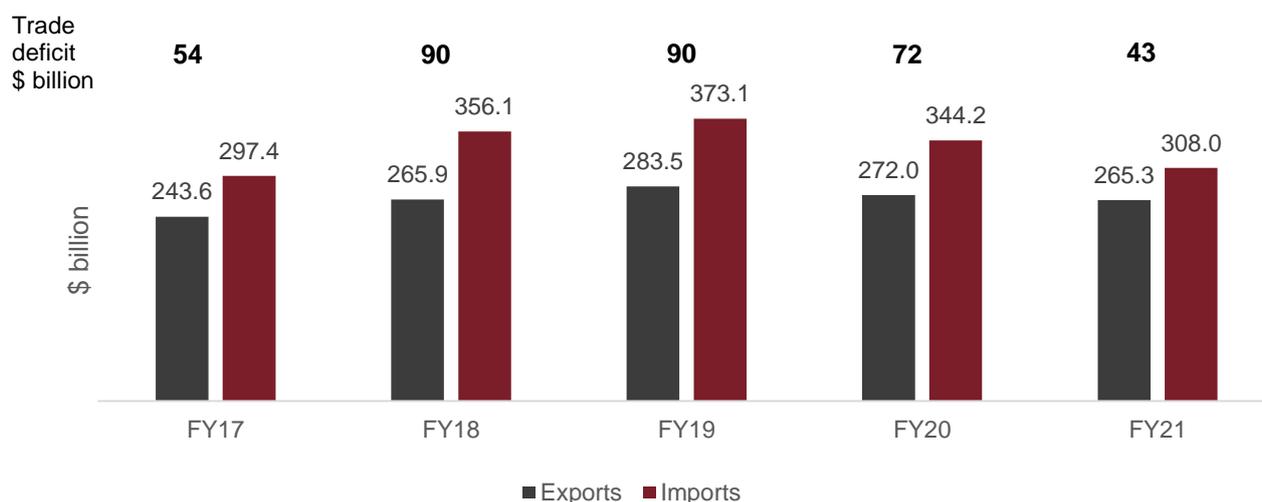
Source: Industry, CRISIL Research

Prices are expected to be ~\$40-45 per barrel in the next 4-5 years as oil demand would remain sluggish on account of declining global economic growth and fuel diversification.

Review of EXIM Trade

During fiscal 17 to fiscal 19 overall merchandise exports from India grew at a healthy pace of 10% CAGR to reach \$ 330 billion. Imports, on the other hand, increased at a faster pace of 16% CAGR backed by 27% rise in oil imports. Exports registered a relatively lower decline backed by increased exports from pharma sector, especially vaccines, also backed by some improvement in the global demand during the second half of the year.

Non-oil trade trend



Source: Ministry of Commerce and Industry, CRISIL Research

In January 2022, merchandise imports grew 23.6% on-year to \$51.9 billion, while exports rose a higher 25.3% on-year to \$34.5 billion. The double-digit on-year growth in merchandise trade is still partially explained by the low-base effect of the previous fiscal. Sequentially, though, exports contracted 8.7% on-month, and imports a sharper 12.7%, after hitting record highs in December. The omicron surge in major trading partners is likely to have played a role in dampening external demand to an extent, leading to a sequential decline in exports. With imports declining at a faster clip than exports on-month, trade deficit moderated to \$17.4 billion in January, from \$21.7 billion in December.

So far, exports have climbed \$338.0 billion this fiscal (April-January) — ~85% of the merchandise export target of \$400 billion set by the Ministry of Commerce and Industry for this fiscal. Core imports continue to contract in June

Outlook

Recovering domestic demand and higher commodity prices, especially of crude oil (India's largest import item), will drive imports upwards this fiscal and next. Geopolitical tensions have exacerbated crude oil prices. CRISIL expects Brent crude prices at \$80-85 per barrel in 2022, compared with \$70.4 in 2021. While buoyant external demand largely contributed to the surge in exports this fiscal, it may not support to the same extent the next fiscal, as global growth is set to moderate. Omicron's dampening impact on trade, though partially visible in January month's merchandise trade data, is expected to be limited, as it has prompted relatively few restrictions in affected countries.

Overall, we expect India's current account deficit at 1.4% of gross domestic product (GDP) this fiscal, and to rise to 1.8% of GDP the next fiscal.

State wise review

South continues to be the major contributor, East maintains its contribution

South region contributed the most to India's GDP (30% in fiscal 20) followed by West region. North region closely followed West with 27% contribution. East region relatives lagged with 15% contribution in fiscal 20.

Backed by healthy growth in states of Telangana, Karnataka and Andhra Pradesh, South region grew at the fastest pace of 8.2% CAGR during fiscal 15- fiscal 20 period, thus, expanding its contribution from 29% in fiscal 15 to 30% in fiscal 20.

One of the fastest growing state Gujarat supported a healthy growth of 7.8% CAGR for West region providing a marginal fillip to its all India contribution in 5 years.

Despite a push from Delhi, Haryana and Uttarakhand, North region registered a relatively slower growth pace of 6.8% CAGR during fiscal 15-20 period restricted by subdued growth in Rajasthan and Punjab.

Compared to the North region, East, on the other hand, clocked relatively faster growth of 7.2% from a low base keeping its contribution near stagnant. Healthy growth in Assam, Bihar and Odisha provided the support to this growth. Moreover, Mizoram, Sikkim and Tripura provided an added push with above average growth on a low base.

Region wise GDP trend

| Sr no | Region | GDP growth - CAGR (FY15-FY20) | States | Real GDP (FY20) - Rs Billion | GDP growth - CAGR (FY15-FY20) | Contribution to India's GDP | Real per capita income (FY20) Rs |
|-------|---|-------------------------------|----------------|------------------------------|-------------------------------|-----------------------------|----------------------------------|
| 1 | South Contribution to India's GDP 30% | 8.2% | Tamil Nadu | 13,129 | 8.0% | 8.9% | 153,853 |
| 2 | | | Karnataka | 11,438 | 8.9% | 7.8% | 154,861 |
| 3 | | | Andhra Pradesh | 6,688 | 8.5% | 4.6% | 113,927 |
| 4 | | | Telangana | 6,517 | 9.4% | 4.4% | 150,641 |
| 5 | | | Kerala | 5,686 | 6.2% | 3.9% | 149,563 |
| 6 | | | Puducherry | 250 | 6.6% | 0.2% | 78,680 |
| 7 | West contribution to India's GDP 28% | 7.8% | Maharashtra | 21,341 | 6.7% | 4.7% | 152,566 |
| 8 | | | Gujarat | 12,742 | 9.4% | 4.6% | 165,359 |
| 9 | | | Madhya Pradesh | 5,804 | 8.6% | 4.4% | 62,236 |
| 10 | | | Goa | 634 | 9.6% | 4.2% | 367,226 |
| 11 | | | Uttar Pradesh | 11,668 | 6.9% | 7.9% | 141,918 |

| Sr no | Region | GDP growth - CAGR (FY15-FY20) | States | Real GDP (FY20) - Rs Billion | GDP growth - CAGR (FY15-FY20) | Contribution to India's GDP | Real per capita income (FY20) Rs |
|-------|---|-------------------------------|--|------------------------------|-------------------------------|-----------------------------|----------------------------------|
| 12 | North contribution to India's GDP 26% | 6.9% | Rajasthan | 6,887 | 5.7% | 4.7% | 78,390 |
| 13 | | | Delhi | 6,138 | 7.5% | 4.2% | 75,278 |
| 14 | | | Haryana | 5,597 | 8.6% | 3.8% | 176,199 |
| 15 | | | Punjab | 4,127 | 5.7% | 2.8% | 118,848 |
| 16 | | | Uttarakhand | 1,997 | 7.2% | 1.4% | 141,918 |
| 17 | | | Himachal Pradesh | 1,223 | 6.5% | 0.8% | 142,155 |
| 18 | | | East contribution to India's GDP 17% | 7.1% | West Bengal | 7,932 | 6.7% |
| 19 | Bihar | 4,150 | | | 8.2% | 2.8% | 31,287 |
| 20 | Odisha | 3,965 | | | 7.9% | 2.7% | 78,680 |
| 21 | Chhattisgarh | 2,499 | | | 6.1% | 1.7% | 75,278 |
| 22 | Assam | 2,488 | | | 8.5% | 1.7% | 62,796 |
| 23 | Jharkhand | 2,400 | | | 5.2% | 1.6% | 57,863 |
| 24 | Tripura | 406 | | | 8.5% | 0.3% | 89,682 |
| 25 | Meghalaya | 267 | | | 5.8% | 0.2% | 66,153 |
| 26 | Manipur | 207 | | | 6.3% | 0.1% | 53,930 |
| 27 | Sikkim | 200 | | | 8.9% | 0.1% | 255,772 |
| 28 | Nagaland | 193 | | | 6.1% | 0.1% | 75,951 |
| 29 | Mizoram | 188 | | | 10.8% | 0.1% | 148,663 |
| 30 | Arunachal Pradesh | 179 | | | 4.4% | 0.1% | 105,064 |



Note: State wise data for fiscal 21 is not yet available

Source: MOSPI, CRISIL Research

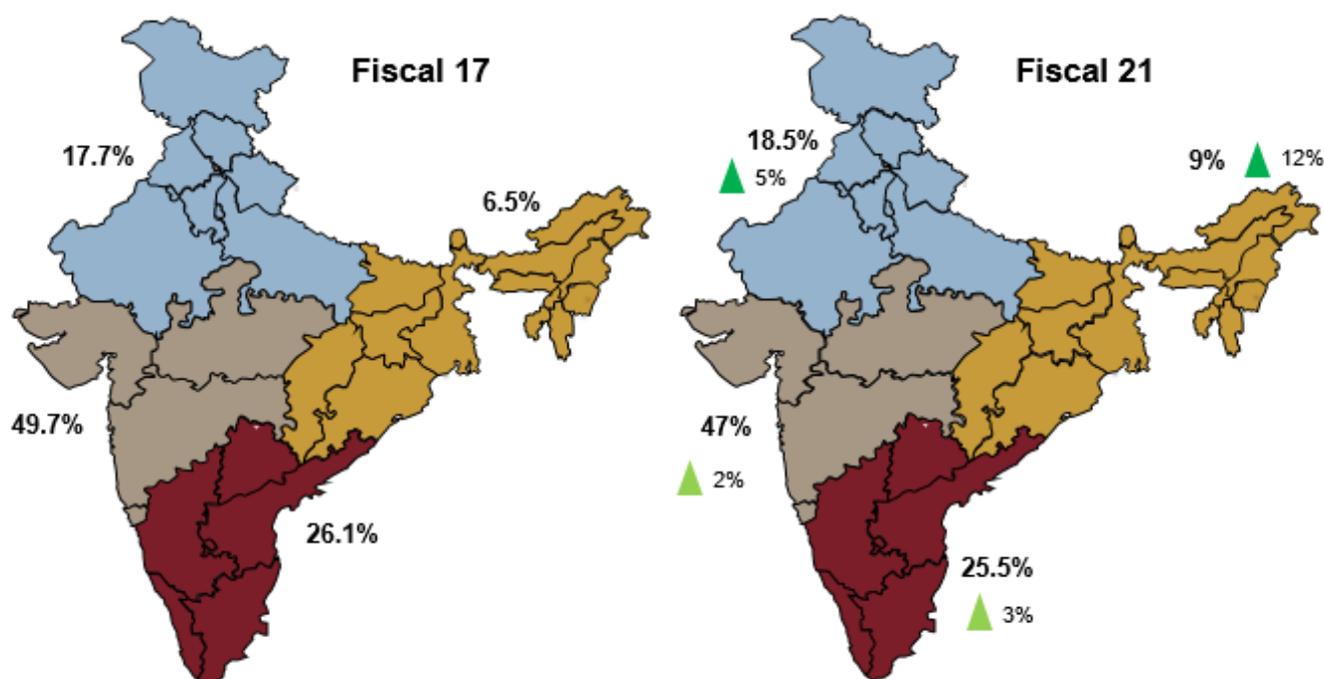
Maharashtra, TN, Gujarat, UP and Karnataka continue to be the top contributors to India's GDP with a combined 40% contribution in fiscal 20.

Region wise exports

West region leads the overall exports with 47% share in fiscal 21 with South region being a distant second at 25.5%. However, the top contributors have been losing ground to the emerging regions East and North.

During fiscal 17 to fiscal 21, East and North have grown at a faster pace of 12% and 5% CAGR, vis a vis a subdued pace witnessed in West and South region.

Region wise Exports split (by value)



Note: ▲ : CAGR growth achieved during fiscal 17 to fiscal 21

Source: Ministry of Commerce and Industry, CRISIL Research

The healthy growth pace of 12% in East region was backed by sharp 19% CAGR growth clocked by Odisha, the biggest contributor during fiscal 17 to fiscal 21 period. Sharp rise in exports for, Chhattisgarh, Jharkhand and Bihar, albeit on a lower base, provided an additional kicker to the overall growth. West Bengal, the second biggest contributor continued its growth at a steady pace of 5% CAGR during the stated period.

Healthy 10% CAGR growth in UP exports helped North region outpace West and South regions. High growth of 28% and 15% registered by Uttarakhand and Himachal Pradesh provided an additional support. However, declining exports from Delhi restricted the exports growth from North region.

Region wise exports

| Sr no | Region | State | FY17 (Rs Billion) | FY21 (Rs Billion) | Contribution in FY21 | Growth FY17-FY21 |
|-------|--------|-------------|----------------------|----------------------|-------------------------|---------------------|
| 1 | West | Gujarat | 3635.1 | 4483.0 | 21% | 5% |
| 2 | | Maharashtra | 4519.8 | 4317.0 | 20% | -1% |

| Sr no | Region | State | FY17 (Rs Billion) | FY21 (Rs Billion) | Contribution in FY21 | Growth FY17-FY21 |
|-------|--------|----------------------|----------------------|----------------------|-------------------------|---------------------|
| 3 | | Madhya Pradesh | 297.6 | 479.6 | 2% | 13% |
| 4 | | Dadra & Nagar Haveli | 149.8 | 195.5 | 1% | 7% |
| 5 | | Goa | 153.0 | 171.0 | 1% | 3% |
| 6 | | Daman & Diu | 97.2 | 46.0 | 0% | -17% |
| 7 | South | Tamil Nadu | 1774.1 | 1933.3 | 9% | 2% |
| 8 | | Andhra Pradesh | 800.3 | 1247.4 | 6% | 12% |
| 9 | | Karnataka | 1319.4 | 1120.8 | 5% | -4% |
| 10 | | Telangana | 402.4 | 645.4 | 3% | 13% |
| 11 | | Kerala | 327.4 | 291.6 | 1% | -3% |
| 12 | | Pondicherry | 23.2 | 31.2 | 0% | 8% |
| 13 | | Andaman & Nicobar | 0.3 | 0.1 | 0% | -17% |
| 14 | | Lakshadweep | 0.1 | 0.0 | 0% | -41% |
| 15 | North | Uttar Pradesh | 840.0 | 1211.4 | 6% | 10% |
| 16 | | Haryana | 717.1 | 857.3 | 4% | 5% |
| 17 | | Delhi | 707.8 | 562.4 | 3% | -6% |
| 18 | | Rajasthan | 387.1 | 492.3 | 2% | 6% |
| 19 | | Punjab | 353.8 | 392.3 | 2% | 3% |
| 20 | | Uttaranchal | 60.1 | 159.2 | 1% | 28% |
| 21 | | Himachal Pradesh | 70.8 | 123.1 | 1% | 15% |
| 22 | | Jammu & Kashmir | 7.9 | 11.8 | 0% | 11% |
| 23 | | Chandigarh | 5.0 | 5.6 | 0% | 3% |
| 24 | East | Odisha | 407.1 | 757.2 | 4% | 17% |
| 25 | | West Bengal | 552.3 | 660.1 | 3% | 5% |
| 26 | | Chhattisgarh | 63.2 | 172.0 | 1% | 28% |
| 27 | | Jharkhand | 48.1 | 120.7 | 1% | 26% |
| 28 | | Bihar | 55.2 | 111.9 | 1% | 19% |
| 29 | | Assam | 28.9 | 30.8 | 0% | 2% |
| 30 | | Tripura | 0.2 | 0.8 | 0% | 43% |
| 32 | | Meghalaya | 3.8 | 0.8 | 0% | -33% |
| 33 | | Sikkim | 0.6 | 0.7 | 0% | 6% |
| 34 | | Nagaland | 0.3 | 0.4 | 0% | 10% |

| Sr no | Region | State | FY17 (Rs Billion) | FY21 (Rs Billion) | Contribution in FY21 | Growth FY17-FY21 |
|-------|--------|-------------------|----------------------|----------------------|-------------------------|---------------------|
| 35 | | Manipur | 0.1 | 0.1 | 0% | -9% |
| 36 | | Arunachal Pradesh | 0.3 | 0.0 | 0% | -41% |
| 37 | | Mizoram | 0.1 | 0.0 | 0% | -24% |

>=10
 <10, >=5 %
 <0, >=5 %
 < 0 %

Exports from states are taken from DGCIS Analytics data available on Ministry of Commerce and Industry (MOCI) website

Source: DGCIS, MOCI, CRISIL Research

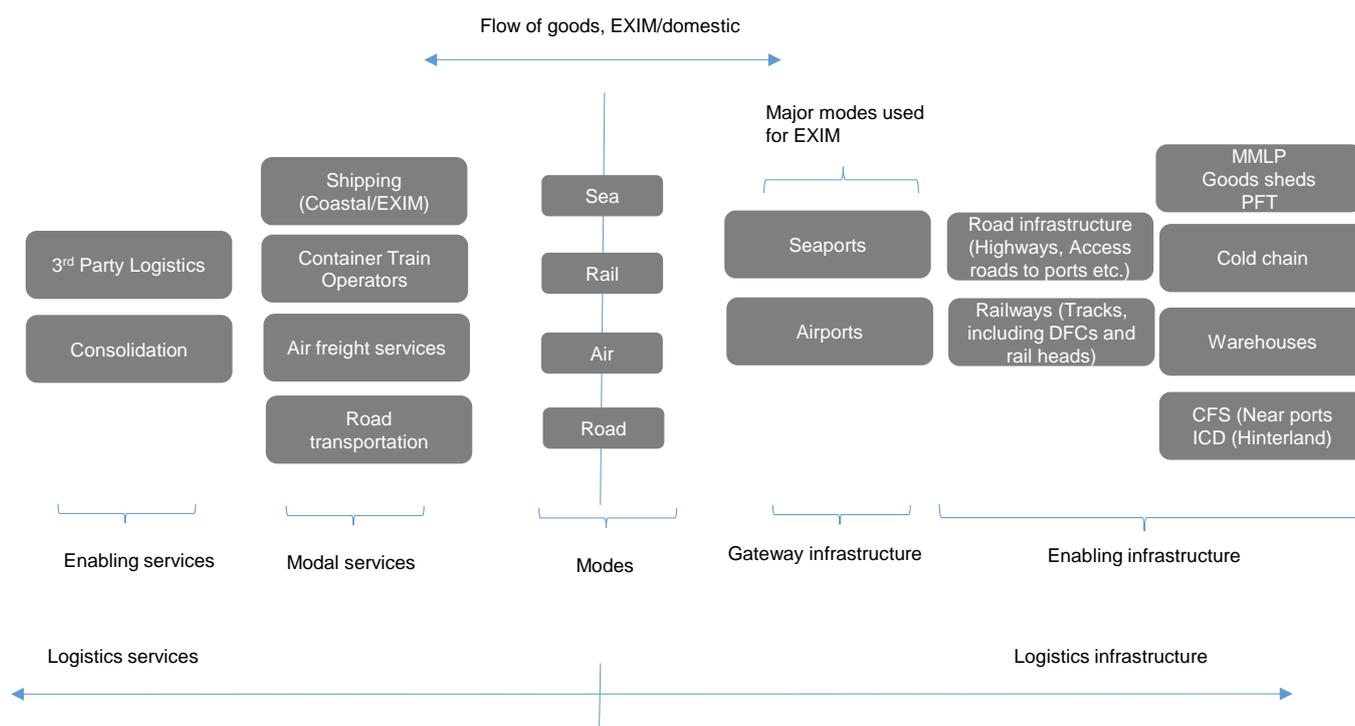
2. India's logistics market

Components of logistics market

Logistics comprises service providers as well as infrastructure

Logistics is an integral part of any country, providing efficient and cost-effective flow of raw materials and finished goods, and facilitating transactions between the consuming and producing parts of the economy. The logistics sector encompasses various modes of transportation, enabling infrastructure, and associated services, which complement and enhance the competitiveness of the overall flow of goods.

Value chain – Logistics



Source: Industry, CRISIL Research

Key sub segments of logistics

| Segment | Key characteristics |
|----------------------------|--|
| Road transportation | Roads are the most important mode of transport catering to commoditised, piecemeal cargo segments, in addition to full truck load (FTL) cargo. Roads are typically most competitive for short distances (250-300 km). They are also a preferred mode for transport of non-bulk items. |
| Warehousing | Warehousing involves the storage of goods and merchandise to protect the quality and quantity of the stored product. It is an integral part of the logistics value chain, facilitating the collection, storage, sorting, and dissemination of goods. |
| Cold chain | Cold chains provide storage and distribution services for products that need to be maintained at a given temperature. The industry comprises two segments - temperature-controlled warehousing and temperature-controlled transportation/vehicles. The key components of the cold chain industry include |

| | |
|--|---|
| | pack-house, cold storage (bulk), cold storage (hub), refrigerated vehicles, information systems, and delivery tracking systems. |
| Container freight station (CFS)/ Inland container depot (ICD) | <i>CFS/ICDs</i> : These are facilities set up mainly for custom clearance to decongest ports, and handle and temporarily store export-import (EXIM) cargo and empty containers. The key value proposition of a CFS/ICD is it provides an integrated platform for activities such as loading/unloading, transporting and stuffing/de-stuffing of containers. The functional aspects of CFS and ICD are the same, with the major difference being that CFSs are located near the gateway port and ICDs are located in the hinterland. |
| Rail freight | Rail freight is generally preferred for medium to long distance hauls for bulk and container cargo. These services are offered either by the Indian Railways (as in case of coal, iron ore, etc) or CTOs in case of container logistics |
| Container train operators (CTOs) | CTOs are licensed by Indian Railways to provide EXIM/domestic container haulage services. CONCOR, as PSU, is the largest player across CTOs, Most of the CTOs also operate rail linked ICDs/PFTs, in addition to the CTO service, while major private players are Adani Logistics, Gateway Rail, Hind Terminals, JM Baxi and Pristine Logistics. |
| Rail freight terminals (including PFTs) | A goods shed is a rail freight terminal that facilitates loading, unloading and in-transit storage of commercial cargo transported by the Indian Railways. A PFT serves domestic cargo, primarily facilitating access to rail transport, and providing services such as warehousing and transportation for incoming and outgoing cargo, including last mile connectivity. Few PFTs also provide value added services as cargo aggregation, packaging etc. |

Transportation accounts for majority of the logistics spend

As per Ministry of Road Transport and highways, India's logistics cost as a % of GDP stood at 13-14% compared to 10-11% for BRIC countries and 8-9% for developed countries. Going forward, the logistics cost as a % of GDP for India is expected to decline driven by initiatives such as Implementation of GST, investments towards Road infrastructure, development of Inland waterways and Coastal shipping, thrust towards Dedicated Freight Corridors etc.

In logistics, the market size of key segments - road transport, rail transport, warehousing, cold chain, logistics¹, and rail freight terminals², is estimated to be about Rs ~9.0 trillion in fiscal 2021. This is expected to grow at a CAGR of ~10% to Rs ~15 trillion by fiscal 2026, as against 5-7% CAGR observed for fiscal 2016-21 period. The logistics market declined by 4-6% in fiscal 2021, in the wake of the pandemic. Key observations sectors are as follows:

Market size of key segments of logistics

| Segment | Market size (FY21, Rs billion) | CARG (FY16-20) | Growth (FY21/20) | Remarks |
|---------|--------------------------------|----------------|------------------|---|
| Road | 5100 - 5200 | 8% | -4% | Rail performed better during the COVID impacted fiscal 2021. Performance of rail linked sectors was relatively better vis-à-vis other sectors |
| Rail | 2250 - 2350 | 5% | 2% | |

¹ Including Container freight stations (CFS) and inland container depots (ICD), ports, container train operators (CTO)

² Including goods sheds and private freight terminals (PFT)

| | | | | |
|--|-------------|-----|-----|--|
| Warehousing and Cold Chain | 1300 - 1400 | 15% | -7% | Decline in sectoral consumption the COVID-19, lockdowns, rental waivers and reduction in management & service fees led to fall in revenues of warehousing/3PL players. |
| CTO/ICD | ~85 | 4% | -2% | In container logistics, higher hinterland exports and increased haulage through rail aided the CTO/ICD to perform better vis-à-vis CFS |
| CFS | ~37 | -2% | -5% | |
| Rail freight terminals (including PFTs) | ~41 | 11% | 3% | Improved haulage through also helped in an increased PFT penetration |

Note: E: Estimated, P: Projected

Rail terminals include Goods Sheds and Private Freight Terminals

Value-added services is included in cold chain, warehousing and CFS/ICD

Source: Industry, CRISIL Research

Trends in modal mix

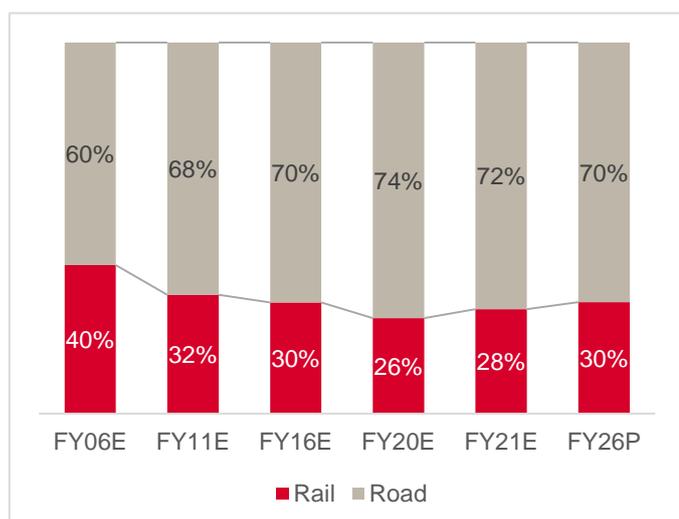
Rail fared well during fiscal 2021

CRISIL Research expects primary freight in billion-tonne-kilometre (BTKM) terms to rise by 9-11% in fiscal 2022 amid revival in production on a low base across all the segments.

Primary freight movement is estimated to have fallen by ~8% on-year in fiscal 2021 compared with an estimated 4% de-growth in fiscal 2020. Slowdown in primary freight growth in fiscal 2021 was largely due to a contraction in industrial output, construction activities and lower exports due to multiple lockdown announced on account of COVID-19 outbreak despite some cushion from higher agricultural produce.

Rail's modal share increased in fiscal 2021, aided by a 2% on year growth in tonnage carried by rail, as against a decline observed across other modes. Rail is expected to claw back modal share over fiscal 2021-26 as well.

Modal share – Road and Rail



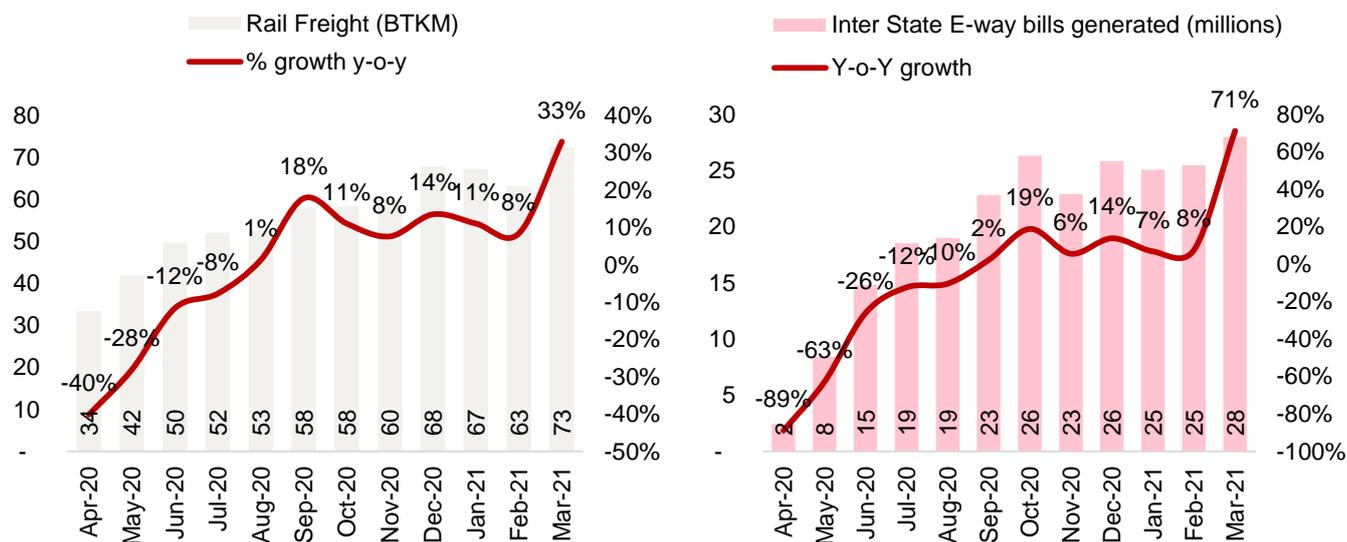
Modal growth – Road and Rail

| Mode | FY21E | FY22E | FY23P | FY21-26P |
|---------------------|------------|-------|-------|----------|
| Road | -9% to -7% | 9-11% | 7-9% | 6-8% |
| Rail | 2% | 7-10% | 4-6% | 6-8% |
| Surface BTKM | -8% to -6% | 9-11% | 6-8% | ~7% |

Source: Industry, CRISIL Research

Road traffic was significantly impacted during the lockdowns imposed in fiscal 2021. Rail was increasingly used for shorter leads as well to carry essentials, medical supplies, medical oxygen and non-bulk traffic. Rail's share in container haulage also improved, particularly in first quarter of fiscal 2021. Provided below is the relative performance of road and rail, assessed through on year growth for rail BTKM and inter-state e-way bills (*for road*).

Fiscal 2021 performance: Road vs Rail



Source: Indian Railways, GST Network, Industry, CRISIL Research

Below is a summary of the expected performance of the two major modes of freight transportation:

- Road freight:** CRISIL Research expects a healthy of 9-11% in billion-tonne-km (BTKM) terms in fiscal 2022 as economy rebounds and consumption improves. Revival in production across all segments and investment-focused government spending is expected to further boost freight movement. Road freight is estimated to have declined by ~9% in billion-tonne-km (BTKM) terms in fiscal 2021 after decelerating by ~5% in fiscal 2020. In fiscal 2021, road freight fell due to continued impact of the lockdown, with it losing share to railways as rail freight (predominantly impacted due to food grain movement) remained resilient during the lockdown and as railways came up with incentives to increase their modal share. BTKM de-growth in fiscal 2020 was due to lower industrial growth along and muted consumption demand especially Q4FY20 being hit due to increasing awareness leading to people following social distancing norms and nationwide shutdown announced in March'20.
- Rail freight:** Growth in rail movement (in BTKM terms) is expected to improve by 9-11% in fiscal 2022 due to flattish lead distance and a healthy growth of 9-11% in the tonnage movement. The increase is expected in line with higher production across all the bulk commodities along with additional tonnage loading owing to partial commissioning of the dedicated freight corridor. Growth in rail movement (in BTKM terms) is estimated to have improved by ~1% in fiscal 2021 due to ~1% dip in lead distance and 2% rise in the tonnage movement due to pick up in bulk commodities' production. Rail movement declined by ~4% in fiscal 2020 due to ~3% drop in lead distance and 1% drop in the tonnage movement due to muted tonnage movement for major bulk commodities.

Rail to outperform road in the long run

We expect growth in road freight traffic to increase at a compounded annual growth rate (CAGR) of 7-8% in BTKM terms between fiscals 2021 and 2026 on a low base after two consecutive years of de-growth. Although, rail freight is expected to grow at a similar CAGR in the same period, the growth is on a comparatively higher base. Post commissioning of the dedicated freight corridor, we expect rail freight to grow at a faster pace than road. This will especially be seen in fiscals 2023 to fiscal 2025 and would help rail to claw back share it had earlier lost owing to capacity constraints.

Multimodal logistics

EXIM container traffic fared relatively well vis-à-vis other commodities at ports

In fiscal 2022, container traffic would witness a growth recovery of 10-12% as the Indian economy is expected to revive. In fiscal 2021, due to the impact of the COVID-19 pandemic, container segment remained flattish, on the low base of fiscal 2020. The container traffic in fiscal 2020 was tepid, 2% on year, as the economy was already slowing down.

A flattish growth witnessed for containers, was better than other commodities handled across ports. Container traffic grew by 1% on year in fiscal 2021, while overall traffic handled at Indian ports, declined by 5% on year in fiscal 2021. The container segment is expected to see a growth of 6-8% CAGR over fiscals 2021-2026 period, after slower growth observed in fiscal 2020 and fiscal 2021.

Over the next five years, the share of container traffic is expected to drift towards non-major ports, led by faster turnaround times and setup of new container terminals.

Container traffic at Indian ports (million TEU)



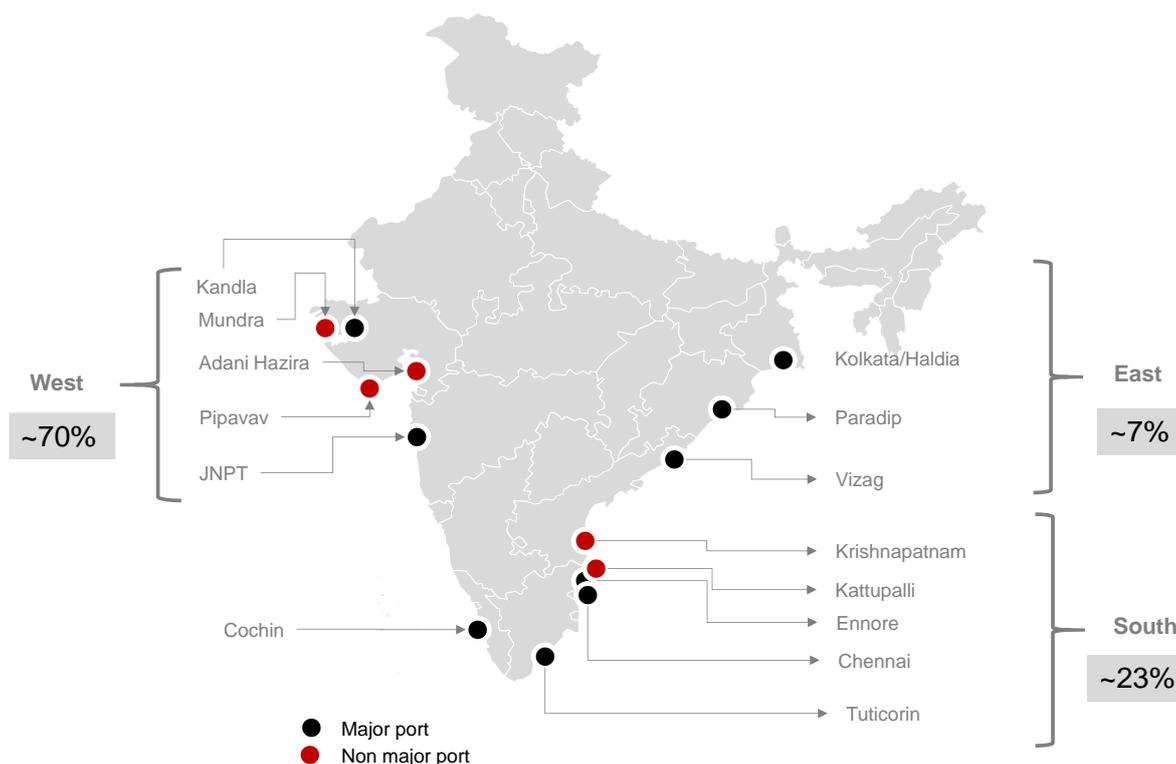
Source: Indian Ports Association, Port websites, Industry, CRISIL Research

Ports in west zone have a higher share in India’s container traffic

Key container ports located in west zone are Kandla, Mundra, Pipavav, Hazira and JNPT. Key ports located in south zone are Cochin, Tuticorin, Chennai, Ennore, Kattupalli and Krishnapatnam, while east zone’s key ports are Kolkata, Paradip and Vizag.

Ports in west zone account for ~70% of the Indian container traffic, while ports in south and east zones account for ~23% and ~7%. South zone’s traffic grew at fastest rate during fiscal 2016-20 period, at 10% CAGR, vis-à-vis 8% and 7%, for west and east zones, respectively. However, during the pandemic stricken fiscal 2021, only west zone’s traffic registered growth (4% on year), while declined traffic was observed across south zone (-6%) and east zone (-13%).

Share of container ports across regions in India



Boxes represent share of region’s ports in container traffic of India

Source: Indian Ports Association, Port websites, Industry, CRISIL Research

Mundra port overtook JNPT to become the largest container port in fiscal 2021

Container traffic at Mundra port, increased by 20% on year in fiscal 2021, increasing from 4.7 million TEU in fiscal 2020 to 5.7 million TEU in fiscal 2021. Traffic at second largest container port, JNPT, stood at 4.6 million TEU in fiscal 2021, declining by ~8% during the year. Among other ports in West zone, Pipavav, witnessed a decline of 14%, while traffic at Hazira and Kandla, increased by 9% and 15%, respectively.

Across other zones, only Cochin and Ennore in South zone, showed a positive trend in fiscal 2021, while traffic at all other container ports declined.

Also, over fiscal 2016-2020 period, Kandla port in West zone and Kattupalli, Ennore and Krishnapatnam ports in South zone have witnessed significant increase in container traffic.

During fiscal 2016-2021, overall container traffic at Indian ports increased by ~5.0 million TEU, while for Mundra, the largest container port in fiscal 2021, traffic increased by ~2.7 million TEUs, during the same period.

Container traffic at ports (million TEU)

| Region/Port | FY16 | FY20 | FY21 | CAGR (FY16-20) | YoY (FY21) |
|---------------|------------|-------------|-------------|----------------|-------------|
| EAST | 1.0 | 1.4 | 1.2 | 7% | -13% |
| Kolkata | 0.7 | 0.8 | 0.7 | 6% | -19% |
| Vizag | 0.4 | 0.5 | 0.5 | 8% | -5% |
| Paradeep | 0.01 | 0.01 | 0.02 | 24% | 36% |
| SOUTH | 2.8 | 4.2 | 3.9 | 10% | -6% |
| Chennai | 1.6 | 1.4 | 1.4 | -3% | -1% |
| Tuticorin | 0.6 | 0.8 | 0.8 | 7% | -5% |
| Cochin | 0.4 | 0.6 | 0.7 | 10% | 11% |
| Kattupalli | 0.1 | 0.7 | 0.5 | 56% | -20% |
| Krishnapatnam | 0.1 | 0.5 | 0.3 | 46% | -38% |
| Ennore | - | 0.1 | 0.2 | n.m. | 53% |
| Kakinada | - | 0.02 | 0.02 | n.m. | n.m. |
| WEST | 8.5 | 11.7 | 12.3 | 8% | 5% |
| Mundra | 3.0 | 4.7 | 5.7 | 12% | 20% |
| JNPT | 4.5 | 5.0 | 4.7 | 3% | -7% |
| Pipavav | 0.7 | 0.9 | 0.7 | 6% | -14% |
| Hazira | 0.3 | 0.6 | 0.7 | 19% | 9% |
| Kandla | 0.003 | 0.4 | 0.5 | n.m. | 15% |

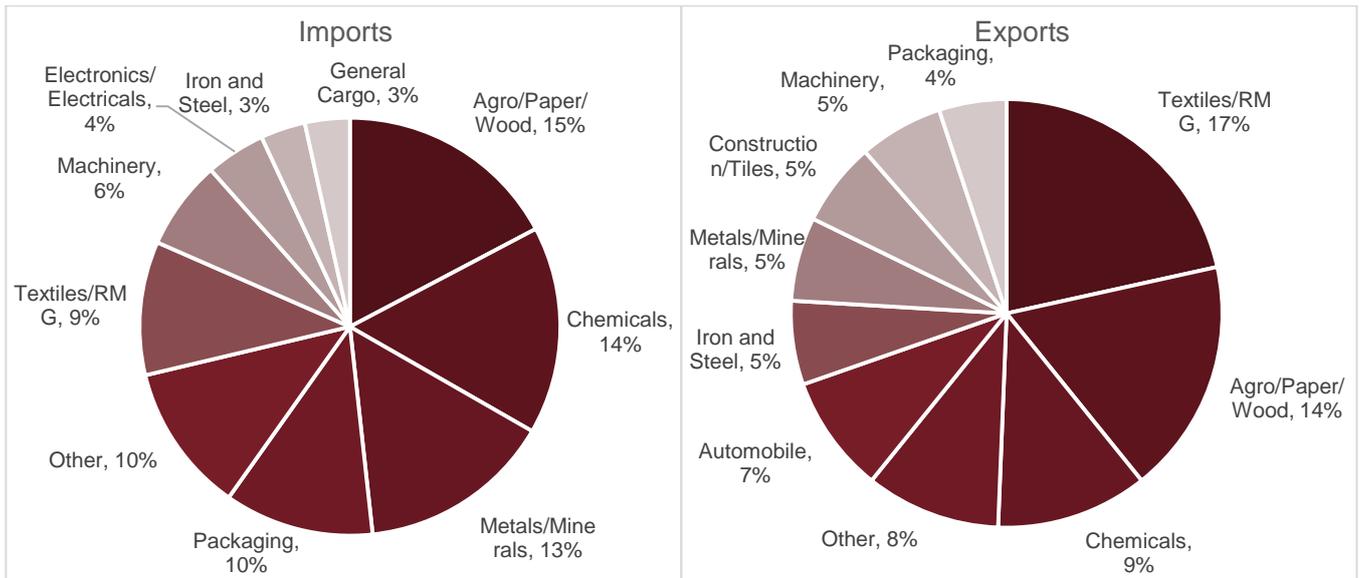
n.m.: Not meaningful

Source: Indian Ports Association, Port websites, Industry, CRISIL Research

Key EXIM container commodities are chemicals, metals, textiles and agro products

Key commodities for imports are chemicals, metals, paper products, agro products, textiles, and electrical and electronic goods, which account for about half of overall containerised imports. In the case of exports, key commodities are agro products, textiles, metals, chemicals, automobile components, and tiles and granite, which account for about half of overall containerised exports.

Key containerised commodities for ports in India



Source: RITASS Mumbai, Industry, CRISIL Research

Relative share of containerised commodities across ports depends upon the profile of the hinterland. The containerised commodities across the ports in West zone, which serve the northern and western hinterlands of the country are provided below:

Key containerised commodities for ports in West zone

| MUMBAI | Imports |
|-----------------|---------|
| Chemicals | 17% |
| Agro/Paper/Wood | 13% |
| Other | 12% |
| Metals/Minerals | 10% |
| Textiles/RMG | 8% |
| Machinery | 7% |
| MUNDRA | Imports |
| Metals/Minerals | 19% |
| Agro/Paper/Wood | 17% |
| Packaging | 15% |
| Other | 13% |
| Chemicals | 10% |
| Textiles/RMG | 7% |
| PIPAVAV | Imports |
| Chemicals | 18% |
| Textiles/RMG | 15% |
| Machinery | 12% |
| Metals/Minerals | 11% |

| MUMBAI | Exports |
|-----------------|---------|
| Textiles/RMG | 15% |
| Chemicals | 11% |
| Agro/Paper/Wood | 10% |
| Other | 8% |
| Machinery | 7% |
| Automobile | 7% |
| MUNDRA | Exports |
| Agro/Paper/Wood | 16% |
| Textiles/RMG | 16% |
| Other | 14% |
| Construction | 13% |
| Chemicals | 7% |
| Iron and Steel | 4% |
| PIPAVAV | Exports |
| Chemicals | 17% |
| Textiles/RMG | 16% |
| Agro/Paper/Wood | 15% |
| Automobile | 8% |

| | |
|-------------------------|-----|
| Agro/Paper/Wood | 11% |
| Electronics/Electricals | 7% |

| | |
|---------------|----|
| Food products | 6% |
| Seafood | 4% |

Source: RITASS Mumbai, Industry, CRISIL Research

Key containerised commodities for ports in East zone

| KOLKATA | Imports |
|----------------------|----------------|
| Chemicals | 16% |
| Agro | 15% |
| Metals/Minerals | 13% |
| Packaging | 12% |
| General Cargo | 7% |
| Textiles | 7% |
| VISAKHAPATNAM | Imports |
| Metals/Minerals | 32% |
| Chemicals | 19% |
| Agro | 18% |
| Machinery | 6% |
| Other | 4% |
| Iron and Steel | 4% |

| KOLKATA | Exports |
|----------------------|----------------|
| Agro | 20% |
| Metals/Minerals | 19% |
| Iron and Steel | 16% |
| Textiles | 8% |
| Packaging | 7% |
| Chemicals | 5% |
| VISAKHAPATNAM | Exports |
| Iron and Steel | 24% |
| Metals/Minerals | 20% |
| Seafood | 16% |
| Agro | 14% |
| Chemicals | 5% |
| Other | 4% |

Trends in containerization

Containerised transport is efficient vis-à-vis traditional trucking

Containerisation of break bulk/ general cargo commodities has gained wider acceptance as a means of transportation because of the following advantages:

- Reduction in transit time due to faster cargo movement, thereby saving on inventory costs
- Savings in packaging costs as the goods can be packed in cartons instead of cases
- Ability to leverage mechanised cargo handling due to standardised containers
- Ease of handling cargo in the container form has shifted the focus from disparate transport activities towards a transportation chain
- Reduction in freight rates in case of ocean as well as inland transportation
- Savings of storage in port warehouses
- Reduction in inventory cost for exporters and importers, due to shorter and assured transit times

It is also observed that containerisation has been steadily increasing, due to following advantages vis-à-vis traditional truck transportation.

- **Standardisation:** Containers are standard transportation equipment that can be handled anywhere in the world (ISO standard) through specialised modes (ships, trucks, barges and wagons) and equipment. Each container has a unique identification number and a size type code, which helps in tracking the consignments.
- **Security and safety:** Contents of the container are unknown to carriers. Containers can only be opened at the origin (seller) and the destination (buyer), which reduces the probability of pilferage.
- **Protection:** Use of containers eliminates multiple handling of goods since the containers can be opened only at the buyer and seller ends, which reduces the risk of damage to the products.

Major factors which influence containerisation are:

| Demand drivers | Factors | Remarks |
|----------------------------|---|---|
| Substitution based | <ul style="list-style-type: none"> • New niches, such as cold chain • Break bulk and bulk commodities | Containerisation of newer commodities can happen, which may be driven by shippers/consignees or cost factors |
| Trade flow based | <ul style="list-style-type: none"> • Imbalances in movement (EXIM or domestic) • Empty repositioning | Lesser traffic on one leg of trade may encourage shippers to transport commodities on empty flows, which may be beneficial for both consignees and shippers |
| Transshipment based | <ul style="list-style-type: none"> • Feeder movement • Transshipment • Hub and spoke movement across ports | Commodities may be transported to hub ports (connected by mainline vessel calls) in bulk, and consolidation may happen at hub ports |

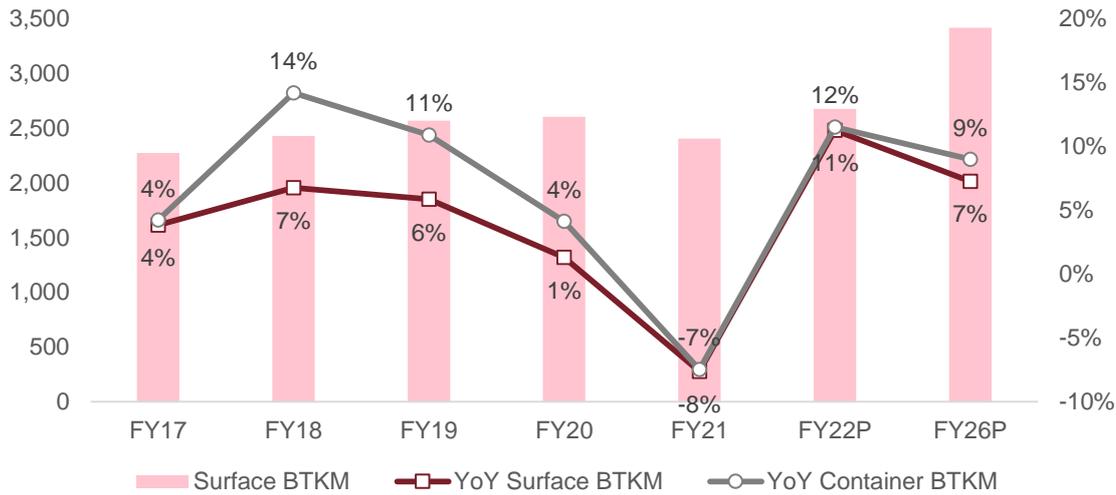
Source: Industry, CRISIL Research

Containerised freight is growing faster than surface freight

Surface freight (*in billion tonne Km terms*), consisting of road and rail, grew by 2-3% CAGR during the fiscal 2016-2020 period, while the containerised freight³ (*in billion tonne Km terms*) grew by 7-8% for the same period. In past 4-5 years, containerised BTKM has outpaced overall freight in consistently too. A faster growth of containerised freight implies an improvement in containerisation of traditional trucking and rail transport. Containerised freight accounts for roughly 5% of overall surface freight.

Containerised freight vs surface freight

³ Consisting of EXIM Rail Containers, EXIM Road Containers and Domestic Rail Containers

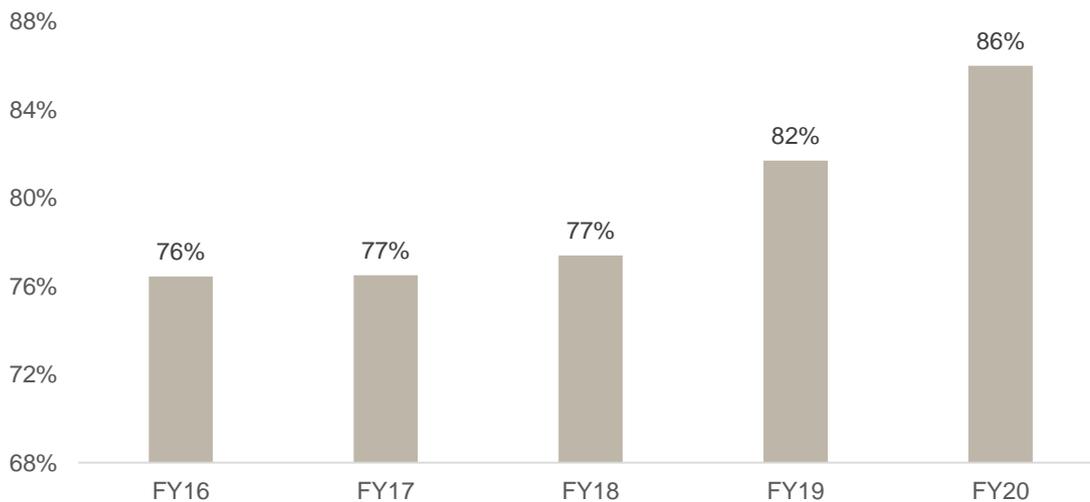


Source: Industry, CRISIL Research

Non-bulk commodities (such as FMCG, Consumer Durables, Fruits/Vegetables, Pharma and Electronics etc.) account for around 75% of road freight currently. Scope exists for containerisation of such products.

Level of containerisation⁴ at major ports has also increased in past few years. As per Basic Port Statistics of Shipping Ministry, level of containerisation was assessed at 76.5% in fiscal 2017, which increased to 86% in fiscal 2019-20.

Level of containerisation at major ports



Source: Basic Ports Statistics, Industry, CRISIL Research

⁴ Basic Port Statistics handbook defines level of containerisation as Container General Cargo / (Container General Cargo + Non Container General Cargo)

3. Container Train Operator (CTO) market in India

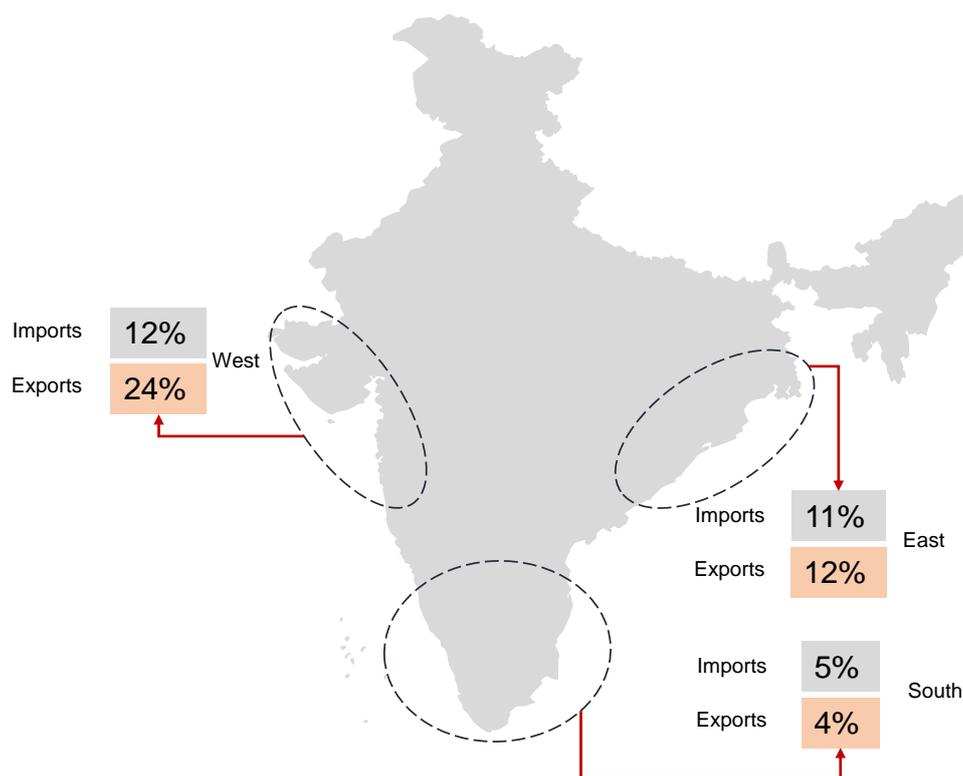
CTO market

Rail coefficient for EXIM container traffic is only 20-22%

Rail coefficient, i.e. cargo carried through rail, is estimated at 20-22% of EXIM container traffic in India. Rail coefficient has marginally increased in fiscal 2021.

Ports in Gujarat have a relatively higher rail coefficient vis-à-vis JNPT and other ports in India. The major cargo at Mundra and Pipavav ports, particularly, is contributed by the clusters in North India.

Est. rail coefficients across ports located across regions.



Note: Rail coefficients are averaged for July 2020 to Mar 2021

Source: Logistics Data Bank website, Industry, CRISIL Research

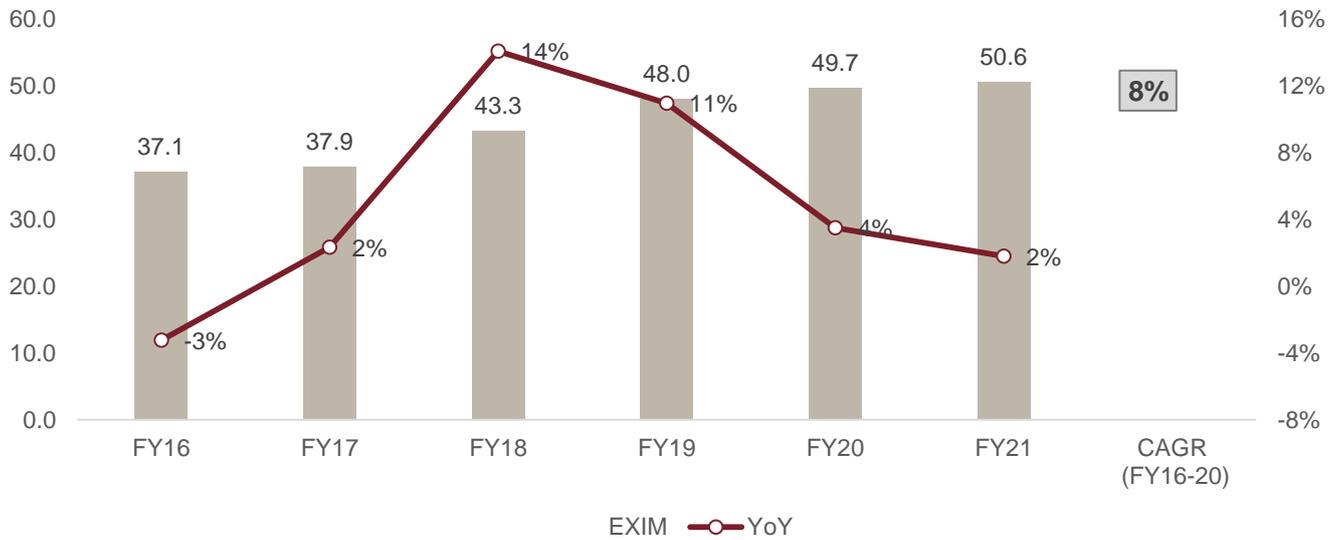
Rail containerised traffic has improved significantly in fiscal 2022, due to high diesel prices

Rail EXIM container traffic

Rail containerised traffic grew by 8% CAGR during fiscal 2016-20 period. After a tepid growth in fiscal 2016 and 2017, the containerised rail traffic growth has remained healthy. Rail traffic growth has outpaced overall traffic at ports, implying an increased rail share.

During the lockdowns imposed in first quarter of fiscal 2021, rail coefficients across all ports increased significantly, where rail was used to evacuate even the short lead containers.

Rail EXIM Container traffic (million tonnes)

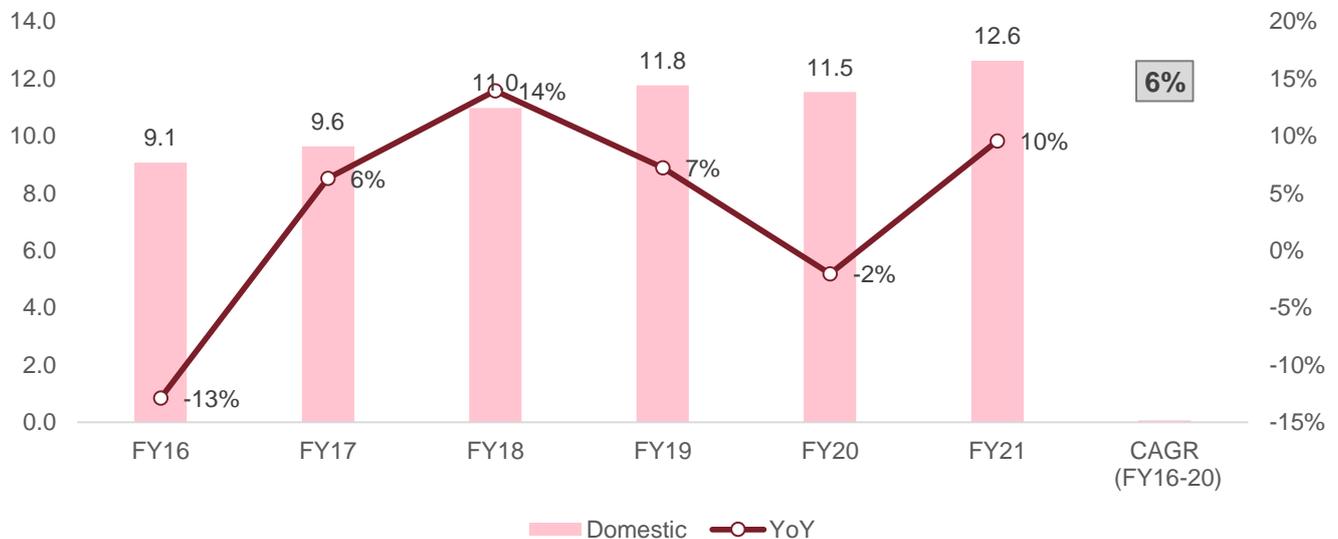


Source: Monthly Statistics released by Indian Railways, Industry, CRISIL Research

Rail domestic container traffic

Domestic containers grew by 6% CAGR during the fiscal 2016-2020 period. Domestic rail traffic increased significantly in fiscal 2021, vis-à-vis previous few years, as congestion for goods trains was eased due to limited passenger train movement. It is also noteworthy that cost competitiveness is an important criterion for rail’s share and historically it is observed that rail’s share is susceptible to changes in diesel prices.

Rail domestic container traffic (million tonnes)



Source: Monthly Statistics released by Indian Railways, Industry, CRISIL Research

Domestic rail container traffic (in BTKM terms) grew by 45% on-year for April-December period of fiscal 2022, which is significantly higher vis-à-vis the growth 6% CAGR for fiscal 2016-20 period. The EXIM rail container traffic (in BTKM terms) also improved by 16% on-year during the same period. This growth is also higher vis-à-vis the long term average of 7-8%.

High diesel prices in fiscal 2022 led to increased haulage through railways. Diesel prices in January 2022 are ~15% higher vis-à-vis January 2021.

Rail container traffic FY22 vs FY21

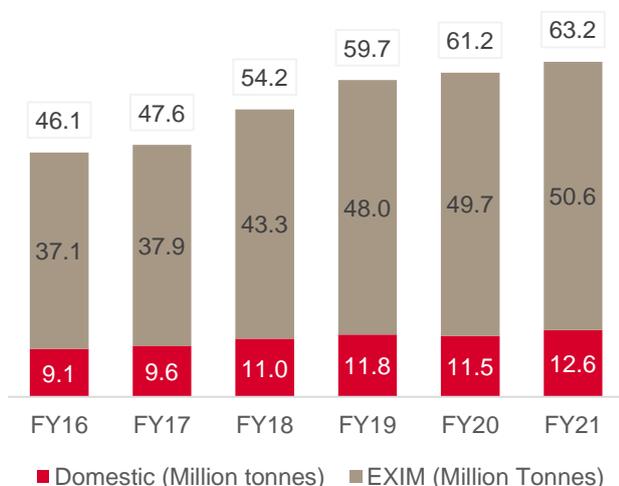
| Particulars | Million tonnes | | | BTKM | | |
|---------------------|----------------|-----------|----------------|-----------|-----------|----------------|
| | FY21 9M | FY22 9M | YoY growth (%) | FY21 9M | FY22 9M | YoY growth (%) |
| Domestic containers | 8 | 12 | 47% | 10 | 15 | 45% |
| EXIM containers | 36 | 42 | 16% | 26 | 30 | 16% |
| Total | 44 | 54 | 22% | 36 | 45 | 24% |

Source: Monthly Statistics released by Indian Railways, Industry, CRISIL Research

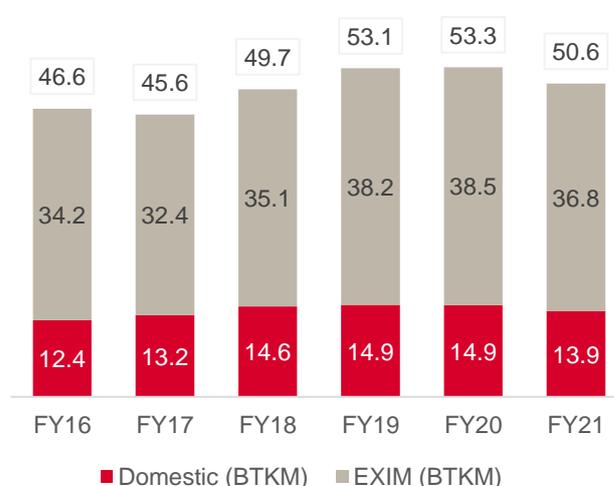
Market size for CTOs

Overall rail container traffic increased by 6% CAGR for fiscal 2016-21 period. During fiscal 2021, EXIM traffic increased by 2% on year, while domestic traffic increased by 10% on year. However, in terms of billion tonne kilometres travelled, traffic decreased for both domestic and EXIM segments during the year, led by smaller lead distances, when the rail was used to transport cargo for shorter distances as well.

Container rail traffic (Million tonnes)



Container rail traffic (BTKM)

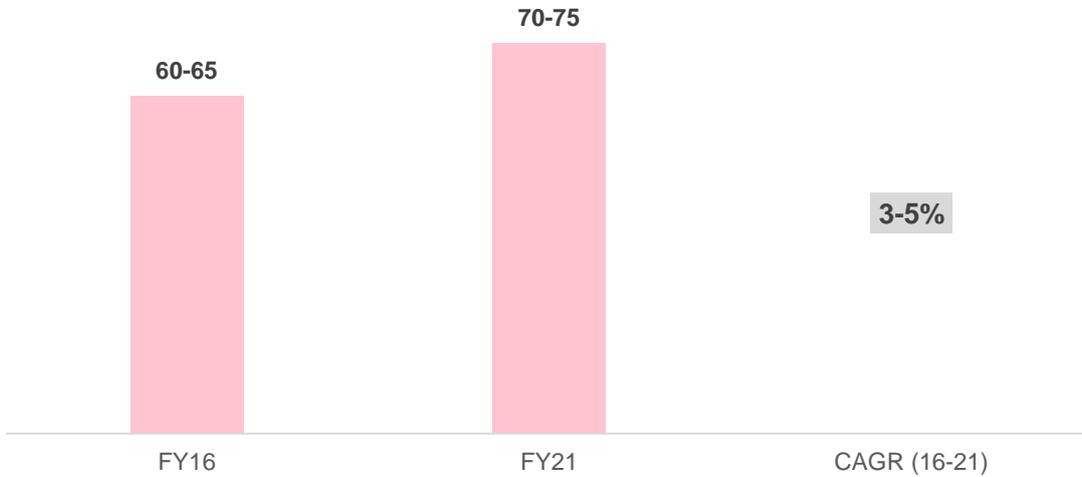


Source: Indian Railways, Industry, CRISIL Research

CTO market is dominated by CONCOR, however the share of CONCOR has declined over the years. As per company reports, CONCOR's share was 72% in fiscal 2016, which decreased to 66% in fiscal 2021. CTO market,

grew with 3-5% CAGR, over fiscal 2016-21. CTO market remained flat in fiscal 2021, due to fall in lead distances as well as tariff rebates extended by players to end users, which led to fall in revenues.

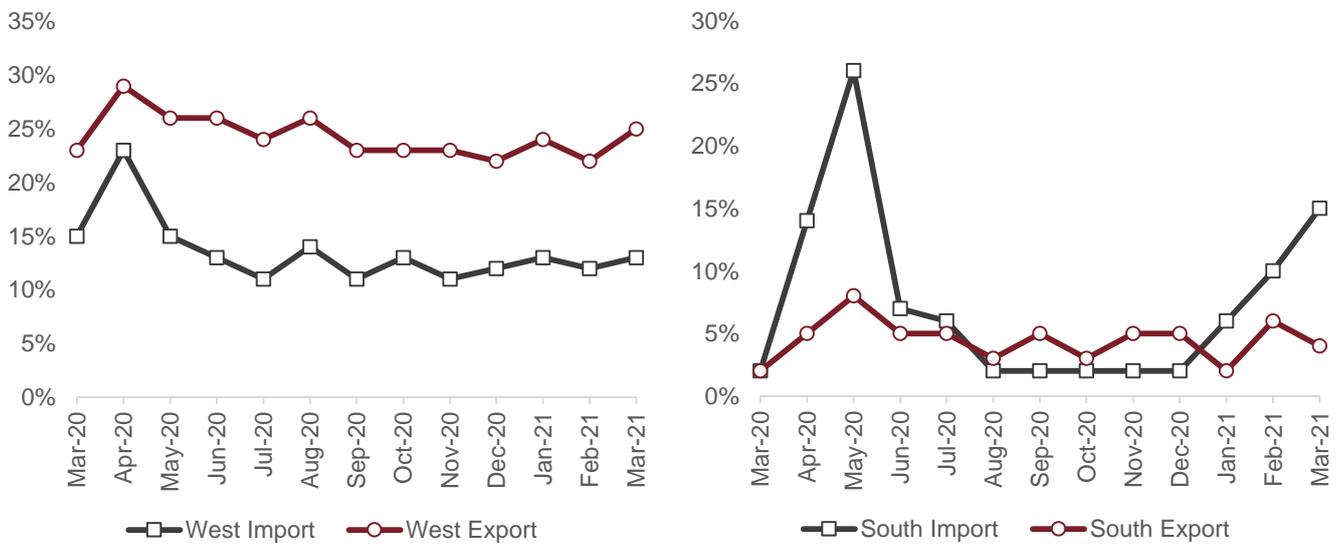
CTO Market size (Rs billion)

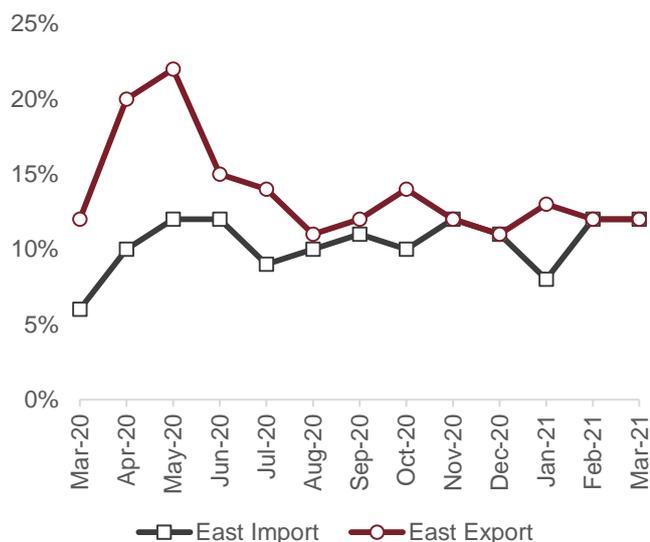


Source: Indian Railways, Company websites, Company Reports, Rating Rationales, Industry, CRISIL Research

Rail's coefficients for ports across regions also improved during fiscal 2021, particularly during the lockdown period. However, for overall year, rail ended with a 2% on year increase in EXIM container tonnage terms, as against ~1% increase in container traffic at ports. Domestic container tonnage on rail, however, increased by a stellar 10%.

Container rail coefficient for ports across regions





Source: Logistics Data Bank website, Industry, CRISIL Research

Major CTO players

CTO operations

Licenses to CTOs were granted under the 2006 CTO policy, with a view to increase rail haulage of containers. Four license categories were envisaged in the policy. Category I licenses were given for *JNPT/Mumbai Port - National Capital Region rail corridor, including all domestic traffic*. Category II covered rail corridors serving *JNPT/Mumbai Port and its hinterland in other than National Capital Region, including all domestic traffic except on category I routes*. Category III covered rail corridors serving the ports of *Pipavav, Mundra, Chennai/Ennore, Vizag and Kochi and their hinterland*. All domestic traffic except on category I routes is also covered under the category, while Category IV licenses include rail routes serving other ports like *Kandla, New Mangalore, Tuticorin, Haldia/Kolkata, Paradip and Mormugao and their hinterland and all domestic traffic routes*.

Among the active CTOs, CONCOR is the largest in terms of operational rakes, with more than 340 operational rakes. Gateway Rail, Hind Terminals, DP World and Adani Logistics and Pristine Logistics have 20 to 40 rakes operational rakes, while other CTOs have less than twenty operational rakes.

Active CTOs and operational rakes

| CTO | Operational container Rakes | License category | Remarks/Source | Routes/Stations served |
|---------------------|-----------------------------|------------------|--|---|
| CONCOR ⁵ | ~348 | I | As of FY21, it has a fleet (<i>owned and leased</i>) of 15,656 wagons and 37,906 containers. | Extensive services from 50+ EXIM/Domestic terminals |

⁵ As per FY21 Annual report of CONCOR, it has a fleet of 15,656 wagons as of FY21 end. No of rakes is estimated by considering 45 wagon per rake

| CTO | Operational container Rakes | License category | Remarks/Source | Routes/Stations served |
|--|-----------------------------|------------------|---|---|
| Adani Logistics ⁶ | 42 | I | ALL operates 42 container rakes, 9 GPWIS rakes, 2 AFTO and 7 Agri rakes. It also operates 5,000+ containers. | Patli-Mundra-Patli, Patli-Pipavav-Patli, Pipavav-Mundra-ICD Loni/Ludhiana |
| DP World | 30-35 | I | CTO services are provided through group entity, Container Rail Road Services Ltd. DP World has acquired a majority stake in KRIBHCO Infrastructure Ltd in May 2019. KRIBHCO used to operate ~8 rakes. | ICD Pali, Mundra, CWCNSL Navi Mumbai, Pipavav, Bhagat ki Kothi (Rajasthan), ICD Gothangaon (Surat), Reliance (Kanalus), Navkar Siding Navi Mumbai |
| Pristine Logistics ⁷ | 37 | I | As per company's website, Pristine runs 37 BLC/BLCM rakes, including 14 owned rakes and 23 leased rakes. Company has 2624 domestic end open and side open containers (for tile and white cement) and 415 dwarf 40 feet containers for transportation of light weight cargo (polyesters and polymers). Company also operates a 300+ road vehicles. | EXIM: NCR/Ludhiana to Mundra/Pipavav, Kanpur to JNPT Domestic: JK White Katni to Patna/Kanpur/Punjab/Kolkata Reliance Kanalus – NCR (Dwarf containers) Patna to TISM, Rourkela & Barbil Morbi – Siliguri Mundra - Ludhiana |
| Gateway Rail ⁸ | 31 | I | The company operates 31 rakes, of which 21 are owned. It also operates 398 road-trailers, and 5 owned rail terminals. | Gurgaon and Ludhiana to Mundra, JNPT (Nhava Sheva) and Pipavav. |
| Hind Terminals ⁹ | 25 | I | The company is a part of the Sharaf Group of Companies, based out of UAE, which operates across diversified sectors. Besides Dronagiri Node of CWC, HTPL has ICDs located in Palwal and Kila Raipur (Ludhiana). | Kanech (Ludhiana), Palwal (Faridabad), Kashipur, DICT (Sonipat), Patli(Gurgaon), Panki(Kanpur), Jodhpur and Sanand to JNPT, Mundra and Pipavav |
| IndiaLinx ¹⁰ | 18 | I | Company's fleet consists of 18 BLCA type container trains, of which 2 are high capacity (69T axle load/wagon) trains and the balance 16 are conventional capacity (60 T axle load/wagon) trains | Regular services from ICDs in NCR, Ludhiana, Kanpur and Hyderabad to the ports of Nhava Sheva, Mundra and Pipavav |
| JM Baxi ¹¹ | 13 | III | JM Baxi's group company International Cargo Terminals And Rail Infrastructure Pvt. Ltd, manages CTO services | JNPT, Pipavav, Mundra, Chennai/ Ennore, Vizag and Kochi ports, their hinterland and domestic services across India |
| Distribution Logistics Infrastructure (Freightstar) ¹² | 11 | I | The company has 11 BLC rakes, 700+ containers and 140 owned trailers | 1) Morbi (Gujarat) Devangonhi (Karnataka) Borkhedi (Nagpur) Mumbai (Maharashtra) Morbi (Gujarat) 2) Hazira (Borkhedi (Maharashtra) Hazira (Gujarat) 3) Mumbai Borkhedi |

⁶ As per FY21 Annual report of APSEZ (parent company of Adani Logistics Ltd)

⁷ Source: Company website (Accessed in Mar 2021) <https://pristine-logistics.com/service-pristine/>

⁸ Source: Company website and FY22 Q3 Investor presentation. <https://gatewayrail.in/infrastructure.php>

As per FY22 Q3 Investor presentation of Gateway Distriparks (parent company of Gateway Rail), Gateway Rail operates 31 rakes

⁹ Source: Company website (Accessed in Mar 2022) <http://www.hindterminals.com/RailTransportation.php>

¹⁰ Source: Company website (Accessed in Mar 2022) <http://indialinx.com/what-we-offer/#trailservices>

¹¹ Source: Company website (Accessed in Mar 2022) <https://www.ict.in/ictripl/>

¹² Source: Company website (Accessed in July 2021) <http://dlinfra.com/infrastructure.php>

| CTO | Operational container Rakes | License category | Remarks/Source | Routes/Stations served |
|----------------------------|-----------------------------|------------------|--|---|
| | | | | (Maharashtra) Mumbai 4) Palwal (Haryana) Borkhedi (Maharashtra) Palwal (Haryana) 5) Namli JNPT Namli 6) Nagpur JNPT Nagpur 7) Bangalore Chennai Bangalore |
| Noma ¹³ | 5 | I | The company has 5 owned rakes (2 BLL and 3 BLC rakes). It runs on selected routes from NCR, Rajasthan and Odisha, with a focus on ISO tank containers. | Selected routes in NCR, Odisha, Rajasthan and Gujarat |
| DARCL ¹⁴ | 3 | IV | Domestic focussed CTO | Key operational service is Mumbai-Kolkata extending to Guwahati |
| CWC ¹⁵ | 2 | I | The company runs 300 trains and handles 26,000 TEUs annually on Loni (NCR) Nhava Sheva and Loni (NCR) – Mundra sectors. | Loni (NCR) Nhava Sheva and Loni (NCR) - Mundra |

Source: Indian Railways, Company websites, Company Reports, Rating Rationales, Industry, CRISIL Research

¹³ Source: Company website (Accessed in July 2021) <https://www.nomainfra.com/services/rail-freight/>

¹⁴ Source: Company website (Accessed in July 2021) <http://www.darcl.com/transrail>

¹⁵ Source: Company website (Accessed in July 2021) <https://cewacor.nic.in/>

4. ICD market in India

Overview of CFS/ICD

CFS/ICD provide facilities for custom clearance, handling, and storing EXIM cargo

Definition

Container freight station (CFS) /inland container depot (ICD) is a common user facility with public authority status equipped with fixed installations. It offers a wide range of services, including custom clearance, handling and temporary storage of import/export laden and empty containers.

It comprises of custom bonded area, warehousing space, container yard area and is equipped with IT infrastructure and adequate equipment, thereby making it an integrated platform for activities such as custom clearance, handling, transporting, loading/unloading and stuffing/de-stuffing of containers. CFS and ICD also provide services such as less-than-container-load (LCL) consolidation, reefer services, hub-and-spoke services, etc. In essence, the CFS/ICD industry forms a link between multi-modal transport operators (MTO's) and shipping lines in the logistics value chain.

As the share of direct port delivery¹⁶ (DPD) is increasing at major ports, post custom clearance the CFS facility is being used for storage and transportation as well as value-added services such as warehousing, labeling, palletisation, etc after de-stuffing the containers.

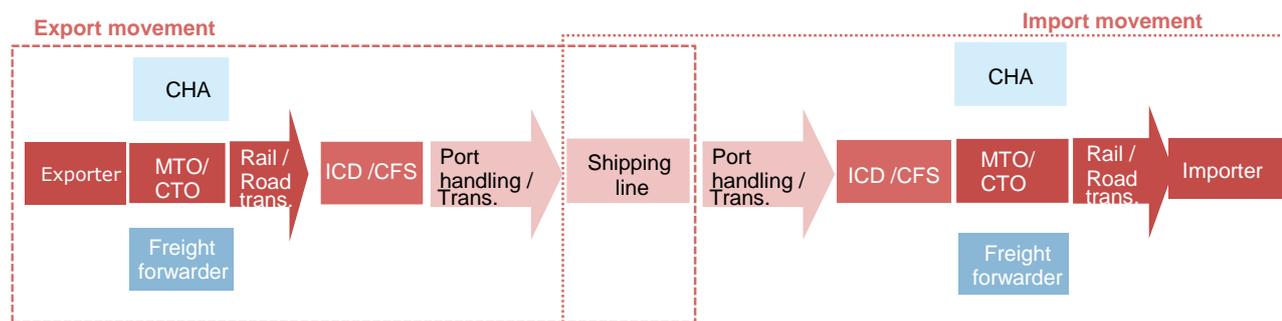
Distinction between CFS and ICD

While the functional aspects are similar for CFS and ICD facilities, there are two differences between CFS and ICD. Firstly, a CFS is located near the gateway port (off-dock facility located near service ports) whereas an ICD, also known as a dry port, is located in the hinterland. Secondly, a CFS is merely an appendage to a parent customs station at a port, whereas an ICD is a customs station in its own right, having independent existence on a par with any customs station. Hence, the movement of goods from port to an ICD is in the nature of movement from one custom station to another custom station, and is covered by Goods Imported (Condition of Transshipment) Regulations, 1995.

In contrast, movement of goods from a customs station at port to a CFS is akin to local movement from a custom area of a customs station to another custom area of the same station, and such movement is covered by local procedure evolved by the Commissioner of Customs and covered by bonds, bank guarantees, etc.

Various stages of port-based logistics value chain and participants involved at each stage

¹⁶ Government mandated DPD allows importers to clear cargo directly from the port within 2 days of arrival. This is an alternate clearance through CFS (container freight station) model, where import cargo is routed to CFSs located near ports and actual delivery takes longer.



Source: Industry, CRISIL Research

Participants in container logistics value chain:

- **Importer/exporter:** An importer is the consignee of the cargo that is being imported, while the exporter is the consignor of the cargo that is being exported to an international location.
- **Custom house agent (CHA):** A CHA is the licensed agent of the importer or exporter, designated to perform customs clearance services from the customs authorities.
- **Multi-modal transport operator (MTO):** MTO is the chain that interconnects different links or modes of transport, such as air, sea and land into one complete process to ensure an efficient and cost-effective door-to-door movement of cargo under the responsibility of a single transport operator and under a single multi-modal transport document.
- **Freight forwarder:** The agent who arranges the carriage of goods, including connected services and other related formalities on behalf of the exporter or importer, is a freight forwarder.
- **Shipping line:** These ship owners physically transport goods from the port of origin to the port of destination through the sea route. They are the most important initiators for the CFS business.
- **Consolidators:** A consolidator collects smaller cargo loads from exporters and consolidates them into a full container load for each destination.

CFS/ICD market

Major revenue streams for CFS/ICD

Container handling and transportation

Container handling and transportation forms a principal source of revenue for the CFS/ICD players. The container handling income is higher for cargo stuffed/de-stuffed at the CFS/ICD than at the factory of exporter/importer. Transportation income includes the movement of the containers from the CFS/ICD to the port and vice-versa. Further, the movement of containers within the CFS/ICD also forms a part of the transportation income.

Ground rent

Ground rent income refers to the charges levied by a CFS/ICD operator on the storage of container by an exporter/importer in its container yard beyond the expiry of free period. The exporter/importer is usually offered a free period during which no charges are levied on the containers stored.

A major portion of the income earned through ground rent comes from imports. Ground rent charges for imports are higher than exports, as the onus of getting the goods cleared lies with the consignee once it has reached the CFS/ICD. On the other hand, in the case of exports, it is primarily the responsibility of the CFS/ICD to move the loaded containers to the port.

Storage and service charges

Storage charges are levied on the import/export consignment provided with warehousing storage space. The CFS/ICD also earns storage charges by leasing out space to large customers, consolidators and shipping lines for export consignments. The CFS/ICD levies service charges for weighment, fuel, energy, customs examination/reworking charges, and also for value-added services such as palletisation, lashing, chocking, shrink wrapping, etc.

Market size for CFS/ICD

CFS/ICD players derive majority of their revenues from container handling and transportation and the rest from ground rent and auctions. The CFS/ICD Industry has a market size of about INR 50-52 billion as of FY21. The industry grew at 1-3% in fiscal 2021 in line with a flat increase in container traffic and realisation by ~1-2% on year due to lower container throughput and higher realizations due to uptick in ground rent due to longer dwell time.

CFS market was on a declining trend due to government's focus on Direct Port Delivery (DPD). However, it is expected that the share of DPD is expected to stabilise to 55-60% of imports vis-à-vis the government set target of 70%, as more than half of the DPD containers are resent to CFS either because of non-clearance within 48 hours or voluntarily by importers for storage and onward transportation to hinterland.

ICD market has been relatively upbeat. Against a declining trend observed across CFS market, ICD market grew with an average growth of 3-6% in past few fiscals. Most of the ICDs are located in the hinterland and generally have a rail connectivity. Thus, the improvements in rail infrastructure bode well for the ICDs. ICD market growth remained positive during the pandemic afflicted fiscal 2021 also, given the rail based container movement remained buoyant during the year.

ICD Market review



Source: Industry, CRISIL Research

Overview of key CFS/ICD across regions

Key locations of CFS/ICD

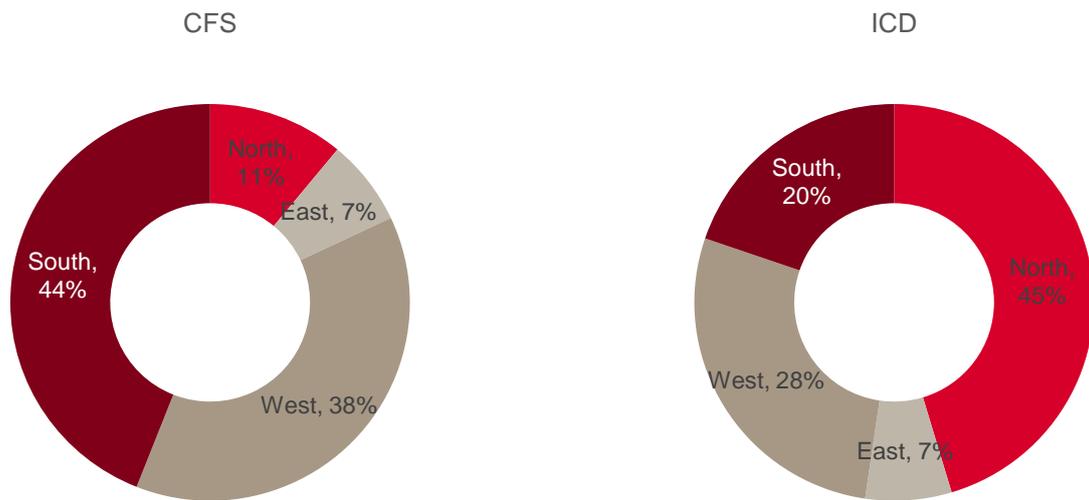
There are around ~250 operational CFS/ICD in the country and CFS account for more than two-thirds of the share among the operational CFS/ICD units. Due to the segmentation in the industry, the competition pressure remains high and the players need to resort to aggressive pricing which hampers the profitability of the smaller players.

Typically, CFSs are located near the ports, while ICDs are located in the hinterland. Hence, ICDs, generally have infrastructure that supports periodic rail services to gateway ports and as a result of rail supporting infrastructure, land requirement for ICDs is generally higher.

As per data accessed through DGCIS, by end of fiscal 2020, there were around 86 functional ICDs in the country, North region has the highest number of ICDs, followed by West, South and East. In the North region, Haryana and Uttar Pradesh have highest number of ICDs, while Maharashtra has highest number of ICDs in West region. In South region, Tamil Nadu has the highest number of ICDs, while East region has around five ICDs.

Regional split – CFS

Regional split – ICD



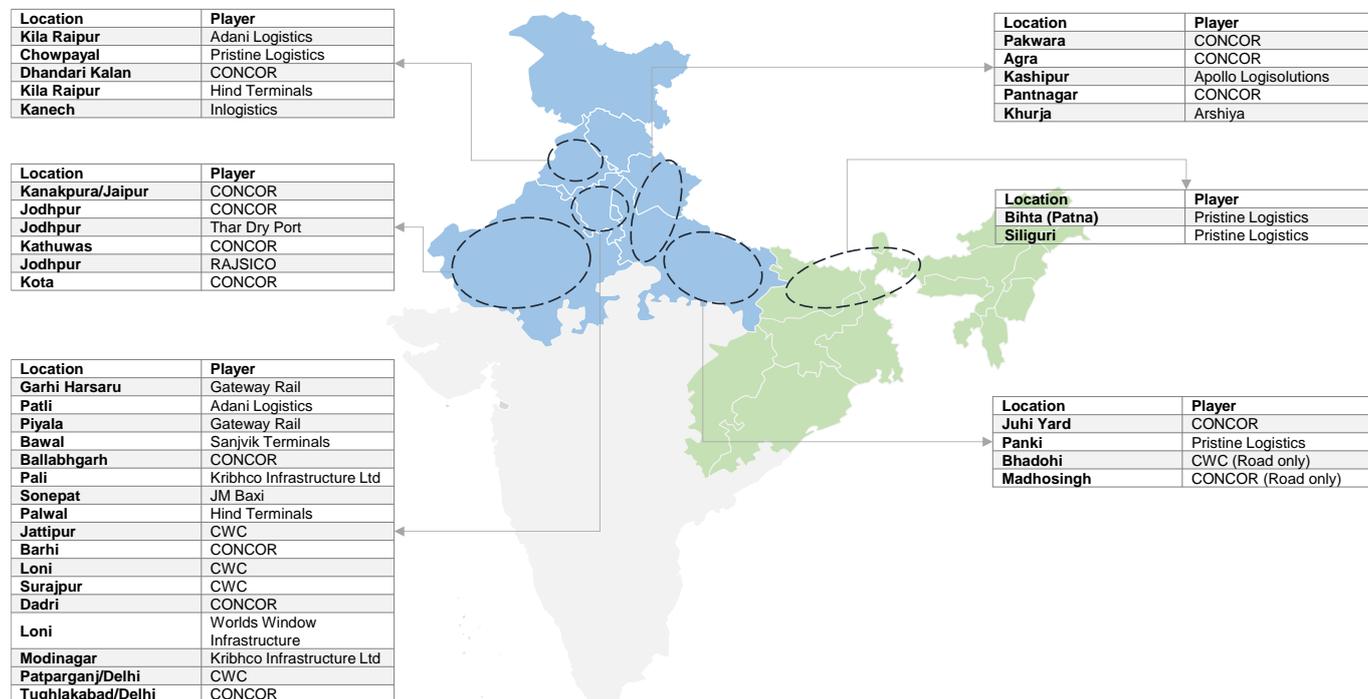
Source: Inter-Ministerial Committee for CFS/ICD (January 2018), DGCIS, Industry, CRISIL Research

Note: As on April 2018, the Government has disbanded the Inter-Ministerial Committee (IMC), which consisted of representatives from different departments of the Ministry of Commerce that screened applications for setting up new CFS/ICD and also regulated and monitored the progress of players in the container freight station (CFS)/ inland container depot (ICD) industry. Going forward, the policy guidelines issued by the Central Board of Indirect Taxes and Customs (CBIC) for setting up of CFS/ICD will be implemented.

Overview of key ICD clusters: North and East India

Mapping of key ICDs across clusters

Key players across ICD clusters: North and East India



Source: Inter-Ministerial Committee for CFS/ICD (January 2018), DGCIS, Industry, CRISIL Research

Key observations regarding major ICD clusters in North and East India:

- NCR is the largest ICD cluster in North India in terms of volumes handled at ICDs located in the cluster. Apart from Delhi, the districts which are considered as a part of NCR are, Gurgaon, Faridabad, Rewari, Palwal, Panipat and Sonapat of Haryana and Ghaziabad and Greater Noida in Uttar Pradesh. Key players operating in the cluster are Adani Logistics, CONCOR, CWC, Gateway Rail and Hind Terminals among others.
- Punjab/Ludhiana cluster is also among the largest clusters in North India, in terms of volumes handled at ICDs located in the cluster. Key players located the Punjab/Ludhiana cluster are CONCOR, Gateway Rail, Pristine Logistics, Adani Logistics (operations of Inlogistics Kanech are also acquired by Adani Logistics), and Hind Terminals.
- All the terminals in the West UP/Uttarakhand cluster are CONCOR operated except the Kashipur ICD, which is operated by a JV of India Glycols and Apollo Logisolutions.
- Rajasthan clusters has three ICDs located in Jodhpur, while other ICDs are located in Kota, Jaipur and Kathuwas
- In rest of UP cluster, CONCOR and Pristine's ICD are the key terminals in UP and account for the majority of trade from the region.

- In North Bengal/Bihar, Siliguri ICD in North Bengal and Bihta ICD, near Patna, have been recently commissioned by Pristine Logistics.

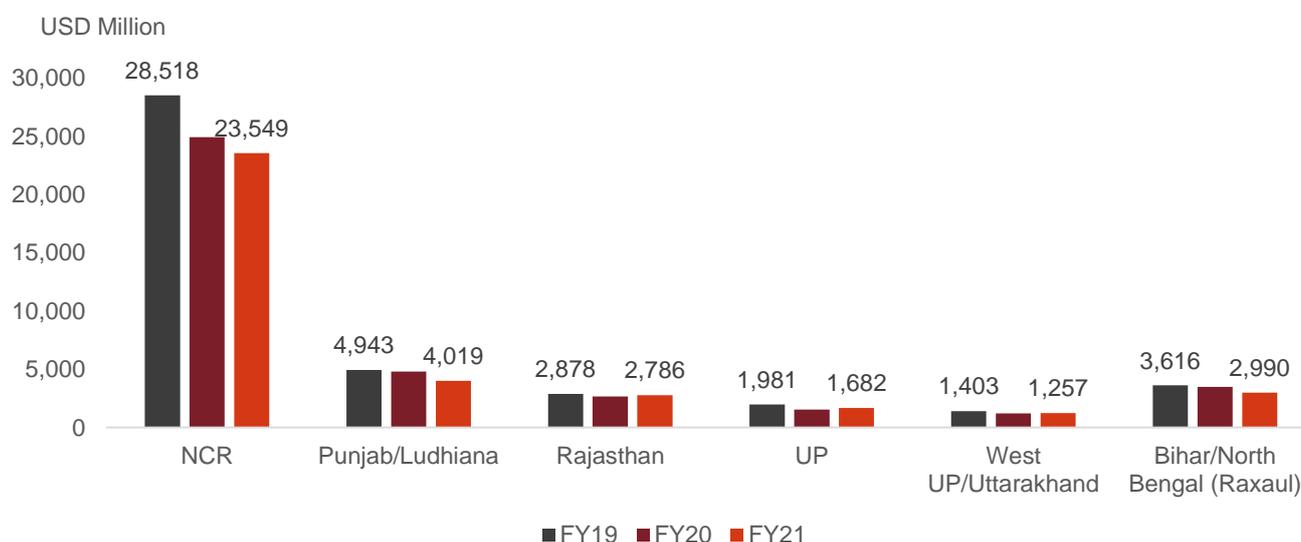
EXIM trade at key ICDs across clusters

Value

For North India, in terms of value of trade through ICDs, NCR is the largest cluster, followed by Ludhiana, Rajasthan, Rest of UP and West UP/Uttarakhand. In case of NCR, trade value stood at USD 23.5 billion in fiscal 2021 vis-à-vis USD 28.5 billion in fiscal 2019. In case of Ludhiana cluster, trade declined from USD 4.9 billion to USD 4.0 billion over fiscal 2019-21 period. A higher on-year decline in trade was observed across NCR and Ludhiana vis-à-vis other clusters, for the pandemic stricken fiscal 2021.

Growth in exports (in value terms) for Rajasthan and Rest of UP clusters was over 10% on-year for fiscal 2021, West UP/Uttarakhand grew at ~7%, while larger clusters (NCR and Ludhiana) remained lacklustre.

Trade through ICDs located across clusters in North India (Value terms)



Note: Raxaul ICD is considered for Bihar/North Bengal. Other land custom stations are not considered.

Source: DGCIS, Industry, CRISIL Research

In NCR cluster, Delhi (ICD), ICD Garhi Harsaru and ICD Dadri are among the largest ICDs, in terms of value of trade. Trade across most of the ICDs declined over fiscal 2019-21 period, except ICD Palwal, ICD Panipat and ICD Sonipat. ICD Palwal is operated by Hind Terminals, ICD Panipat is operated by CWCNSL/DP World, while ICD Sonipat is operated by JM Baxi.

Trade across ICDs in NCR cluster (Value terms in USD Millions)

| Cluster/ICD | Growth (FY19-21) |
|--------------------------------|---------------------|
| | FY21 |
| NCR | 23,549 |
| CFS ALBATROSS/ICD DADRI | 2,452 |
| DELHI (ICD) | 8,082 |
| ICD BAWAL | 33 |
| ICD FARIDABAD | 1,276 |
| ICD GARHIHARSARU | 3,614 |
| ICD LONI | 310 |
| ICD MODINAGAR | 65 |
| ICD NOIDA-DADRI | 1,944 |
| ICD PALWAL, BHAGOLA-JANAULI | 698 |
| ICD PATLI | 1,211 |
| ICD Piyala Ballagarh | 1,128 |
| ICD REWARI | 152 |
| ICD SAMALKHA PANIPAT | 727 |
| ICD SONIPAT | 1,803 |
| KRIBHO INFRA LTD.ICD (HARYANA) | 52 |

n.m.: Not meaningful

Source: DGCIS, Industry, CRISIL Research

In Ludhiana cluster, ICD Ludhiana/Dhandari Kalan (CONCOR), ICD Sahnewal (Gateway Rail), ICD Chowpayal (Pristine Logistics), ICD, ICD Kanech (Inlogistics/Adani Logistics) and ICD Kila Raipur (Adani Logistics) are major ICDs. Among these ICDs, ICD Ludhiana/Dhandari Kalan, ICD Sahnewal and ICD Chowpayal, were the largest ICDs in terms of trade value for fiscal 2021.

Trade across ICDs in Ludhiana cluster (Value terms in USD Millions)

| Cluster/ICD | FY21 |
|--------------------------------|--------------|
| Punjab/Ludhiana | 4,019 |
| ADANI ICD KILA RAIPUR LUDHIANA | 116 |
| CFS/ICD CHHEHETA AMRITSAR | 10 |
| ICD CHOWPAYAL | 1,118 |
| ICD DHANDARI KALAN, PSWC | 191 |
| ICD KANECH, INLOGISTICS | 121 |
| ICD LUDHIANA | 1,032 |
| ICD SAHNEWAL, GRFL | 1,408 |
| ICD/CFS JALANDHAR | 23 |

n.m.: Not meaningful

Source: DGCIS, Industry, CRISIL Research

In Rajasthan cluster, overall trade handled by ICDs, remained at USD 2.78 billion, which is marginally lower than USD 2.87 billion in fiscal 2019. Also, trade, actually increased on-year in the pandemic impacted fiscal 2021. Trade growth was contributed majorly by CONCOR's Jodhpur ICD

Trade across ICDs in Rajasthan cluster (Value terms)

| Cluster/ICD | FY21 |
|----------------------------|--------------|
| Rajasthan | 2,786 |
| ICD JAIPUR | 10 |
| ICD JODHPUR | 789 |
| ICD KANAKPURA | 803 |
| ICD KATHUWAS ALWAR | 681 |
| ICD Kota | 40 |
| ICD RAJSICO | 81 |
| ICD THAR DRY PORT, JODHPUR | 382 |

n.m.: Not meaningful

Source: DGCIS, Industry, CRISIL Research

In rest of UP region, trade at ICD Panki, operated by Pristine Logistics, increased by 6% on year, in the pandemic afflicted fiscal 2021, while trade at CONCOR's Juhi Yard ICD, declined by 6%.

Trade for April-January period of fiscal 2022 grew 1% on year for ICD Panki, while declined by 8% on year for ICD Juhi Yard.

Trade across ICDs in Rajasthan cluster (Value terms)

| Cluster/ICD | FY21 |
|------------------------------|--------------|
| UP | 1,682 |
| ICD CHAKERI KANPUR | 122 |
| ICD Juhi Railway Yard Kanpur | 604 |
| ICD PANKI, UP | 956 |

n.m.: Not meaningful

Source: DGCIS, Industry, CRISIL Research

Trade handled through CONCOR's Pantnagar ICD in West UP/Uttarakhand cluster, increased by a 47% CAGR over fiscal 2019-21 period. Trade at CONCOR ICD at Agar and Moradabad, declined by 32% and 11% CAGR, respectively, over fiscal 2019-21 period. ICD Kashipur, operated by JV of Apollo Logisolutions and India Glycols, saw a decline of ~5% annually, over fiscal 2019-21 period.

Trade across ICDs in Rajasthan cluster (Value terms)

| Cluster/ICD | FY21 |
|------------------------------|--------------|
| West UP/Uttarakhand | 1,257 |
| ICD AGRA | 88 |
| ICD Pakwara Moradabad/Meerut | 666 |
| ICD SANDKHEDA KASHIPUR | 206 |
| ICD SIDCHUL PANTNAGAR | 297 |

n.m.: Not meaningful

Source: DGCIS, Industry, CRISIL Research

Laden container volumes

Laden container volumes dropped across key ICDs in fiscal 2021. However, exports registered an all-round increase, and imports remained lacklustre, across most of the ICD clusters in North India.

- NCR cluster, which is traditionally an import heavy cluster, accounted for an estimated 75,000 – 80,000 monthly laden TEUs in fiscal 2021. Overall laden TEUs declined by 6% on year, while exports increased by 19% on year. Imports were severely hit, with a 21% decline.
- Ludhiana cluster's laden volumes in fiscal 2021 were 14,000 – 17,000 monthly TEUs. Decline in overall traffic was 25% on year. Imports, which accounted for more than 50% of laden volumes in fiscal 2020, declined by 40-45% on year in fiscal 2020. Exports were somewhat stable, with ~1% on year growth.
 - Share of rail in cluster's containerised cargo is relatively higher (60-70%), as Ludhiana is located at a distance of ~1,700 km from JNPT, ~1,350 km from Mundra and ~1,500 km from Pipavav
- Among other clusters, Rajasthan's laden TEUs registered an increase of 3% on year in fiscal 2021.
- West UP/Uttarakhand cluster's ended flat, in terms of overall laden volumes (5,500 – 6,000 monthly TEUs)
- In case of Kanpur/UP cluster, overall laden volumes in fiscal 2021 were 4,500 – 4,600 monthly laden TEUs, as against 5,200 – 5,300 monthly laden TEUs in fiscal 2020, indicating a decline of ~13% on year

Laden TEU traffic across clusters

| Cluster | Growth FY22/FY21 | Monthly laden volumes FY22* (TEU) |
|------------------|------------------|------------------------------------|
| | | Overall |
| NCR | 28% | 98,000 – 105,000 |
| Ludhiana | 16% | 16,000 – 20,000 |
| Rajasthan | 26% | 14,000 – 18,000 |
| West UP+ | 43% | 8,000 – 10,000 |
| UP | 38% | 6,000 – 8,000 |

*Based on April to January data for FY22

Source: RITASS Mumbai, Industry, CRISIL Research

Following are the key observations regarding player-wise/ICD-wise laden TEUs handled¹⁷:

- NCR cluster
 - ICD Dadri, ICD Tughlakabad and ICD Delhi were largest ICDs, with monthly laden volumes of over 10,000 TEUs. However, traffic at ICD Dadri and Tughlakabad increased by more than 40%, while traffic at ICD Delhi increased by ~10%.
 - Among other large ICDs, laden TEU traffic at Garhi Harsaru and Sanipat, monthly laden volumes increased at ~30% and ~40%, on year, respectively, in fiscal 2022.
- Ludhiana
 - Over fiscal 2019 to 2021 period, monthly TEU volume at Pristine's ICD has increased from 3,682 TEU to 4,626 TEUs. For fiscal 2020 and 2021, Ludhiana cluster's volume increased by 4% and declined by 25%, respectively and Pristine's volume grew at 22% in fiscal 2020 and 3% in fiscal 2021. For fiscal 2022, Ludhiana cluster's average monthly laden volume was 16,000-20,000, while Pristine's ICD monthly laden volume was around 4,800-5,200.
 - Competition at Ludhiana cluster has intensified over the years, after entry of Pristine's ICD and Inlogistics ICD, which took away traffic from older ICDs of CONCOR (Dhandari Kalan) and Gateway (Sahnewal).
 - Adani Logistics has also set up an ICD at Kila Raipur. Currently, it is optimising the offerings in the region by, terminating the operations of Inlogistics ICD, at Kanech, and combining the services at newer complex at Kila Raipur.
 - As per Hind Terminal's website, it has also commissioned an ICD in Ludhiana, which is expected to be unified with its existing CTO services in the area.
- Rajasthan
 - Jaipur's traffic (5,000 – 6,000 monthly laden TEUs) remained flat over fiscal 2019-2022 period. Jodhpur's traffic (4,600 to ~7,000 monthly laden TEUs) improved by ~50% for fiscal 2022, led by exports. Traffic at Kathuwas declined by ~27% in fiscal 2021, and improved by ~52% in fiscal 2022
- West UP/Uttarakhand
 - CONCOR's Moradabad ICD is the largest ICD, with monthly laden volumes at 5,000-5,500 TEUs. Traffic at Moradabad ICD, declined by 8% on year in fiscal 2021 and increased by ~50% in fiscal 2022.
 - Traffic at Pantnagar ICD (CONCOR's JV with the state), and Kashipur ICD (Apollo and India Glycols), remained flat during fiscal 2019-22 period (~800 laden TEUs monthly).
- UP/Kanpur

¹⁷ Monthly laden TEU volumes are based on the container traffic provided by RITASS Mumbai

- Pristine's ICD at Panki handled 2,409 monthly laden TEUs in fiscal 2021, while monthly laden TEU for fiscal 2022 was 2,400 – 2,700. Volumes at CONCOR ICD were 3,500-4,000 in fiscal 2021 and 4,500-5,000 in fiscal 2022.

Containerised commodities across ICD clusters

Among key clusters in North India, Textiles, Automobile and Agro are key export commodities, while packaging, chemicals and metals are key import commodities. As of fiscal 2020, NCR and Ludhiana were relatively import heavy, while other Rajasthan, West UP/Uttarakhand and UP/Kanpur clusters were relatively export heavy. However, the share of exports have increased across all clusters in fiscal 2021, led by a stellar growth in exports and lacklustre growth of imports.

Cluster wise key commodities/Outlook

| Cluster | Exports vs Imports | Exports | Imports | | |
|----------------------|--|-------------------------|---------|-------------------------|-----|
| NCR | Share of exports was ~39% in fiscal 2020 | Textiles | 23% | Packaging | 16% |
| | | Agro | 13% | Metals/Minerals | 16% |
| | | Automobile | 12% | Chemicals | 15% |
| | | Household items | 7% | Agro | 13% |
| | | Machinery | 7% | Textiles | 13% |
| | | Iron and Steel | 6% | Machinery | 7% |
| Ludhiana | Share of exports was 43% in fiscal 2020 | Textiles | 24% | Metals/Minerals | 34% |
| | | Agro | 16% | Packaging | 15% |
| | | Automobile | 12% | Agro | 15% |
| | | Iron and Steel | 10% | Textiles | 12% |
| | | Machinery | 8% | Chemicals | 6% |
| | | Food products | 6% | Iron and Steel | 6% |
| Rajasthan | Share of exports was ~60% in fiscal 2020 | Textiles | 44% | Metals/Minerals | 22% |
| | | Agro | 12% | Chemicals | 14% |
| | | Stones | 9% | Machinery | 14% |
| | | Electronics/Electricals | 4% | Agro | 13% |
| | | Iron and Steel | 4% | Packaging | 13% |
| | | Metals/Minerals | 4% | Electronics/Electricals | 7% |
| West UP/ Uttarakhand | Share of exports was ~67% in fiscal 2020 | Textiles | 19% | Packaging | 36% |
| | | Household items | 16% | Agro | 24% |
| | | Iron and Steel | 15% | Metals/Minerals | 10% |
| | | Metals/Minerals | 13% | Chemicals | 9% |
| | | Agro | 10% | Textiles | 7% |
| | | Packaging | 9% | General Cargo | 3% |
| UP/Kanpur | Share of exports was ~67% in fiscal 2020 | Buffalo Meat | 29% | Metals/Minerals | 30% |
| | | Textiles | 18% | Agro | 20% |
| | | Leather | 9% | Chemicals | 17% |
| | | Meat | 8% | Household items | 8% |
| | | Chemicals | 5% | Packaging | 7% |
| | | Machinery | 4% | Textiles | 4% |

Share of commodities for fiscal 2020

Source: RITASS Mumbai, Industry, CRISIL Research

Nepal/Birganj

As per a bidding document of Nepal Intermodal Transport Development Board (NITDB), ICD Birganj handled around ~49,000 TEUs in Nepalese fiscal year 2019 (July 16 to July 15), which increased from ~30,000 TEUs in fiscal Nepalese fiscal 2017.

Laden container traffic at ICD Birganj has already crossed 55,000 TEU in first ten months of fiscal 2022. Vizag port handled around 345 ISO rakes, while Kolkata port handled around 213 rakes during the same period. Also, in later half of fiscal 2022, the share of private CTOs has also improved in inward traffic for the ICD, with major consignors being Hind Terminal, Pristine, and Boxtrans, apart from CONCOR.

In 2020, Pristine Logistics has tied up with Nepal based Valley group, to take over the operations at ICD Birganj, which is the only rail-linked container terminal connecting Nepal and India. As per FOIS data, following are the major routes for container movement at ICD Birganj.

- Inbound: Overall traffic is 50-70 monthly rakes, of which 20-25 are from Kolkata port, 30-35 are from Vizag port. Other domestic origins are from Tata Jamshedpur, Gokulpur (West Bengal), CONCOR Vadodara, Tondiarpet etc.
- Outbound: Outbound laden containerised traffic is limited. However, empty container traffic is observed to ICD Tughlakabad, ICD Dadri and ICD Kanpur.

Potential exists for additional traffic at the ICD through movement from other inland locations in India, in addition to 3rd country traffic served by the ICD.

Key containerised commodities for exports and imports are:

- Imports,
 - Food related: Canola seeds, Lentils, Soya beans, Toor Dal, Black Matpe
 - Sponge Iron, Steel Coils
 - Fabrics
 - Glass products, Optical fibre cables
 - Construction: Bitumen, Gypsum, White Cement
- Exports,
 - Textiles: Yarn, Wool, Cotton goods
 - Food related: Food items, Noodles, Sugar

Other break-bulk commodities are also handled at the terminal:

- Traffic through BCN wagons
 - Agri commodities: Maize, Poultry feed, Sugar, Wheat
 - Fertilisers: Complex fertilisers, Urea

- Others: Slag dust and Sponge Iron
- Traffic through BRN wagons
 - Break bulk: Billets, Channels, HR/CR coils, Wire rods

Origin – Destination Analysis

ICD – Gateway port combinations for clusters

Mundra and Pipavav have a higher share in exports as well as imports for ICDs located in all clusters of North India, except UP/Kanpur, where JNPT has a significantly higher share.

Exports from ICDs located in clusters

| | |
|------------------|-------------|
| NCR | 100% |
| MUNDRA | 72% |
| PIPAVAV | 15% |
| MUMBAI | 12% |
| Ludhiana | 100% |
| MUNDRA | 88% |
| PIPAVAV | 11% |
| MUMBAI | 1% |
| Rajasthan | 100% |
| MUNDRA | 89% |
| PIPAVAV | 10% |
| MUMBAI | 1% |
| West UP+ | 100% |
| MUNDRA | 84% |
| MUMBAI | 14% |
| PIPAVAV | 2% |
| UP | 100% |
| MUMBAI | 81% |
| MUNDRA | 16% |
| PIPAVAV | 2% |

Imports from ICDs located in clusters

| | |
|------------------|-------------|
| NCR | 100% |
| MUNDRA | 54% |
| PIPAVAV | 29% |
| MUMBAI | 17% |
| Ludhiana | 100% |
| MUNDRA | 76% |
| PIPAVAV | 17% |
| MUMBAI | 7% |
| Rajasthan | 100% |
| MUNDRA | 64% |
| PIPAVAV | 31% |
| MUMBAI | 5% |
| UP | 100% |
| MUMBAI | 69% |
| MUNDRA | 31% |
| PIPAVAV | 0% |
| West UP+ | 100% |
| MUNDRA | 54% |
| MUMBAI | 32% |
| PIPAVAV | 13% |

Share of port combinations for fiscal 2020 for laden containers only

Source: RITASS Mumbai, Industry, CRISIL Research

Critical success factors for ICDs

Relationships with shipping lines

Maintaining strong relationships with shipping lines, MTOs and freight forwarders holds the key for a CFS/ICD. Typically, the shipping line decides the CFS operator that will handle the transported containers, which makes it imperative for CFS operators to maintain strong relations with them.

Location

A favourable location lowers transportation costs and improves accessibility. CFS located adjacent to ports not only attract higher traffic, but also enjoy better bargaining power. Similarly, ICDs near industrial belts have a distinct locational advantage. A CFS/ICD with better road and rail connectivity attracts higher traffic, while those lacking connectivity may lose out on customers as logistics costs rise.

Addition to container infrastructure at adjoining/gateway ports

Any capacity addition at ports (berth handling capacity and container handling capacity) directly benefits CFS/ICDs. Further, ports with lower congestion and TAT (turnaround time) will attract higher traffic and improve prospects of CFS/ICD. Also, better rail and road connectivity from the port to CFS/ICD will reduce the time taken to move containers to and from the port, thereby reducing transportation costs.

Mechanisation and efficiency of operations

A CFS/ICD should have adequate capacity to handle container traffic. A CFS/ICD operating at high utilisation rates will lose out on incremental traffic. As such it becomes imperative to have adequate area for handling and storing cargo and containers. Further, CFS/ICDs should have facilities and requisite equipment to handle over-dimensional cargo, hazardous goods and perishable commodities.

Dwell time is the time spent by a container in a CFS/ICD. A higher dwell time implies higher ground rent income, but results in lower throughput especially when capacity utilisation rates are high. Hence, an optimum balance between dwell time and the throughput enhances the both revenue and profitability.

Domestic container movement

Currently CONCOR has a 65-70% market share in domestic rail container movement. CONCOR has domestic or EXIM/domestic container terminals across North, South, East and West regions. Domestic terminals in North are located at Phillaur (Ludhiana), Khemli (Udaipur), Dappar (Ludhiana) and Dera Nussi (Jalandhar), while large terminals in North India, such as Tughlakabad, Dadri etc handle both EXIM and domestic containers. It provides domestic services through network of terminals.

Players also operate with a hub and spoke model, where they do consolidation, re-positioning and domestic movement routed through hubs located at strategic locations. For instance, CONCOR uses Kathuwas terminal (which is located near DFC) as a hub, Gateway Rail, uses Garhi Harsaru as their hub, where rakes from Ludhiana are routed to Garhi Harsaru for onward journeys.

Besides CONCOR, Pristine Logistics is one the key players in for domestic containers. Key locations/routes served by Pristine Logistics are

- Reliance Jamnagar to NCR (Dwarf Containers)
- JK Cement (Katni, MP) to Patna/Kanpur/Punjab/Kolkata
- Odisha (Tata Sponge, Rourkela and Barbil) to Ludhiana/Patna
- Morbi to Ludhiana/Siliguri

IndiaLinx connects Sanand (Gujarat), Kashipur (Uttarakhand), ACTL terminal (NCR), Bhagat ki Kothi (Rajasthan). Other domestic focussed players are JM Baxi, Distribution Logistics Infrastructure (DLI), and DARCL.

Key commodities for domestic container movement are Tiles, Stones, Sponge Iron, Food grains, Polymers, White Cement etc.

Dwarf containers and Polymer/Lightweight commodities

'Dwarf' containers are 26 inches short and 6.3 inches wider than regular containers and can have a maximum laden weight of 30.5 tonnes. The 'dwarf' provides 67% increase in volume with double-stacking and can carry a weight of 71 tonnes, against 40 tonnes by an ISO container. Inside space is further maximized by using thinner fiberglass reinforced plastic (FRP) flooring, instead of hardwood flooring used in standard ISO containers.

Dwarf Containers can move under wire on rail in double stack mode over the IR network and roads without any violation of Motor Vehicle Act.

Advantages of dwarf containers are:

- More volume and tonnage capacity
- Increased internal height (due to fiberglass) and reduced weight of container (up to 400 Kg)
- Easier to load/unload with increased height
- Supports forklift operations

First double stacked train carrying dwarf container was flagged off from Reliance Rail Terminal in Kanalus to KRIBHCO Pali terminal in 2018. Dwarf container service, currently run by Pristine Logistics operating on Jamnagar to Ludhiana/Rewari route.

Currently, dwarf containers largely carry polymer cargo from Reliance Jamnagar. However, dwarf containers can be useful for bulky low-density traffic in addition to polymers.

Advantages of dwarf containers

| Light weight commodities (Examples) | Advantages by dwarf containers |
|--|--|
| Polymers Polypropylene (PP) High density Polyethylene (HDPE) Linear Low Density Polyethylene (LLDPE) | Traditionally transported by road, either through containers or closed body trucks. However, loadability can be improved through double stacked rail (as well as road) movement, through dwarf containers. Dwarf containers can be useful in improving the share of railways in the movement of lightweight commodities on domestic sector, where railways currently has limited footprint. |
| Fast Moving Consumer Goods (FMCG) | |
| Consumer Durables | |
| Electronics | |
| Garments | |
| Auto components | |

Source: Company websites, Industry, CRISIL Research

Other players in North India can also be candidates for polymer and lightweight commodity movement through dwarf containers. For example, IOC Panipat refinery, *which houses downstream polymer units for Polypropylene (PP), HDPE and LLDPE*, is a major source of outbound traffic for polymers in NCR region.

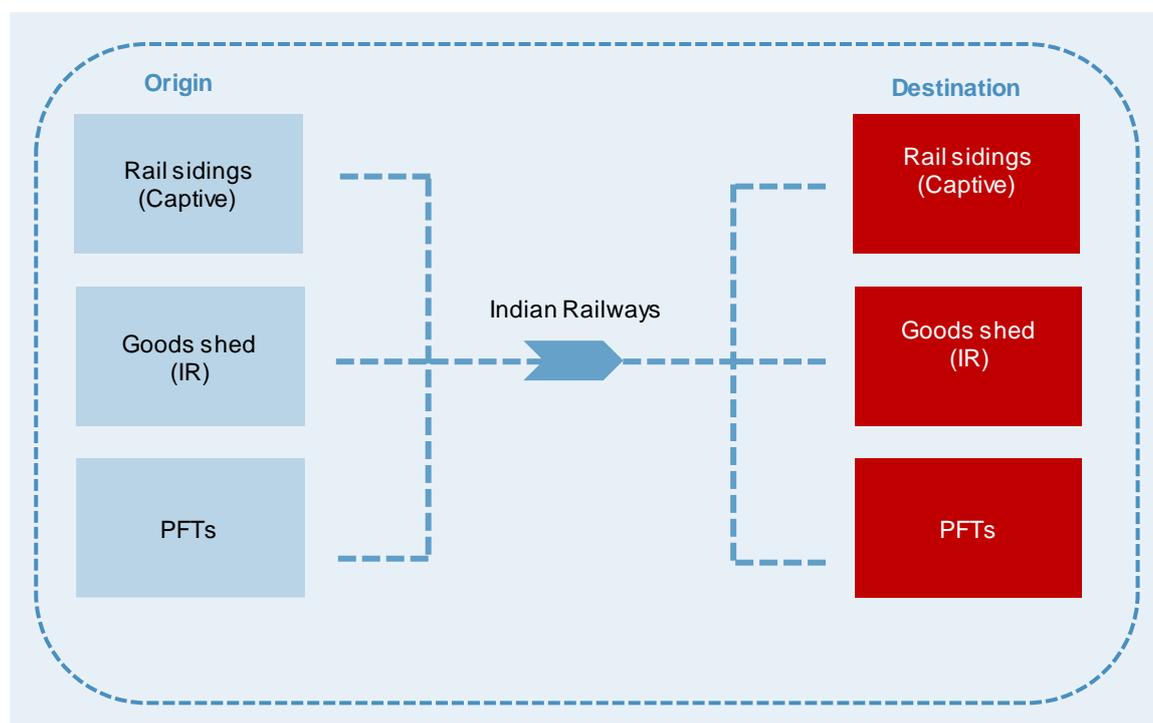
As per news reports, trials are also underway for triple stacking of dwarf containers, which will increase the loadability across light weight commodities.

5. PFT market in India

Overview of rail freight terminals

Access to rail connectivity is a key component of the logistics value chain, allowing for the movement of bulk cargo over long distances cost effectively. Indian Railways facilitates the transport of goods via rakes which can be loaded at originating rail freight terminals and unloaded at destination freight terminals. Rail freight terminals that do not facilitate custom clearances at their site can be broadly classified into captive rail sidings, goods shed (operated by the Indian Railways) and private freight terminals (PFT handles third-party cargo). Within these, goods sheds and PFTs come under commercial freight terminal market, where services on a commercial basis are provided to a wide customer base.

Movement of goods across freight terminals



PFT: Private freight terminal

Source: CRISIL Research

Captive Rail sidings

Captive siding is a rail freight terminal that facilitates loading and unloading of goods directly at manufacturing plants (or strategic locations for distribution of goods). Such terminals permit receipt and dispatch of domestic as well as imported raw materials and finished goods. In some cases, the Indian Railways also permits manufacturers to allow co-users to use the siding for their respective in-house requirements. Currently, there are around 1,000 captive sidings in India. Of this, the Northern Railway zone accounts for a ~12% share followed by the South East Central Railway zone at ~10% and East Central Railway zone at ~9%.

Key strength of a captive rail siding is that it facilitates efficient handling of inbound and outbound cargo at high volumes, a strong need for large manufacturers and bulk purchasers/ importers.

Goods shed (Indian Railways)

A goods shed is a rail freight terminal that facilitates loading, unloading and in-transit storage of commercial cargo transported by the Indian Railways. At present, there are around 1,000 goods sheds across India. Of this, the Northern Railway zone accounts for ~17% share followed by the South Central Railway zone at ~15% and North Western Railway zone at ~10%.

The primary advantage of goods sheds is the expansive network of sheds across India, located in proximity to most of the cities/ consuming centers. However, majority of the goods sheds near established stations are now well within boundaries of rapidly growing cities. Given restrictions on day-time movement of truck freight across a number of urban locations, flow of goods to and from the goods sheds is impacted significantly. This is one of the key factors that has impacted growth in rail goods shed traffic.

Private freight terminal (PFT)

A PFT serves domestic cargo, primarily facilitating access to rail transport, and providing services such as warehousing and transportation for incoming and outgoing cargo, including last mile connectivity. Few PFTs also provide value added services as cargo aggregation, packaging etc.

A PFT handles third-party cargo in accordance with the PFT policy of Ministry of Railways. The policy stipulates the facilities and equipment that a PFT needs to have to carry out operations.

Commodities permitted under Private Freight Terminal Policy 2015 includes all traffic, excluding coal and coke (under priority C). All types of commercial wagons that are permitted to operate on an Indian Railways network are permitted to transport goods to PFTs. As of fiscal 2021, 75-80 PFTs have been notified by Indian Railways.

The primary advantage of PFTs is that these are located mostly in the outskirts of cities, thereby facilitating 24X7 handling and subsequent transportation via road. Also, an integrated player can become a one-stop solution provider by providing warehousing and last mile distribution. Handling and warehousing at PFTs can be more cost competitive as compared to a goods shed for large volumes that can benefit from mechanisation and efficient processes. A well connected secondary transportation to key locations enhances the competitiveness of PFTs.

Private Freight Terminals are poised to gain market share from Railways goods sheds

PFT provides faster turnaround in cargo handling due to single point responsibility and better infrastructure, while handling at goods shed is slower due to constraints in handling and infrastructure as well as distributed involvement of various handling and transportation service providers. This provides an edge to PFTs in cargo handling.

Storage facilities at goods sheds are minimal or elementary and hence there are possibilities of pilferage and damage through unauthorised access, while PFTs are covered and protected zones where regular monitoring and computerised weighing scales are used, ensuring minimum pilferage.

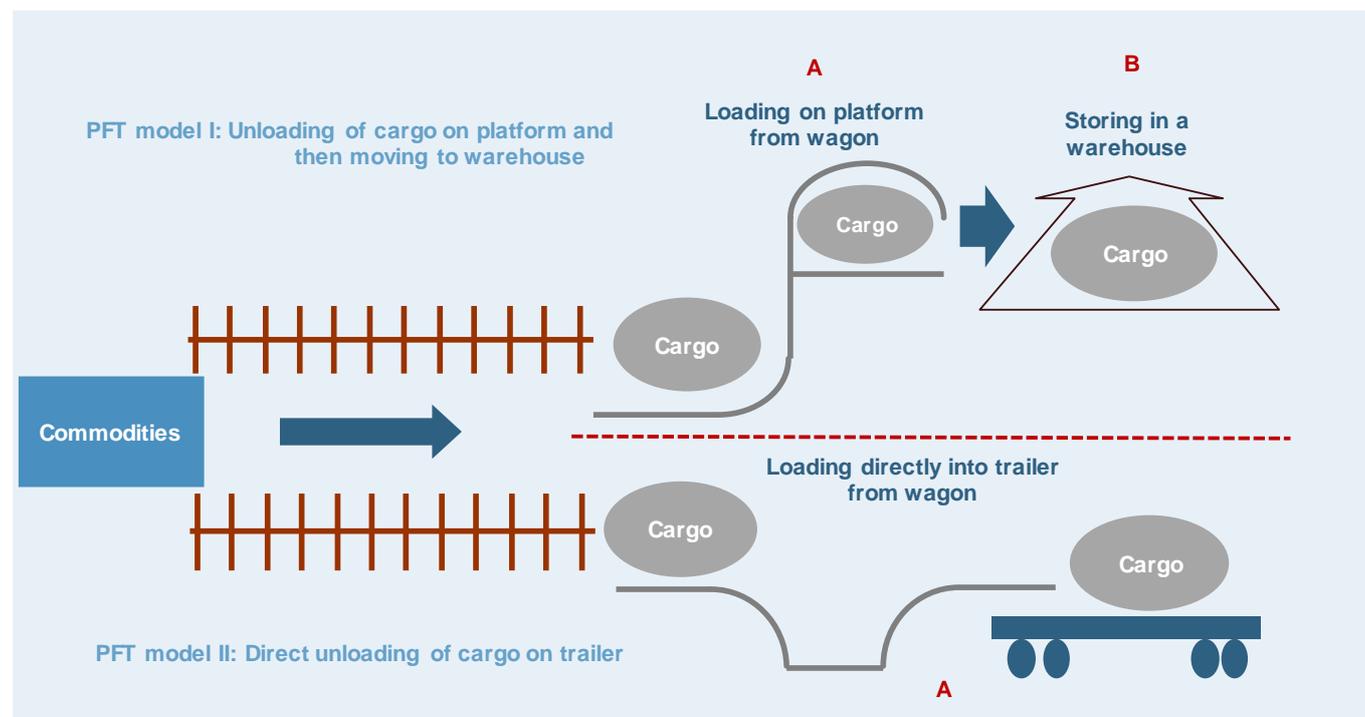
Services rendered at goods sheds are limited to loading/unloading and often warehouses are located 10-15 km away, which add to first/mile last mile costs. Multiple vendors handle different operations and hence customers do not have a single point of contact, while in case of PFTs, integrated services (including cargo aggregation and 3PL) are provided as part of customised solutions for commodities.

Besides these advantages, rail logistics in general leads to lower wastage during journey, rail linked warehouses reduce handling and transportation costs as well, and transporting cargo through rail results lower emissions as compared to road transport.¹⁸

Service mix of a typical PFT

For an integrated PFT, revenue from physical infrastructure can comprise around 30-40% of total revenue. Revenue from physical infrastructure includes the income from basic infrastructure set up by PFTs such as in-motion electronic weighbridge, handling equipment and warehouse. The remaining 60-70% can primarily arise from last mile transportation.

Cargo movement through handling and warehousing services in a PFT



Source: CRISIL Research

Services offered by PFTs are:

¹⁸ Rail transport emits 28 gram CO₂ equivalent per NTKM as compared to 64 gram per NTKM in case of road transport
Source: Table 1.4 of 'National Transport Development Policy Committee Report on Railways, 2013.'

Commodity handling from / to train

Handling of commodities comprises 55-65% share of physical infrastructure revenue. Cargo can be unloaded by equipment such as crane directly onto a trailer. The alternative method of handling cargo is to unload it on a platform and then store it in a warehouse prior to transportation. This includes unloading/loading costs plus warehousing cost and subsequent loading/unloading costs into a trailer.

Warehousing

Warehousing service is estimated to constitute 35-45% of the physical infrastructure revenue. Different commodities require different warehousing facilities for specified periods, within a PFT, typically handling 4-5 types of commodities.

Special services and others

PFTs can also provide other value-added services such as bagging, unitising and palletisation etc. industrial plots and sheds for medium and small scale enterprises, etc. Such services on average contribute less than 5% in overall revenue.

Last mile transportation

Based on currently operating PFTs, it is observed that last mile transportation can form about 60-70% of total revenue. PFTs offering last mile transportation are at an advantage vis-à-vis a competitor that does not offer last mile transportation as customers would prefer to have one stop and integrated services offered from a single service provider.

Value proposition and advantages of PFTs

PFTs provide an efficient way of handling cargo reduction in transportation and handling cost through integrated services offered in one premises. Mostly PFTs deal with bulk cargo that has higher stickiness, as logistics cost advantage is a key decision parameter for bulk cargo. Clientele for PFTs are also large organised players involved in high volume logistics, which makes targeting easier and reduces counter-party risk. In addition to these inherent features, low set up time, scope of mechanisation through gantry cranes and scope of diversification into ICDs are additional key advantages which PFTs offer.

As alternatives to railways goods sheds at congested locations, PFTs provide additional revenue opportunities for Indian Railways through increasing freight volumes handled at PFTs. With quicker turnaround of wagons at PFTs, overall utilisation of wagons (bulk as well as containers) for Indian Railways would also increase. PFTs are established through private sector investments, without participation of railways and still aid railways in increasing freight and revenue base.

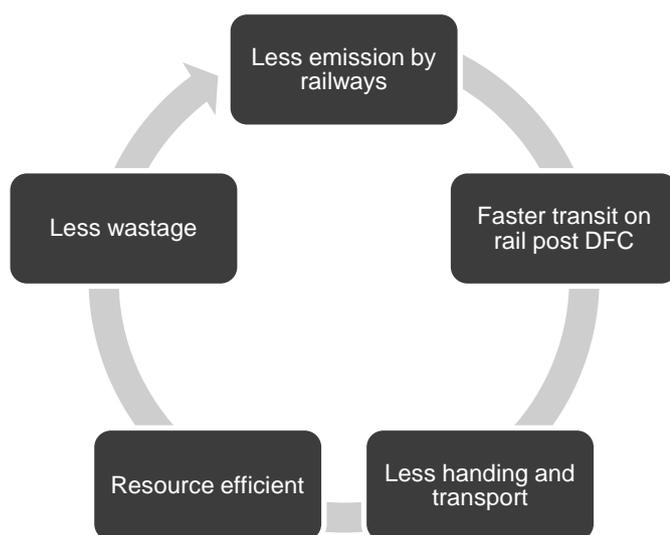
Large end user industries also benefit from PFTs as they provide integrated solution for all rail-linked logistics, including end-to-end logistics, warehousing, inventory management services and last mile distribution services. This provides opportunities of overall cost reduction, and better control over distribution. PFTs also provide commodity specific logistics solutions as liquid, steel, cement etc. which results in efficient and effective handling of cargo, with minimum pilferage and damage. Rail connected warehouses also reduce handling and transportation cost. With single point responsibility of PFT for all logistics requirements, the reliability is higher in comparison to goods sheds, where multiple parties are involved. It also results in economies of scale and better operational metrics typically reducing the overall integrated logistics cost for end users.

Goods sheds vs PFTs – Key advantages

| Parameter | Goods sheds | PFT |
|---------------------------------------|---|--|
| Cargo Handling | <ul style="list-style-type: none"> Multiple handling & transportation agents Lack of mechanization and modern equipment Restricted timings for cargo evacuation, as goods sheds are located in city limits | <ul style="list-style-type: none"> Efficient cargo handling with quick turnaround Significant scope of mechanization and use of modern equipment No commercial traffic restrictions, as PFTs are typically located in outskirts of cities |
| Low damage and pilferage | <ul style="list-style-type: none"> Boundaries are not protected or covered Chance of pilferage and damage, due to unauthorised access | <ul style="list-style-type: none"> Well covered and protected Modern weighing scales and restricted access |
| Scope for Value Added Services | <ul style="list-style-type: none"> Service limited to loading and unloading Multiple vendors Warehouses are not located near sheds, increasing handling costs | <ul style="list-style-type: none"> Integrated offering with cargo aggregation and 3PL services Industry specific solution, such as steel, bagged cargo etc Warehousing inside PFT |

Source: Industry, CRISIL Research

Goods sheds vs PFTs – Environmental impact



Source: Industry, CRISIL Research

Emissions:

Rail transport emits 28 gram CO2 equivalent per NTKM as compared to 64 gram per NTKM in case of road transport (Source: Table 1.4 of 'National Transport Development Policy Committee Report on Railways, 2013.')

Faster transit:

Higher speeds on DFC will result in higher turnaround and decreasing inventory requirements across end-user industries. It will also ensure better wagon and track utilization.

Resource efficient:

More mechanization can be done at PFT thus leading to higher efficiency vis-a-vis Railway Goods Shed

Less wastage:

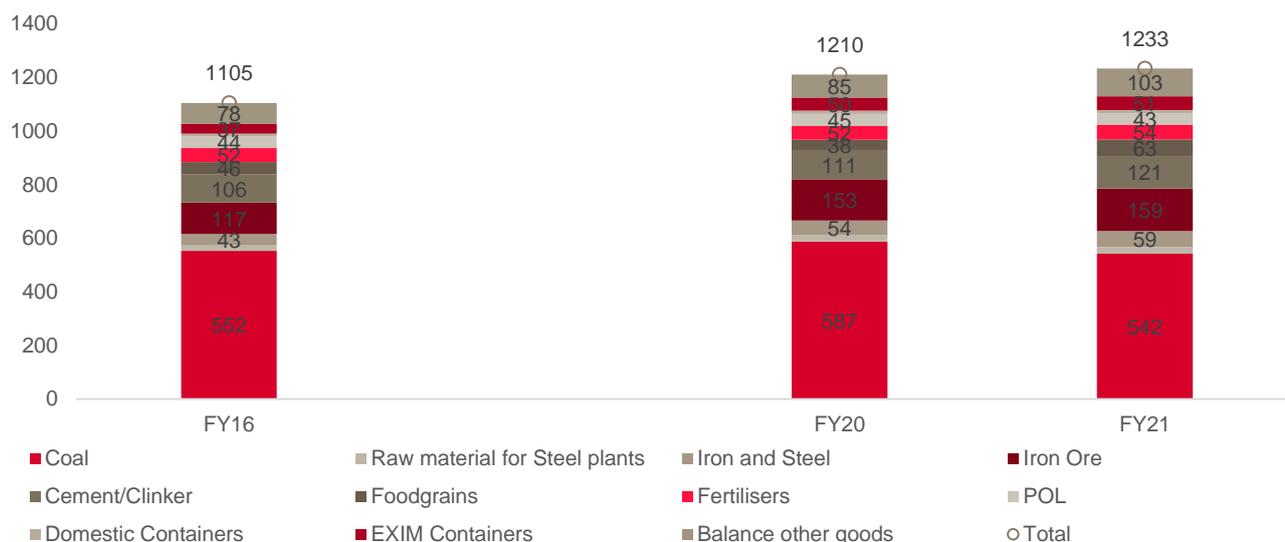
Rail wagons are well covered which leads to lower wastage during transport. Also, at PFTs lesser handling leads to lesser material losses. For example: Cement bags, which may get damaged due to multiple handlings at goods sheds

Rail freight terminal/PFT market

Rail traffic

Rail traffic grew at a CAGR of 2% over fiscal 2016-2020 period. Railway traffic was up by 2% in pandemic impacted fiscal 2021 as well. Key commodities for rail traffic are Coal, Iron ore and Cement/Clinker. The commodity profile of the railways has not changed significantly over the year. However, with railway’s objective to decreased dependence on coal and improved loading of non-traditional non-bulk commodities, an increased loading was observed in balance other goods segment. Fiscal 2021 also saw a record loading of food grains, as government procurement was high.

Rail traffic (million tonnes)



Source: Indian Railways, Industry, CRISIL Research

Commodity wise potential for PFTs is low for certain industrial bulk commodities

Commodity wise potential

| Commodity | Potential for PFT | Rationale |
|-------------------------------|-------------------|---|
| Coal | Low | Coal is largely meant for power plants, steel plants and large industries, which have dedicated sidings. Limited potential exists for e-auction and public use coal |
| Raw material for Steel plants | Low | Raw materials such as Limestone, Dolomite etc. are also generally handled at dedicated sidings |
| Iron and Steel | High | Iron and steel traffic is traditionally handled at goods sheds, for secondary distribution |
| Iron Ore | Low | Industrial usage by steel plants, which have captive sidings. Exports are routed through mining sidings to ports |
| Cement/Clinker | Medium | Bagged cement is a key commodity for goods sheds. Clinker, however, is an industrial commodity, with limited potential secondary retail distribution |
| Food grains | Medium | Non-FCI traffic holds significant potential |

| | | |
|---------------------|--------|--|
| Fertilisers | High | Fertilisers are typically routed through goods sheds for retail distribution |
| POL | Low | POL is handled at captive sidings |
| Domestic Containers | High | Terminals notified as PFTs do handle containers. However, container rail handling is done at container terminals. PFTs, however can be used for cargo aggregation purposes |
| EXIM Containers | Medium | |
| Balance other goods | Medium | Potential exists for non-traditional commodities such as White Goods, FMCG, Edible Oil, Parcel traffic, e-retail movement etc. |

Source: Indian Railways, Industry, CRISIL Research

Key commodities handled by rail freight terminals

Key commodities for goods sheds are Food grains, Cement, Fertilisers Iron and Steel and Ores, while key commodities for PFTs are Iron and Steel, Ores, Cement, Export Iron Ore and Automobiles.

Commodity wise traffic at rail freight terminals (Goods sheds and PFTs)

Key commodities handled at goods sheds

| | |
|---------------------|-----|
| FOOD GRAIN | 25% |
| CEMENT | 23% |
| FERTILIZER | 10% |
| IRON & STEEL | 7% |
| ORES | 6% |
| IMPORTED FERTILIZER | 4% |
| STONE | 4% |
| SUGAR | 3% |
| BALLAST | 3% |
| AUTOMOBILES | 3% |
| SALT | 2% |
| LUBRICANTS POL | 2% |

Key commodities handled at PFTs

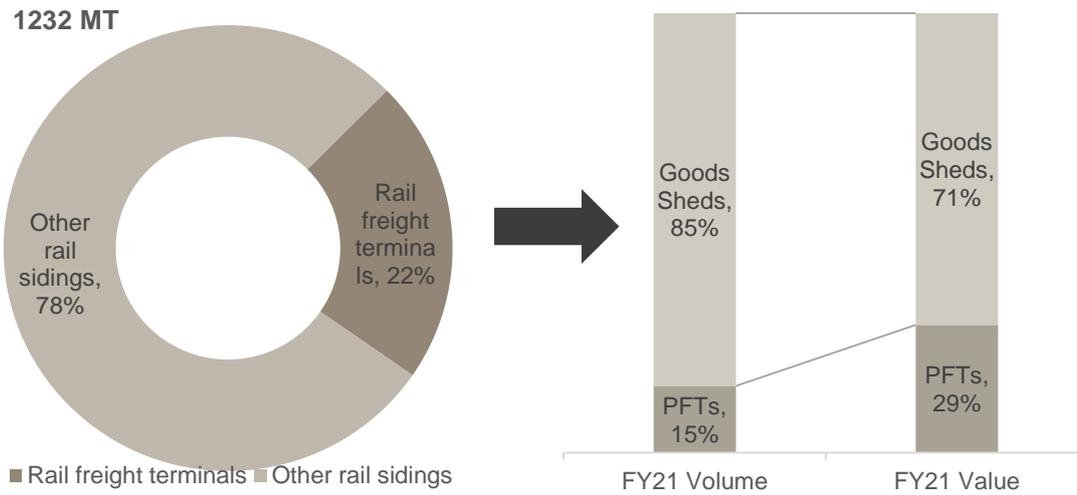
| | |
|--------------------------------------|-----|
| IRON & STEEL | 23% |
| ORES | 20% |
| CEMENT CLINKER | 12% |
| EXPORT ORE | 11% |
| AUTOMOBILE | 9% |
| RAW MATERIAL FOR STEEL PLANT | 6% |
| FOOD GRAIN FG | 6% |
| CEMENT CEMENT | 3% |
| BALLAST | 2% |
| EDIBLE OIL NOT IN TANK WAGON EOIL | 2% |
| SUGAR | 2% |
| FERTILIZER | 1% |

Source: FOIS, Indian Railways, Industry, CRISIL Research

Market size

The commercial freight terminal market includes goods sheds and PFTs. As per FOIS data, at present, there are ~1,000 goods sheds and 75-80 PFTs. CRISIL Research estimates that commercial freight terminals (including goods sheds and PFTs) handled ~22% of non-containerized rail traffic in India. Within commercial freight traffic, estimated volume share of PFTs was ~15%. Volumes handled at PFTs have improved significantly in past few years, as terminals notified have increased. Share of PFTs in commercial rail freight terminals has quadrupled from 3-4% to ~15%, over fiscal 2016-21 period.

Market size for PFTs – FY21



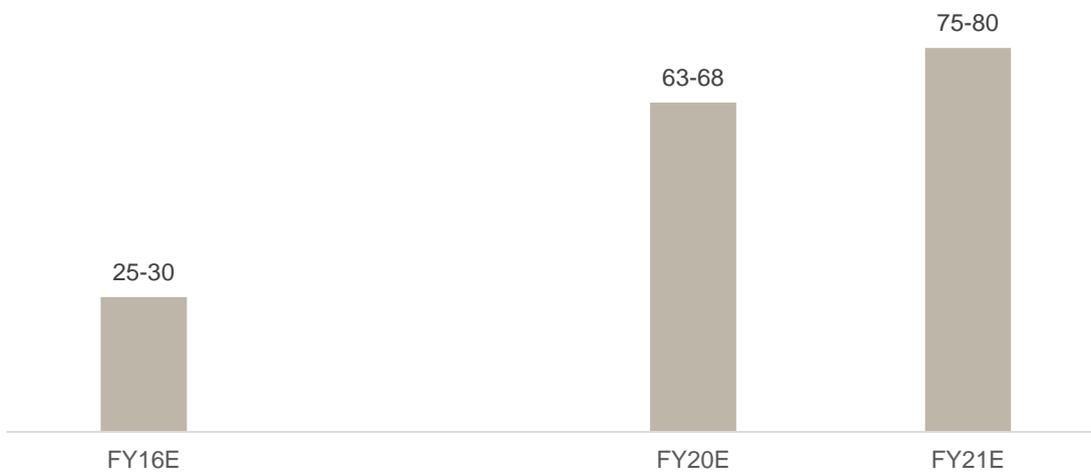
Commercial rail freight terminals include PFTs and Goods sheds

Source: Indian Railways, Company reports, CRISIL Research

In terms of value, the commercial freight terminal market accounted for Rs 40-42 billion, of which PFTs accounted for Rs 10-12 billion, including the secondary transportation services provided by the PFT players. Secondary transportation is an important revenue stream for the PFT players, and often accounts for half of the revenue for PFT.

Number of rail terminals notified as PFTs have also increased from 25-30 to 63-68, during fiscal 2016 to fiscal 2020. Around 10 terminals were notified as PFTs in fiscal 2021 as well.

Number of PFTs



Source: Indian Railways, Industry, CRISIL Research

Overview of PFT and goods sheds across regions

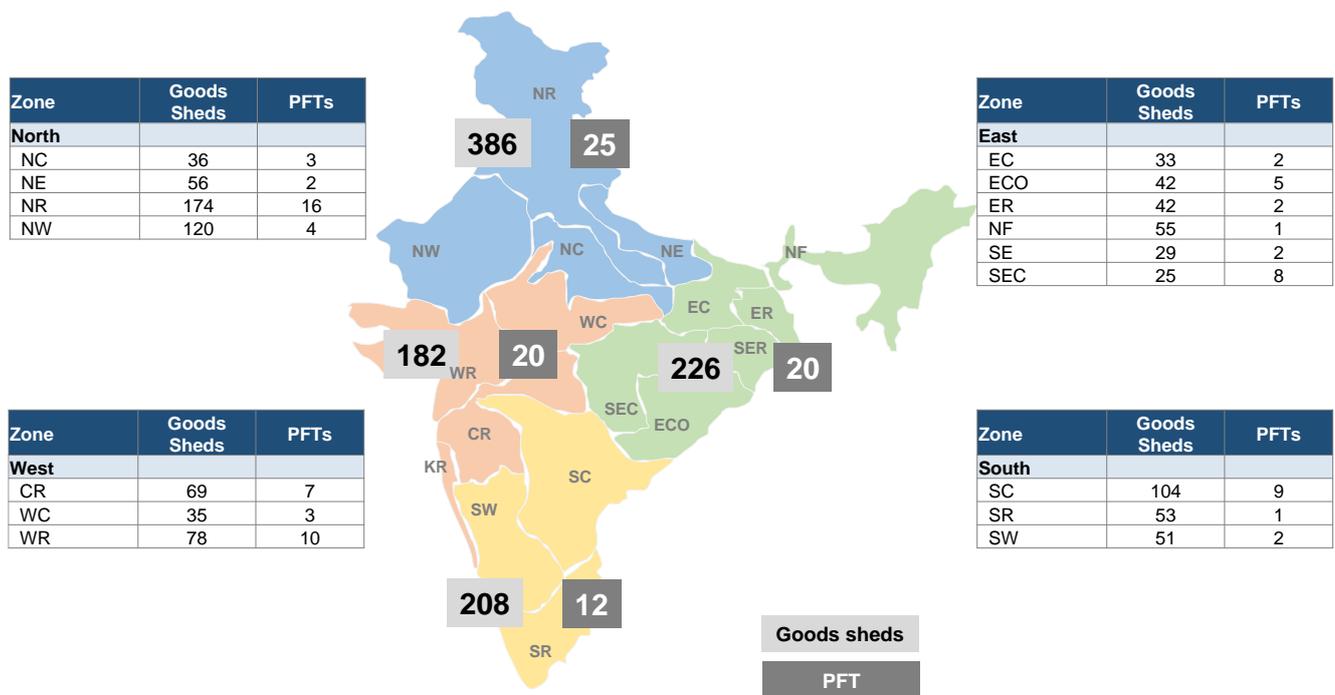
Key locations of PFT and goods sheds

As per FOIS website, as of fiscal 2021 end, number of notified PFTs was 77. Of these North region accounted for highest share, at ~44%, east and west regions accounted for ~20% each, while South region had lowest share at ~16%. On the other hand, around ~1,000 goods sheds were operational across different railway zones. Similar to PFTs, North region has highest number of goods sheds in the country, at 39%, East region, South Region and West region, accounted for 23%, 21% and 18% of the goods sheds.

In the north region, Northern Railway zone is largest, in terms of goods sheds and PFTs, with 174 goods sheds and 16 PFTs. For east zone, Northern Frontier zone, *which geographically covers, parts of Bihar, West Bengal and all North Eastern states*, has highest number of goods sheds. Despite highest number of goods sheds, the zone's first PFT was commissioned recently in Siliguri.

Western Railway zone, is largest zone in the West region, with 78 goods sheds and 10 PFTs, while South Central zone is largest zone in South region, with 104 goods sheds and 9 PFTs.

Region wise Goods sheds and Private Freight Terminals



NC: North Central, NE: North Eastern, NF: Northeast Frontier, NR: Northern, NW: North Western

CR: Central, WC: West Central, WR: Western

EC: East Central, ECO: East Coast, ER: Eastern, SE: South Eastern, SEC: South East Central

SC: South Central, SR: Southern, and SW: South Western

Source: Indian Railways, CRISIL Research

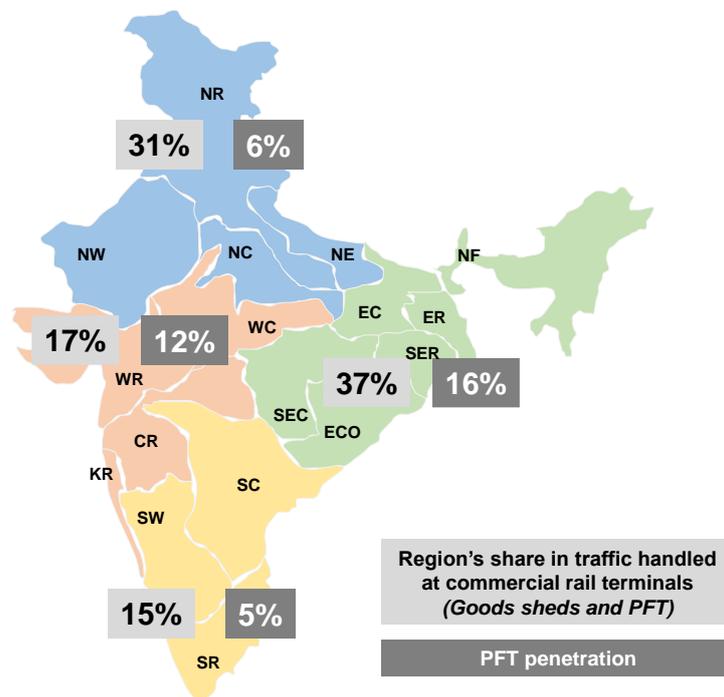
PFT/Goods Sheds traffic across regions

In fiscal 2021, East region is estimated to account for 37% of the rail traffic (*in terms of number of outbound and inbound rakes, excluding Coal, Containers and Empty haulage*) handled at commercial rail freight terminals (*both PFTs and Goods Sheds*). North, West and South regions contributed to 31%, 17% and 15%, respectively.

Commercial rail terminals in East region handled 2,200 – 2,300 monthly rakes, of which rakes handled at PFTs accounted for ~16%. Rail traffic at commercial rail terminals in North region stood at 2,100 – 2,200 monthly rakes, and share of region’s PFTs in this traffic was ~6%. Contribution of PFTs, in the region’s commercial rail terminal traffic in West and South, was 12% and 5%, respectively.

The traffic handled at PFTs located in East region is higher due to a greater contribution by mining commodities, such as domestic iron ore, iron ore exports, limestone, raw materials for steel plants, and iron and steel.

Region wise share in commercial rail terminal traffic¹⁹ and PFT penetration



Source: Indian Railways, CRISIL Research

In terms of railway zones across regions, East Coast zone, South Eastern Zone and South East Central Zone across East region, has higher PFT penetration, due to inbound and outbound share of mining related commodities. Zones with relatively higher PFT penetration are North West zone in North region and, Central and Western zones in Western region.

¹⁹ Monthly Inbound and Outbound rakes, excluding Coal, Containers and Empty haulage

Zones with relatively higher potential are Northern zone in North region, which has high commercial rail terminal traffic, but a somewhat lower PFT penetration, and North Frontier zone and East Central zone and Eastern Railway zone, in East region.

Zone wise commercial rail terminal traffic²⁰ and PFT penetration

| Region/Zone | Commercial rail terminal traffic (Monthly rakes) | PFT penetration | Remarks |
|--------------------|--|-----------------|---|
| East | | | |
| East Central | 400-500 | 2% | Significant potential for PFT traffic, as only two PFTs are operational against 33 goods sheds |
| East Coast | 400-500 | 37% | Higher penetration due to higher share of mining related commodities |
| Eastern Railway | 400-500 | 3% | |
| North Frontier | 400-500 | 1% | Significant potential for PFT traffic, as only one PFTs is operational against 55 goods sheds. Only PFT at Siliguri was commissioned recently |
| South Eastern | 500-600 | 30% | Higher penetration due to higher share of mining related commodities |
| South East Central | 300-400 | 27% | Higher penetration due to higher share of mining related commodities |
| North | | | |
| North Central | 300-400 | 7% | |
| North Eastern | 250-350 | 0% | |
| Northern Railway | 1300-1400 | 5% | Highest number of goods sheds and PFTs, but a somewhat lower PFT penetration |
| North West | 200-300 | 18% | PFT penetration contributed by outbound automobile traffic from Kanakpura in Rajasthan |
| South | | | |
| South Central | 450-550 | 10% | |
| Southern Railway | 250-350 | 0% | |
| South Western | 300-400 | 1% | |
| West | | | |
| Central Railway | 550-650 | 14% | Relatively higher commercial rail terminal traffic as well as PFT penetration |
| West Central | 150-250 | 5% | |
| Western Railway | 400-500 | 13% | Relatively higher commercial rail terminal traffic as well as PFT penetration |

Note: Monthly rakes handled are estimated as per indent data, excluding coal and containers, available from FOIS website, for select months of FY21/22

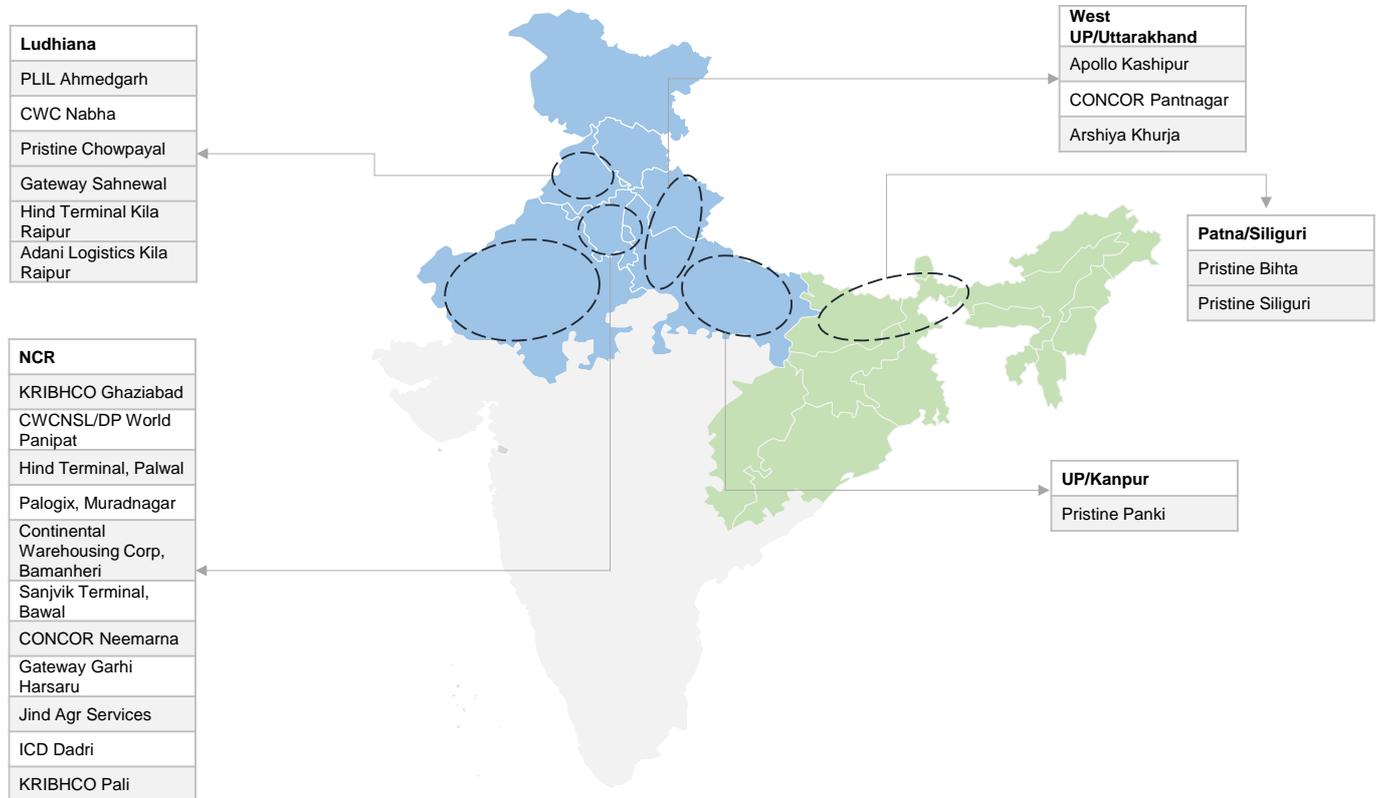
Source: Indian Railways, CRISIL Research

²⁰ Monthly Inbound and Outbound rakes, excluding Coal, Containers and Empty haulage

Overview of key PFT clusters: North and East India

Mapping of key PFTs/Goods Sheds across clusters

Location of major PFTs across clusters



Source: Indian Railways, CRISIL Research

NCR

Key goods sheds in NCR region are Ghaziabad, Delhi Kishanganj, Faridabad, Shakurbasti (Delhi), Kaithal and Kurukshetra. Largest goods sheds are, Ghaziabad (70-80 monthly rakes) and Delhi Kishanganj (35-45 monthly rakes). Key inbound commodities in the cluster are iron and steel, cement, edible oil and fertilisers, while outbound commodities are food grains, miscellaneous cargo and chemicals.

Major goods sheds in NCR

| Location | Division | Monthly rakes | Major direction (Inbound/Outbound) | Inbound – Key commodities | Outbound – Key commodities |
|------------------|-----------|---------------|------------------------------------|-----------------------------|--|
| Ghaziabad | Delhi, NR | 70-80 | Inbound | Iron/Steel, Cement and Salt | Iron/Steel |
| Delhi Kishanganj | Delhi, NR | 35-45 | Outbound | Edible Oil, Sugar and Salt | Miscellaneous, Mixed, Food grains, Soap, Chemicals, and Edible Oil |
| Faridabad | Delhi, NR | 10-15 | Both | Cement | Automobile |
| Sakurbasti | Delhi, NR | 10-15 | Inbound | Cement, Ready Mix Concrete | Ballast |

| | | | | | |
|-------------|-----------|-------|----------|------------------------------------|-------------|
| Kaithal | Delhi, NR | 10-15 | Both | Fertilisers (Domestic and Imports) | Food grains |
| Kurukshetra | Delhi, NR | 10-15 | Outbound | Fertilisers (Domestic and Imports) | Food grains |

Source: Indian Railways, Industry, CRISIL Research

Key rail terminals in NCR notified as PFTs are KRIBHCO Ghaziabad, CWCNSL Panipat, Hind Terminal Palwal, Palogix Muradnagar, CWC Bamanheri, Sanjvik Terminal Bawal, CONCOR Neemrana and KRIBHCO Pali.

Major PFTs in NCR – Bulk traffic

| Location/Player | Division | Monthly rakes | Major direction (Inbound/Outbound) | Inbound – Key commodities | Outbound – Key commodities |
|---|-------------|---------------|--|-----------------------------|----------------------------|
| Bulk commodities | | | | | |
| KRIBHCO Ghaziabad | Delhi, NR | 24-30 | Inbound | Clinker, Edible Oil | - |
| CWCNSL/DP World Panipat | Delhi, NR | 12-15 | Inbound | Clinker | - |
| Hind Terminal, Palwal | Delhi, NR | 10-13 | Inbound | Iron and Steel | - |
| Palogix, Muradnagar | Delhi, NR | 9-11 | Inbound | Ballast | - |
| Continental Warehousing Corp, Bamanheri | Delhi, NR | 3-5 | Inbound | Ballast | - |
| Sanjvik Terminal, Bawal | Jaipur, NW | 35-45 | Both | Automobiles, Iron and Steel | Automobiles |
| CONCOR Neemrana | Jaipur, NW | 9-12 | Both | Automobiles | Automobiles |
| KRIBHCO Pali | Jaipur, NW | 2-5 | Inbound | Edible Oil, Iron and Steel | - |
| Non Port-bound containers | | | | | |
| KRIBHCO Pali | Jaipur, NW | 90-100 | Key locations served: CWCNSL Panipat, KRIBHCO Surat, KRIBHCO Ghaziabad | | |
| JK Cement Gotan | Jodhpur, NW | 30-40 | Key locations served: Adani Patli, Pristine Patna, Pristine Kanpur | | |
| Sanjvik Bawal | Jaipur, NW | 9-12 | Key locations served: Reliance Jamnagar, ACTL Ghaziabad and CWC Noli | | |
| <p>Most of the ICDs located in NCR are also notified as PFTs, such as CONCOR Kathuwas (350-370 monthly rakes) – CONCOR’s hub Gateway Garhi Harsaru (120-140 monthly rakes) – Gateway’s hub CWCNSL Panipat (50-60 monthly rakes) KRIBHCO Ghaziabad (30-40 monthly rakes) JM Baxi (20-25 monthly rakes) and so on</p> | | | | | |

Source: Indian Railways, Industry, CRISIL Research

Ludhiana

Key goods sheds in Ludhiana cluster are Dhandari Kalan, Mandi Govindgarh, Khanna, Kila Raipur, Chawpail, Sirhind, Phillaur and Doraha. Major inbound commodities in the cluster are iron and steel and fertilisers, while outbound commodities are food grains.

Major goods sheds in Ludhiana

| Major goods sheds in Ludhiana | Division | Monthly rakes | Major direction (Inbound/Outbound) | Inbound – Key commodities | Outbound – Key commodities |
|-------------------------------|--------------|---------------|------------------------------------|----------------------------|-----------------------------|
| Bulk commodities | | | | | |
| Dhandari Kalan | Ferozpur, NR | 35-50 | Inbound | Iron/Steel | Food grains |
| Mandi Govindgarh | Ferozpur, NR | 12-17 | Inbound | Iron/Steel | Food grains |
| Khanna | Ferozpur, NR | 10-15 | Both | Fertilisers, Ballast | Food grains, De-Oiled Cakes |
| Kilaraipur | Ferozpur, NR | 5-7 | Outbound | Salt, Imported Fertilisers | Food grains |
| Chawapail | Ferozpur, NR | 5-7 | Outbound | Ballast | Food grains |
| Sirhind | Ferozpur, NR | < 5 | Outbound | Ballast | Food grains |
| Phillaur | Ferozpur, NR | < 5 | Outbound | - | Food grains |
| Doraha | Ferozpur, NR | < 5 | Outbound | - | Food grains |

Source: Indian Railways, Industry, CRISIL Research

Key rail terminals in notified as PFTs in Ludhiana cluster are Punjab Logistics Infrastructure Ltd's facility, located ~10 Km from Kila Raipur station. CWC's siding at Nabha and Pristine's siding in Chowpayal.

Major PFTs in Ludhiana

| Location/Player | Division | Monthly rakes | Major direction (Inbound/Outbound) | Inbound – Key commodities | Outbound – Key commodities |
|----------------------------------|--------------|---------------|---|---------------------------|----------------------------|
| Bulk commodities | | | | | |
| PLIL Ahmedgarh | Ambala, NR | 10-15 | Inbound | Automobiles | - |
| CWC Nabha | Ambala, NR | <5 | Outbound | Food grains | - |
| Pristine Chowpayal | Ambala, NR | <5 | Inbound | Edible Oil | - |
| Non Port-bound containers | | | | | |
| PLIL Ahmedgarh | Ferozpur, NR | 10-20 | Key locations: CONCOR Sura Nussi, and CONCOR Shalimar | | |
| Hind Terminal Kila Raipur | Ferozpur, NR | 10-20 | Adani Patli, Kirlosakar Ferrous Ginigera | | |
| Pristine Chowpayal | Ferozpur, NR | 5-15 | JK Cement Katni, ACTL Terminal NCR | | |

Adani Kila Raipur and Gateway Sahnewal are also notified as PFTs, with major routes to their NCR ICDs in hub and spoke model

Source: Indian Railways, Industry, CRISIL Research

West UP/Uttarakhand

Key goods sheds in West UP/Uttarakhand cluster are located in Agra and Moradabad divisions of Northern Railway and Izzatnagar division of North Eastern Railway. Major goods sheds are Jamuna Bridge, Kosikalan and Mathura of Agra division, Rudrapur City, Haldi Road (*Udham Singh Nagar*) and Kashipur of Izzatnagar division, and Roza, Moradabad and Roorkee of Moradabad division.

Major goods sheds in West UP/Uttarakhand (UK) cluster

| Major goods sheds in West UP/UK | Division | Monthly rakes | Major direction (Inbound/Outbound) | Inbound – Key commodities | Outbound – Key commodities |
|---------------------------------|----------------|---------------|------------------------------------|--|----------------------------------|
| Jamuna Bridge | Agra, NCR | 40-50 | Inbound | Cement, Iron/Steel | - |
| Kosikalan | Agra, NCR | 10-15 | Inbound | Iron/Steel | - |
| Mathura Jn. | Agra, NCR | 10-15 | Both | Cement, Food grains, Fertilisers, | Food grains |
| Rudrapur City | Izzatnagar, NE | 35-45 | Both | Cement, Food grains, Fertilisers, De-Oiled Cakes | Food grains, Others |
| Haldi Road | Izzatnagar, NE | 10-15 | Both | Food grains, Cement | Automobile, Sugar |
| Kashipur | Izzatnagar, NE | 7-10 | Both | Cement, Fertilisers | Food grains |
| Roza | Moradabad, NR | 55-65 | Both | Cement, Fertilisers, Salt, Ballast | Food grains, Fertilisers, Sugar, |
| Moradabad | Moradabad, NR | 25-30 | Both | Cement, Fertilisers, Food grains | Sugar, Concrete Sleepers |
| Roorkee | Moradabad, NR | 17-20 | Both | Cement, Fertilisers, Ballast | Automobiles, Cement, Sugar |

Source: Indian Railways, Industry, CRISIL Research

Kashipur facility of Apollo and India Glycols JV and Pantnagar facility of CONCOR and State JV, are notified as PFTs in Uttarakhand. Arshiya Rail's terminal in Khurja (West UP) is also notified as PFT. Kashipur and Pantnagar did not handle any non-containerised cargo in fiscal 2021, while Arshiya Rail Khurja handled 12-17 monthly rakes

Major PFTs in West Up/Uttarakhand

| Location/Player | Division | Monthly rakes | Major direction (Inbound/Outbound) | Inbound – Key commodities | Outbound – Key commodities |
|-------------------------|----------------|---------------|------------------------------------|-------------------------------|----------------------------|
| Bulk commodities | | | | | |
| Apollo Kashipur | Izzatnagar, NE | 10-15 | Inbound | Clinker, Ballast, Ashes, Ores | - |
| CONCOR Pantnagar | Izzatnagar, NE | - | - | - | - |
| Arshiya Khurja | Moradabad, NR | - | - | - | - |

| Non Port-bound containers | | | |
|---------------------------|----------------|-------|---|
| CONCOR Pantnagar | Izzatnagar, NE | 40-50 | Hindustan Zinc (Rajasthan) besides other CONCOR terminals |
| Apollo Kashipur | Izzatnagar, NE | 15-20 | Terminals in NCR |

Source: Indian Railways, Industry, CRISIL Research

Rest of UP/Kanpur

For rest of UP, key clusters are in Kanpur area, where two goods sheds are located, Kanpur Central goods shed and Kanpur Juhi goods shed and Allahabad area, where Naini goods shed is located.

Major goods sheds in UP cluster

| Major goods sheds in UP | Division | Monthly rakes | Major direction (Inbound/Outbound) | Inbound – Key commodities | Outbound – Key commodities |
|-------------------------|----------------|---------------|------------------------------------|---|----------------------------|
| Kanpur Central | Prayagraj, NCR | 35-45 | Inbound | Cement, Fertilisers, Salt | Food grains |
| Kanpur Juhi | Prayagraj, NCR | - | Inbound | - | - |
| Naini | Prayagraj, NCR | 22-27 | Inbound | Cement, Food grains, Fertilisers, Salt, Ballast | Food grains |

Source: Indian Railways, Industry, CRISIL Research

Panki rail terminal of Pristine Logistics is notified as a PFT in Kanpur region, which handles around 7-10 monthly rakes.

Major PFTs in Kanpur

| Location/Player | Division | Monthly rakes | Major direction (Inbound/Outbound) | Inbound – Key commodities | Outbound – Key commodities |
|---|---------------|---------------|------------------------------------|-------------------------------|----------------------------|
| Pristine Panki | Prayagraj, NC | 7-10 | Inbound | Edible Oil, Food grains, Salt | - |
| Pristine Panki also handles around 3-6 monthly rakes for non port-bound containers | | | | | |

Source: Indian Railways, Industry, CRISIL Research

Patna

Key goods sheds in Patna area are located at Fatuha, Danapur, Arrah, Jehanabad and Buxar. All these goods sheds are located in the Danapur division of East Central Railway.

Major goods sheds in Patna cluster

| Major goods sheds in Patna area | Division | Monthly rakes | Major direction (Inbound/Outbound) | Inbound – Key commodities | Outbound – Key commodities |
|---------------------------------|----------|---------------|------------------------------------|---------------------------|----------------------------|
|---------------------------------|----------|---------------|------------------------------------|---------------------------|----------------------------|

| | | | | | |
|-----------|-------------|-------|---------|---|---------------------|
| Fatuha | Danapur, EC | 60-70 | Inbound | Perishables (Onions), Cement, Auto, Iron/Steel, Salt, Fertilisers, Tar, Sugar, Edible Oil | Cement, Food grains |
| Danapur | Danapur, EC | 15-20 | Inbound | Cement, Automobile | - |
| Arrah | Danapur, EC | 15-20 | Inbound | Cement, Food grains, Fertilisers | Food grains |
| Jehanabad | Danapur, EC | 10-15 | Inbound | Cement, Food grains, Fertilisers | Food grains |
| Buxar | Danapur, EC | 10-15 | Both | Cement, Fertilisers | Food grains |

Source: Indian Railways, Industry, CRISIL Research

Bihta rail terminal (near Patna) of Pristine Logistics is notified as a PFT located in Patna area, which handles 20-25 average monthly rakes (*including container and non-container rakes*). Cement is a key inward commodity, where key consignors are Ultratech Cement, Dalmia Cement, Prism Cement and ACC. Key consignors for iron and steel are Tata Sponge Iron and Rungta Mines.

Major PFTs in Patna

| Location/Player | Division | Monthly rakes | Major direction (Inbound/Outbound) | Inbound – Key commodities | Outbound – Key commodities |
|--|-------------|---------------|------------------------------------|-------------------------------------|----------------------------|
| Pristine Bihta | Danapur, EC | 15-20 | Both | Cement, Food grains, Iron and Steel | Food grains |
| Terminal also handles 6-10 non port bound container rakes for JK Cement and Morbi cluster | | | | | |

Source: Indian Railways, Industry, CRISIL Research

Siliguri

Key goods sheds in Siliguri area are New Jalpaiguri goods shed, Rangapani goods shed in West Bengal and Kishanganj goods shed in Bihar. All of these goods sheds are located in Katihar division of Northern Frontier railway zone.

Major goods sheds in Siliguri cluster

| Major goods sheds in Siliguri area | Division | Monthly rakes | Major direction (Inbound/Outbound) | Inbound – Key commodities | Outbound – Key commodities |
|------------------------------------|-------------|---------------|------------------------------------|---|----------------------------|
| New Jalpaiguri | Katihar, NF | 30-35 | Inbound | Cement, Stones | - |
| Rangapani | Katihar, NF | 17-22 | Inbound | Sugar, Fertilisers, Salt, Miscellaneous, De-oiled Cake, Automobiles | - |
| Kishanganj | Katihar, NF | 17-22 | Inbound | Cement, Salt, Food grains, Sugar | - |

Source: Indian Railways, Industry, CRISIL Research

Siliguri rail terminal of Pristine Logistics is also notified as a PFT located in Siliguri area, which handles 10-15 average monthly rakes (*container as well non-container rakes*). Clunker and Sugar are key inward commodities, where key consignee for clunker is Millenium Cement Company, while traders are key consignees for sugar.

Major PFTs in Siliguri

| Location/Player | Division | Monthly rakes | Major direction (Inbound/Outbound) | Inbound – Key commodities | Outbound – Key commodities |
|--|-------------|---------------|------------------------------------|-----------------------------------|----------------------------|
| Pristine Siliguri | Katihar, NF | 5-8 | Inbound | Clinker, Sugar, Husk, Food grains | De-oiled cake |
| Pristine Siliguri also handles 5-8 monthly rakes for non port-bound containers, from Morbi and other Pristine terminals | | | | | |

Source: Indian Railways, Industry, CRISIL Research

Critical success factors for PFTs

Location and proximity to market

Location is one of the most critical parameters in this industry. Proximity to manufacturing plants (without captive sidings) as well as consumption locations would be required to handle key commodities such as cement, iron ore, fertilisers, etc. Favourable location of PFTs can ensure 24X7 last mile transportation.

PFT should be located in proximity of a rail head and state of national highways as well as proximity to rail head would ensure minimal issues in land acquisition to get rail siding in the facility as well as ease of evacuation and approach to facility. Proximity to consuming centres would ensure competitive secondary distribution costs.

PFT infrastructure

It is imperative to have adequate area for handling and storing cargo and containers, with about 40-60 acres of land needed to set up a large PFT handling multiple commodities. Every commodity requires different handling and storing arrangements. In a 40-60-acre PFT, the commodity mix would comprise 4-6 different commodities.

About 700-900 metres should be allocated for laying full rake spur lines. Further, PFTs should have facilities and requisite equipment to handle over-dimensional cargo, hazardous goods, etc. With specialised rail-fed warehouses, PFTs can have a competitive advantage vis-à-vis traditional warehouses as well as railway goods sheds. Retention of customers also becomes easier with the customised solutions.

Relationship with businesses

Maintaining strong relationships with consignees/customers, traders, freight forwarders and railway ecosystem as it would help in faster and responsive change management, revenue visibility, support from key stakeholders during ramp-up phases and superior services. Businesses would prefer to have a service provider that provides reliable services, quick turnaround and competitive prices. Relationships with Container Train Operators (CTOs) would also provide an additional advantage required for diversification of commodity base.

Efficient capital deployment

Efficient capital deployment commensurate to commodity mix and scale of business is also key for an infrastructure driven businesses like ICD/PFT. Efficient capital deployment entails using optimum amount of capital to create profitable operations. Factors such as phasing of investment as per growth, owing vs leasing etc. drive this.

Network effect of ICD/PFT

Players with multiple CFS/ICD at different locations and ICD-PFT or PFT at other locations have an edge. . Every additional terminal will help widening route-network resulting into sharp rise in volume handled between those terminals. Rail freight services between the ICD-PFT/ PFT located in the hinterland can be started and the handling and warehousing revenues can be realised at both loading and unloading sites.

Examples of savings across supply chain

PFTs equipped with large warehousing and logistics facilities can provide customised solutions, which can be beneficial for large companies in planning their distribution operations. For example, a fast moving consumer goods (FMCG) company, which regularly supplies finished goods to a high consumption area through a manufacturing plant, may find PFTs present at both locations very useful, along with the warehousing services, as it will aid in better inventory management and logistics cost savings.

Similarly for a rice trader at in North India, a PFT-cum-ICD in North India can be used for exporting rice via containers and can also be used for distribution of rice to North east via Indian Railways. Also a textile manufacturer in South India can send goods to a PFT-cum-ICD at a port location either via road or via rail (either in domestic container or in bulk form), a part can be exported and a part can be used for distribution/selling locally. Given the ability to handle cargo both via road & rail, clients can source raw material in any form as may be required. Hence, both sourcing and distribution of containerised & non-containerised cargo (domestic or EXIM) via road and rail makes PFT-cum-ICD an extremely key participant in logistics value chain

Companies with operations in related logistics sectors will gain better synergies, as a player having PFT-ICD/CFS/PFT network can initiate container train operations among its sites, which will provide better control over the entire network and increase customer loyalty. Players operating in other supply chains solutions can route their existing parcels/cargo through owned PFT-ICD/CFS/PFT and container train operation. Operations across inter-connected logistics offerings would ensure a wider reach, efficient logistics and reliable services across the complete logistics chain.

Cargo flows are generally geographically dispersed, even for a single customer three/four locations might be required for sourcing and distribution. A network of interconnected PFT-cum-ICD can help in supplying/distributing dispersed loads through optimally managing less than rake loads and return cargo availability. This also helps in efficient utilisation of the network assets, handling other non-bulk cargo and better reach to catchment area. With a wider network and service base, players operating through networks can also command better bargaining power.

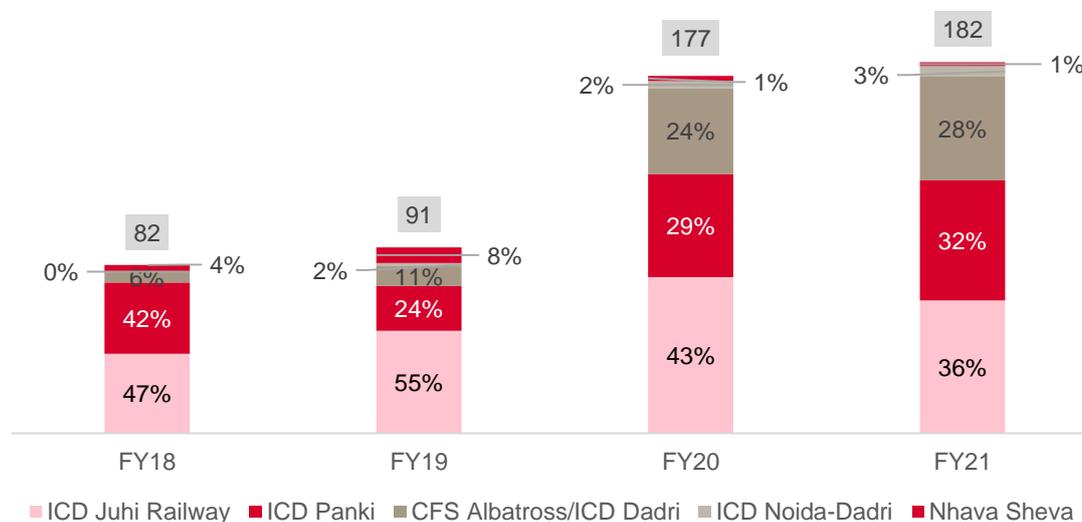
6. Emerging multimodal opportunities for Siliguri

Siliguri is located in the Siliguri corridor, which is a narrow stretch of land, around 22 Km wide, connecting Indian to other north eastern states. Due to the strategic location of Siliguri, it acts as a gateway to neighbouring countries of Bhutan, Nepal and Bangladesh. Accordingly, multimodal opportunities for cargo transport from Siliguri to neighbouring countries can be explored, where Siliguri can act as a cargo aggregation center. Further economies of scale can be explored through rail based aggregation.

Meat exports from Bihar

Buffalo meat is a major export item for Bihar and the buffalo meat exports have increased significantly in past few years. Exports accounted for USD 82 million in fiscal 2018 and it more than doubled by fiscal 2021, to USD 182 million. However, exports from Bihar are largely routed through CONCOR ICD in Kanpur, Pristine ICD in Kanpur and ICD Dadri. In this method of exports, meat from key exporting districts, Forbesganj and Kishanganj, is sent through road to ICDs in UP, from where it is sent by rail for onward journey to gateway ports.

Buffalo meat exports and export routes from Bihar



ICD Panki is operated by Pristine Logistics

Boxes represent total buffalo meat exports (USD Million) from Bihar for the year

% represent share of ICD/port in buffalo meat exports (USD Million) from Bihar

Source: Indian Railways, DGCIS, Industry, CRISIL Research

Meat exporters from Bihar are required to take an inefficient route of Bihar-Kanpur-JNPT, despite having port facilities in Kolkata. Non-availability of reefer plugs a key challenge which was faced by meat exporters in the past. However, with investments in reefer plug points at JM Baxi's container terminal at Kolkata, an alternative route can be available for exporters in Forbesganj and Kishanganj area, where road transport can be done to Siliguri, and through a rail consolidation at Siliguri, rail transport can be done from Siliguri to Haldia port.

Indo Nepal trade

Key commodities and routes

Key commodities for Indo-Nepal exports (value terms) are Petroleum products, Iron and Steel, Rice, Machinery, Automobiles and Pharmaceuticals, Plastic products and Electrical machinery. As per DGCIS data, Indo-Nepal stood at USD 7.2 billion and USD 6.8 billion, in fiscal 2020 and fiscal 2021, respectively. Share of key commodities is as follows:

Share of key commodities for Indo-Nepal exports (Value), FY21

| NEPAL | |
|--------------------------------|-----|
| PETROLEUM PRODUCTS | 18% |
| IRON AND STEEL | 14% |
| RICE(OTHER THAN BASMOTI) | 6% |
| INDL. MACHNRY FOR DAIRY ETC | 3% |
| TWO AND THREE WHEELERS | 3% |
| DRUG FORMULATIONS, BIOLOGICALS | 3% |
| MOTOR VEHICLE/CARS | 3% |
| OTHER COMMODITIES | 3% |
| PLASTIC RAW MATERIALS | 2% |
| ELECTRIC MACHINERY AND EQUIPME | 2% |

Source: DGCIS, Industry, CRISIL Research

Key routes for Indo-Nepal trade are Raxaul-Birgunj, Nautanwa-Sonauli, Nepalganj, Jogbani-Biratnagar and Panitanki-Kakarbita. Raxaul-Birgunj and Nautanwa-Sonauli are among the largest routes, in terms of Indo-Nepal trade value.

Share of key routes for Indo-Nepal exports (Value), FY21

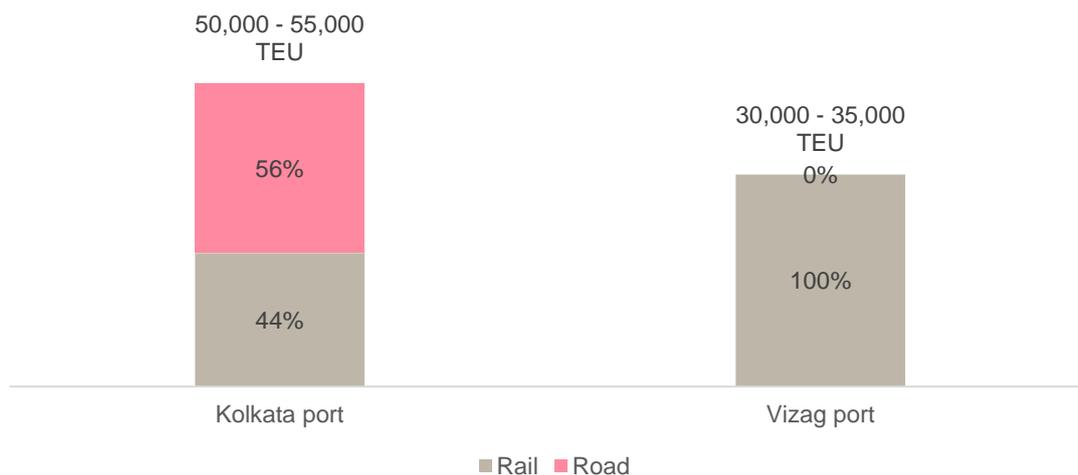
| NEPAL | |
|--------------------|-----|
| RAXAUL LAND | 40% |
| NAUTANWA (SONAULI) | 25% |
| NEPALGANJ | 12% |
| JOGBANI | 11% |
| BARHNI | 2% |
| PANITANKI | 2% |

Source: Indian Railways, Industry, CRISIL Research

3rd country transit cargo and rail's potential

3rd country transit cargo for Nepal is routed through Kolkata and Vizag ports currently. Majority of the rail transit happens through ICD Birgunj (Raxaul-Birgunj route). Rail containerised imports from Vizag port, account for 30,000 – 35,000 TEUs, while 22,000 – 25,000 TEUs are sent through rail from Kolkata port.

Nepal containerised imports from Kolkata and Vizag ports



Source: Kolkata Customs, FOIS website, News reports, Industry, CRISIL Research

Road has ~55% share in containerised transit cargo of Nepal. Kolkata handles around 50,000 – 55,000 TEUs for imports and ~1,500 TEU for exports from Nepal. Other trade routes besides Birgunj, which are, Jogbani, Panitanki and Nautanwa, handles majority of the road containerised traffic.

This containerised road traffic from these trade routes, has a potential to shift to rail through Siliguri ICD.

Indo Bangladesh trade

Key commodities and routes

As per DGCIS data, Indo-Bangladesh exports stood at USD 8.2 billion and USD 9.1 billion, in fiscal 2020 and fiscal 2021, respectively. Exports through land custom stations (LCSs), was USD 3.5 billion in fiscal 2021, increasing from USD 2.8 billion in fiscal 2021. Share of key commodities exported through LCSs is as follows:

Key commodities exported through LCSs to Bangladesh

| BANGLADESH PR | % FY20 and 21 |
|------------------------------|---------------|
| COTTON RAW INCLD. WASTE | 8% |
| COTTON FABRICS, MADEUPS ETC. | 8% |
| SPICES | 6% |
| OTHER CEREALS | 5% |
| IRON AND STEEL | 5% |
| MOTOR VEHICLE/CARS | 4% |
| RICE(OTHER THAN BASMOTI) | 4% |
| INDL. MACHNRY FOR DAIRY ETC | 4% |
| OIL MEALS | 4% |
| AUTO COMPONENTS/PARTS | 4% |

Source: Kolkata Customs, FOIS website, News reports, Industry, CRISIL Research

Key LCSs for exports to Bangladesh

| BANGLADESH PR | % FY20 and FY21 |
|---------------------------|-----------------|
| PETRAPOLE LAND | 62% |
| RANAGHAT | 9% |
| GHAJADANGA | 10% |
| KOTWALIGATE (MOHEDIPUR) | 6% |
| HILI (WEST) | 5% |
| T.T.SHED (KIDDERPORE) | 3% |
| SINGABAD RAILWAY STATION | 2% |
| LCS FULBARI | 1% |
| CHENGRABANDHA RLY.STATION | 1% |

Source: Kolkata Customs, FOIS website, News reports, Industry, CRISIL Research

Rail potential

At present, there are five rail links that are operational between India and Bangladesh- Petrapole – Benapole, Gede – Darshana, Singhabad -Rohanpur, Radhikapur – Birol and newly inaugurated Haldibari – Chilahati link. Haldibari – Chilahati link, which is located near Siliguri, provides opportunities in terms rail cargo movement.

Other developments

Siliguri dry port, operated by Pristine has also started railway trains carrying cargo to Bangladesh through Electronic Cargo Tracking Services (ECTS). GPS tagging and road connectivity provide ease of tracking and tracking to consignees.

EXIM route connecting NCR/Ludhiana to Bangladesh via Kolkata also has been started as alternate to feeder connected route via JNPT, which included inland movement from NCR/Ludhiana to JNPT and a feeder services connecting to Bangladesh via Colombo. Feeder connected route used to take even 180 days in certain instances.

7. Outlook

Key growth drivers

Key growth drivers for key sectors in multimodal logistics are as follows:

Containerised traffic:

- **Suitable government support for external trade:** Apart from logistics infrastructure, industrial development in the hinterland of the port directly affects container traffic growth in the region. The development of special economic zones, free trade and warehousing zones, direct freight corridors and special economic regions provides the impetus to container traffic in the region.
- **Policy revamp:** Another important factor that affects growth of the multimodal logistics is the policy framework around exports and imports. Policy initiatives aimed at boosting industrial and infrastructure development act as catalysts for growth of cargo. Faster custom clearances and facilitative regulatory frameworks provide an edge against rival ports, making it more attractive for shipping lines, which leads to traffic growth in the region.
- **Dedicated freight corridors:** Dedicated freight corridors would help in developing inland container depots in the hinterland. ICDs would help in decongesting port areas by working as extension of ports, which are already congested by large clusters of CFSs and over-utilised road infrastructure.
- **ICD complexes/MMLPs with enabling logistics infrastructure:** ICDs providing wide variety of warehousing services as bonded warehouses, buffer storage warehouses, export-import transit warehouses and other services, at large land banks in the hinterland can be developed at lower costs compared to ports where land is scarce and costly. Apart from the wider range of services, the ICD complexes can also aid in development of adjoining hinterland regions
- **Double stacked trains to reduce container shipping cost:** In India, Mundra and Pipavav port are already operating with double stacked trains. Introduction of electrified double stacked trains on strategic routes, as envisaged across DFCs would reduce per container shipping cost and it would also enhance the competitiveness of the ICD and rail linked terminals.
- **Container capacities at major and non-major ports:** Significant container capacities have been implemented at key port as JNPT, Mundra, Pipavav, Krishnapatnam and Vizhinjam. New container terminal at JNPT has helped in de-congesting the port area. With a potential of newer CFS/ICD operating through JNPT. Similarly, capacities at Mundra, Pipavav and Krishnapatnam are a good sign for nascent CFS clusters around them.

Private freight terminals:

PFT, as a concept, was introduced in India in 2010. Over the years, the PFT policy has undergone several amendments with significant steps to encourage private participation. Going forward, CRISIL Research expects PFTs to eat into the market share of goods sheds, owing to better access and superior facilities available at PFTs.

With revenue of PFTs on an upward trajectory over the next five years as freight traffic increases, its share in overall commercial freight terminal market will expand.

The catalysts will be:

- **Liberalisation of PFT policy:** The government has amended the PFT policy several times since its inception. In May 2015, the railways ministry announced major steps towards greater liberalisation such as lowering the application fee and security deposit from Rs 10 million to Rs 1 million. Also, additional fee of Rs 50 million for handling outward iron ore traffic has been done away with. In continuation of the above, it is expected that the government will continue to incentivise private participation through more liberalisation measures.
- **Increase in domestic trade:** A PFT primarily handles bulk commodities. In the short term, growth in demand for bulk commodities is expected on account of growth in manufacturing activities. Rising private and government consumption will also provide a boost to the manufacturing sector. Also supporting domestic demand are low inflation and increased transmission of the Reserve Bank of India's interest rate cuts. Over the longer term, the favourable macroeconomic factors are expected to drive growth in domestic trade. Investments in rail supported by policy and regulatory support can strongly drive PFT market.
- **Government schemes:** The Indian government's Make in India and Production Linked Incentive schemes, focus on key sectors to enhance the country's capital goods competitiveness. We expect the government to continue its reform process, which will also support a recovery in manufacturing. The government has raised the outlay on roads, railways and highways as well. Projects such as the Delhi-Mumbai Industrial Corridor and other industrial corridors will further boost manufacturing.
- **Efficiency of operations at PFTs:** Handling equipment at PFTs are typically more advanced and efficient compared to those available at goods sheds. Faster and efficient handling of goods and use of better tracking technology will help quicken operations, thereby allowing PFTs to handle higher traffic. PFTs would want to establish better turnaround times as wharfage charges as a revenue stream is not typically applicable at PFTs as is the normal practice with IR goods shed. This will result into better efficiency of operations at PFTs.
- **Larger warehousing space for longer duration:** Majority of the PFTs will be located in the outskirts of cities. This allows players to acquire sizeable land at economical prices. In contrast, goods sheds that are now in the middle of cities have limited room for expansion. This forces goods sheds to operate at low inventory days in order to efficiently handle incoming rakes. PFTs, adequately spaced with warehousing facilities, allow customers to store goods for longer duration and permit more chances of full rake / high volume shipments for better economies of scale.
- **Transition of traffic from road to rail:** Rail traffic growth has been tepid prior to fiscal 2017, as one of the chief factors was decrease in diesel prices lowering road freight rates. However, with increased efficiency in rail as well higher diesel prices, the share of rail in overall freight traffic is expected to rise.
- **Integrated solution:** Of the 75-80 PFTs functional in India, the majority provide last mile transportation services. CRISIL Research estimates that for an integrated service provider, transportation services can contribute 50-70% of total revenue. A one-stop solution provider is expected to be preferred by customers

over a single service provider as it saves the hassle of dealing with different parties, while providing more flexibility and control.

Other segments

- **EXIM Container traffic**
 - In fiscal 2022, container traffic would witness a growth recovery of 10-12% as the Indian economy is expected to revive by 9.5% GDP growth rate. Over fiscal 2021-26 period, traffic is expected to grow at 6-8% CAGR.
 - Share of container traffic is expected to drift towards non-major ports, led by faster turnaround times and setup of new container terminals
- **Container Train Operations/Share of rail in EXIM Containers**
 - Share of rail is expected to increase on the back of DFC operationalization, which will improve the efficiency and timeliness. The share will increase from ~22% to 24-25% by fiscal 2026
 - Railway will claw back share from road, particularly on North – Gujarat route, with partial commissioning of Rewari – Palanpur stretch
 - Higher double stacking will enable a container haulage per rake, improving the running cost dynamics of operators
 - General efficiency and turnaround of the railways has also increased over the years, due to higher investments observed in railways
 - ICDs, which are generally connected by rail, will be able to garner road traffic from hinterland, with increasing efficiencies in rail
 - Availability of leased container wagons, will aid players in quickly ramping up carrying capacity, as per requirements
- **Domestic rail container traffic**
 - Growing containerization will aid the domestic rail container traffic as well
 - Higher fuel prices, have also dented the road's competitiveness and with stable pricing policy of railways, domestic movement will also get a boost
 - Proliferation of Hub and Spoke model, adopted increasingly by players, will aid in cargo consolidation for railways and a higher containerization too

Outlook across segments of multimodal logistics

Market size of all the segments in multimodal logistics was impacted by the pandemic, in fiscal 2021. However, with a post pandemic recovery and overall ramp-up in the economy, the logistics segments are expected to witness higher growth in next five years (FY16-21) vis-à-vis past five years (FY16-21).

Growth across key segments of multimodal logistics

| Market (Rs billion) | FY 21E Market size | FY26P Market Size | CAGR FY16-20 | CAGR FY21-26 | Remarks |
|------------------------|--------------------|-------------------|--------------|--------------|---|
| Rail transport | 2250 - 2350 | 3650 – 3750 | 4% | 10% | General claw back of road's share, which railways lost over the years |
| Road transport | 5100 - 5200 | 8000 – 8100 | 6-8% | 9% | Growth higher than past few years, but plethora of regulations, such as axle load norms, BS-VI etc. have marred the road transport sector. Higher fuel prices also negatively impact long haul movement |
| CFS | ~37 | ~47 | -2% | 5-7% | ICDs to benefit from rail's efficiencies, while CFS will continue to be pressured due to DPD, though with a lesser extent, as DPD share at port plateaus |
| ICD | ~12 | ~19 | ~3% | 9-11% | |
| CTO market | 70-75 | 125-130 | 3-5% | 10-11% | To be significantly aided by DFC, hub and spoke models, and easier wagon availability |
| Rail freight terminals | ~41 | ~74 | 11% | 13% | Rail freight terminal market will grow as per the increase in rail terminals |
| PFT market | ~12 | 35-37 | 37-42% | 23-28% | PFTs will garner a higher share in Rail freight terminal market, as new PFTs are commissioned |

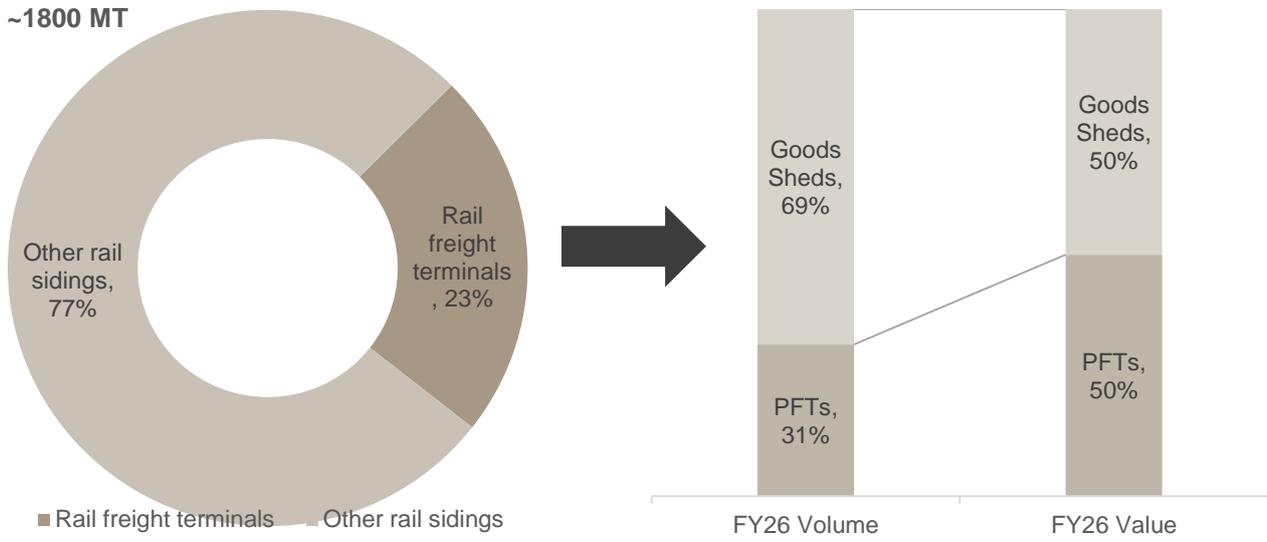
Source: Indian Railways, DGCIS, Industry, CRISIL Research

PFTs will be able to garner 27-31% volumes of rail terminals by fiscal 2026, from current 11-15%

During fiscal 2016-21 period, number of PFTs, notified by Ministry of Railways, has increased from 25-30 to 75-80, and PFT penetration has also increased from 3-4% to 11-15%. PFTs provide better value proposition for secondary distribution vis-à-vis goods sheds, which are located within the cities, with congested approaches. It is estimated that with better handling and warehousing services, PFTs will be able to gain share from goods sheds, progressively.

As of fiscal 2021, only 75-80 PFTs are operational, vis-à-vis ~1,000 good sheds, and still no PFTs are operational across more than half of the divisions located across different railways zones, indicating a significant potential for setting up new PFTs. Accordingly it is estimated that PFT will gain 27-31% share in overall rail terminal market by fiscal 2026 and the PFT market will grow by 23-28% CAGR for fiscal 2021-26 period, albeit over a low base. In value terms, PFT market will reach from Rs 12 billion to 35-37 billion.

Commercial rail freight terminal and PFT market – FY26



Rail freight terminals comprise of goods sheds and PFTs

Source: Indian Railways, DGCIS, Industry, CRISIL Research

8. Key regulations

Gati Shakti Scheme

Gati Shakti Scheme or National Master Plan for multi-modal connectivity plan, was unveiled in October 2021, with an objective of curtailing the logistics cost for the country, by coordinating the infrastructure creation activity different government entities. Major characteristics of the scheme are

- Digital platform for coordination across 16 ministries, including roadways and railways
- 'Gati Shakti' platform will subsume the infrastructure projects announced under National Infrastructure Pipeline (valued at Rs 111 trillion)
- Existing infrastructure schemes across ministries, such as Bharatmala (Roads), Sagarmala (Ports), UDAN (Air), Inland Waterways, Dry ports etc. will be incorporated in the platform
- The platform will also provide spatial data and implementation status for different projects
- Eleven industrial corridors and two defence corridors are also planned in the scheme, covering clusters for textile, pharmaceutical, fishing, electronics, agriculture etc.

Key targets set for different heads under the scheme are:

- Ports: Capacity of the major ports to be increased from 1,282 million tonnes in fiscal 2020 to 1,759 million tonnes in fiscal 2025
- National Waterways: Cargo movement to be ramped from 74 million tonnes to 95 million tonnes during fiscal 2020-25 period
- Railways: Target of 1,600 million tonnes by fiscal 2025, vis-à-vis 1,210 million tonnes in fiscal 2020
- MMLPs: Indian railways will setup 500 multimodal cargo terminals by fiscal 2025
- Others: Gas pipeline length to be doubled from 17,000 Km to 34,500 Km, incremental renewable capacity of ~150 GW, power line capacity target of ~452,000 circuit Km by fiscal 2025

An integrated platform to monitor the progress of projects and logistics initiatives spanning across different ministries will certainly aid in increasing coordination and planning infrastructure creation and connectivity.

National Logistics Policy

The draft national logistics policy announced on February 5, 2019, proposes to lower logistics costs as a percentage of gross national product (GDP) by ~400 basis points to 8-10% fiscal 2020-25 by reducing the share of roads in domestic freight transportation and raising share of railways.

Key Objectives

| | |
|-----------------------|---|
| Logistics Efficiency | <ul style="list-style-type: none"> • Improve performance & efficiency of the sector • Focus on reducing logistics costs & dwell time |
| Multi Modal Transport | <ul style="list-style-type: none"> • Developing multi modal transport infrastructure including MMLPs • Optimal use of all transport modes |
| Digital Tracking | <ul style="list-style-type: none"> • Ensure predictability with tracking & tracing cargo movement • Improve in transit warehousing with digital initiatives |
| Sector Modernisation | <ul style="list-style-type: none"> • Support modern trade, e commerce through modernization of logistics sector |
| Democratization | <ul style="list-style-type: none"> • Create more employment opportunities • Benefit all sections of the society, especially farmers & MSMEs |

Source: Industry, CRISIL Research

The objective seems ambitious given that the current stock of pliable trucks can cater to 60% of total freight available now. Attempts to reduce road freight movement would lead to lowering road freight rates and make the mode more competitive. Moreover, roads may still be preferred for first-mile and last-mile transportation and movement of non-bulk commodities.

On average, the cost of freight transportation by roadways is Rs 2.50-3.00 per tonne-km, while the cost of waterways is barely a third of that. Railways is twice as expensive as waterways. Lowering dependence on roads for freight would make road construction models with traffic risk less attractive, thereby exerting pressure on public borrowings.

Key goals

- Lower logistics cost as a percentage of GDP from 13-14% to 8-10%
- Align the modal mix, which is currently 60% for roads, 31% for railways, and 9% for waterways, with international benchmarks of 25-30%, 50-55%, and 20-25%, respectively
- Reduce dwell time for interstate cargo movement by roads
- Cut wastage incurred from farm to wholesale markets to <5% from 18-20% (for fruits & vegetables) now
- Create a national logistics e-marketplace
- Improve India's Logistics Performance Index ranking to 25-30 from the current 44

CRISIL Research View

- Positive for railways but infusion of funds will be key monitorable:** The planned increase in the share of railway freight traffic from 31% to 50-55% would have a positive impact on the sector. However, railways would need funds to invest in capacities to meet this traffic, which is a monitorable. This is especially since the Railways is likely to miss the Rs 8.5 lakh crore capex target over fiscals 2016 to 2020, as the overall capex during this period is projected close to Rs 6.5 lakh crore.
- Negative for the roads (especially toll operators), including for existing and upcoming projects:** The planned 2500-3000 basis points' reduction in the share of road freight traffic to 30-35% appears to be ambitious. However, if achieved, it can have a material impact on the roads sector:

Existing projects: It could lead to a sharp fall in traffic in the concession period for projects having long-term traffic risks such as toll-operate-transfer (TOT) and build-operate-transfer (BOT) assets. This includes projects under investment infrastructure trusts. Typically, the last phase of a concession period tends to be highly profitable, as a large portion of debt is retired by then.

Upcoming projects: A fall in the share of road freight traffic would make BOT-toll projects unfeasible, forcing the National Highways Authority of India (NHAI) to award a higher share of engineering, procurement and construction (EPC) or annuity-based projects. This would lead to increased dependence on public funding, thus constraining overall investment and reducing the share of private investments in the sector.

- Reducing dwell time for interstate cargo movement by roads an imperative:** With increasing emphasis on e-tolling, electronic document flow, rationalisation of checkpoints, and digital verification at all checkpoints, travel time for road interstate cargo movement is expected to reduce further. This would improve the competitiveness of road freight movement. Removal of border check-posts after implementation of Goods and Services Taxes has increased average daily run of trucks by 8-10%.
- Lowering losses due to agriculture waste means more investments in storage and transportation:** At present, about 18% of fruits and 20% of vegetables harvested are lost due to lack of temperature-controlled storage and reefer vehicles across the supply chain. For example, the post-harvest loss in apples is 18-25%. Lack of storage contributes 9% to this, transportation 5%, and processing and handling the rest.
- Create a national logistics e-marketplace to facilitate co-ordination among stakeholders:** The proposed national logistics e-marketplace targets improving speed and cost-efficiency. It plans to achieve this through the integration of fragmented logistics markets across ministries, government agencies, partnering government agencies, export promotion councils, and service providers under a single portal. This is expected to improve visibility and co-ordination among various stakeholders in the value chain, enabling seamless end-to-end logistics.

Integrated national logistics action plan would involve logistics verticals of different ministries under one wing. The draft national logistics policy has outlined the objectives to be achieved over the next five years, however, clarity is awaited as to how this it has to be achieved.

Latest Update

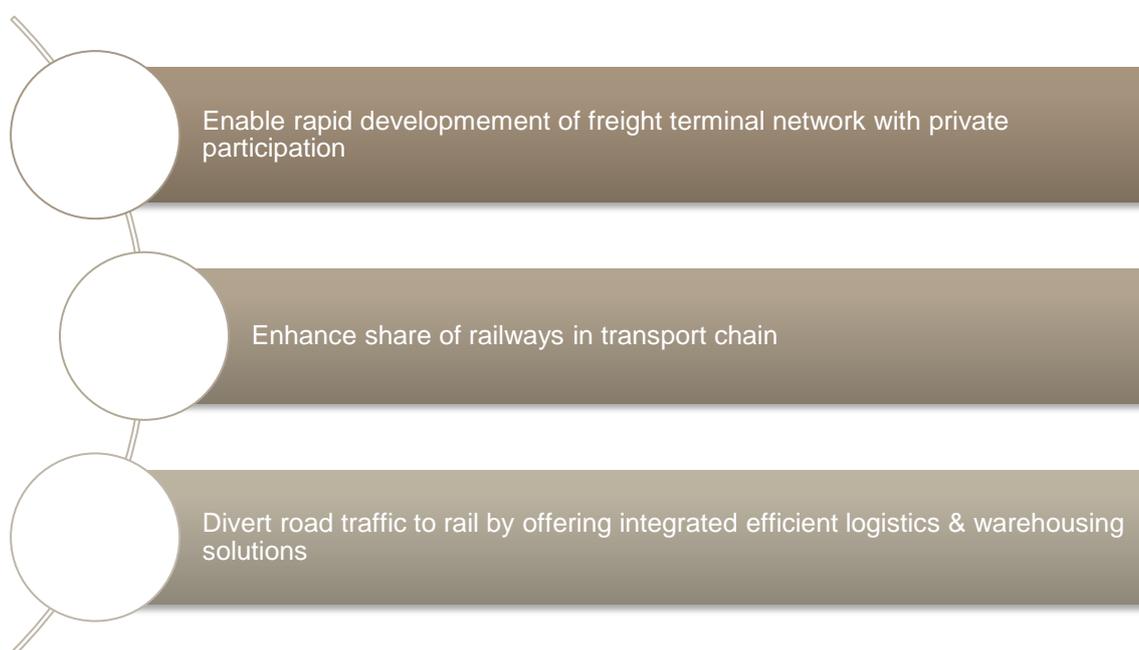
In March 2021, Ministry of commerce & industry (MoCI) announced that after wide consultation with all central ministries and other stakeholders NLP has been developed and is in its final stages. The final policy is expected to be rolled out soon.

Private Freight Terminal Policy

Regulatory framework for Private freight terminal

The policy seeks to supplement the in house programme of Ministry of Railways by opening the area of terminal development with participation of the logistics service providers to create world class logistics facilities. It aims to develop privately owned freight terminals on non-railway land for dealing with railway traffic including parcel; traffic and containers.

Key Objectives



Source: Industry, CRISIL Research

The PFT policy dictates procedures for development of privately-owned freight terminals on non-railway land. A terminal management company that wants to set up a PFT has to apply with the zonal railway authority under whose jurisdiction the PFT is to be located, in accordance with the terms and conditions of the PFT policy. The application is processed by the zonal railway authority in two stages - (i) In-principle approval, and (ii) Final approval.

Impact of GST & e way bill on road transportation

The reformed tax structure provided significant changes in the road transportation sector with companies vying for overall operational efficiency rather than mere tax efficiency. Moreover, introduction of e way bills provided an added boost to the sector.

Revised Policy on Dry ports, 2020

Ministry of commerce and Industry guidelines 1992 prescribed the requirement of setting up of the ICDs and CFSs. Subsequent guidelines issued by the Department of Commerce and Central Board of Indirect Taxes and Customs (CBIC) set the rules of functioning of these facilities.

At present, majority of CFSs are located up to 50 kms away from the port and are concentrated in Western and Southern India. On the other hand, ICDs are concentrated in the Northern hinterland. The tendency of developers to set up facilities in few select areas led to proliferation as well as concentration of investments near big cities/ ports, far from manufacturing/ exporting units.

The revised policy takes into account the present capacity, future growth potential as well as current regional imbalances and establishes a framework of functional requirements pertaining to the design and operation of dry ports.

Below are the key directives:

- Country will be grouped in three major areas for opening of ICDs/ CFSs
 - **Green Zone:** States low on ICD infrastructure which will be open for proposals like Bihar, Jharkhand, WB, Himachal Pradesh etc
 - **Blue Zone:** States where proposals can be accepted for specific trade generating locations with no existing facilities or with over utilized facilities like Uttar Pradesh, Chhattisgarh, Uttarakhand, Odisha, AP etc
 - **Red Zone:** States with adequate ICD/ CFS infrastructure which may be closed for any new CFS development indefinitely. Only in exceptional cases in trade generating locations with high export and import potential IMC may approve the setting up of ICD. These will include all the states and Union territories not included in green and blue zone.
- Distance of ICD from ports: Rail transport is price competitive vis a vis road transport when the lead distance is more than 200 kms. Rail linked ICDs are favoured at inland locations, with a lead distance of up

to 1,500 km in north India. The government will discourage setting up of new inland container depots (ICDs) within 200 km of a connecting or the nearest serving seaport.

- Distance between ICDs: No new ICDs to be built within 100 km of an existing ICD.
- Some relaxation on distance rules to be given in green zones to support infrastructure development.
- Approval of Greenfield ICDs directly along DFCs will be accorded with only one ICD directly connected with these corridors within chargeable distance of 100 kms in both directions.
- Minimum area requirement for ICD is 7 hectares (minimum 4 hectares as Customs Notified Area and one hectare for DPD & DPE nominated space) and 2 hectares for CFS.

The new rules for setting up ICDs is expected to boost direct port delivery (DPD) and direct port entry (DPE) between the hinterland and ports.

Greenfield and Brownfield development of ICDs will be governed by these new rules. The zoning and distance rules are set up with an objective of preventing concentration of facilities.

Bharatmala Pariyojana

Bharatmala Pariyojana is an umbrella project of the central government since 2015, that aims to improve efficiency in the roads sector. It is expected to supersede the National Highways Development Project (NHDP) and envisages the construction of 65,000 km of highways under the following categories: national corridor (north-south, east-west, and golden quadrilateral), economic corridor, inter-corridor roads, and feeder roads. As per the ministry, Bharatmala, along with the schemes currently undertaken, could require a total outlay of Rs 6.9 trillion.

Phase-I of the scheme envisages development of about 24,800 km length of national highways/roads, plus residual 10,000 km of NHDP between fiscals 2018 and 2022. Awarding under Bharatmala has begun from fiscal 2018 and we believe it will stretch till fiscal 2025 for Phase 1.

Phase-I of Bharatmala Pariyojana

| Sr No | Parameter | Length (km) | Cost (Rs Billion) |
|-------|---|---------------|-------------------|
| 1 | Economic Corridors | 9,000 | 1,200 |
| 2 | Inter-Corridors & feeder roads | 6,000 | 800 |
| 3 | National Corridor Efficiency improvement | 5,000 | 1,000 |
| 4 | Border & International connectivity roads | 2,000 | 250 |
| 5 | Coastal & port connectivity roads | 2,000 | 200 |
| 5 | Expressways | 800 | 400 |
| | Sub Total | 24,800 | 3,850 |

| | | | |
|---|-----------------------------------|---------------|--------------|
| 7 | Ongoing Projects, including NHDP* | 10,000 | 1,500 |
| | Total | 34,800 | 5,350 |

Source: Ministry of Road Transport and Highways

Sagarmala

Sagarmala (port led prosperity) initiative was rolled out in April 2016 to to reduce logistics cost for both domestic and EXIM cargo with optimized infrastructure investment. Port-led development focuses on logistics intensive industries which would be supported by efficient and modern port infrastructure and seamless multi modal connectivity.

The primary objective of Sagarmala is to promote port led direct and indirect development and ensure quick, efficient and cost effective evacuation of cargo. The Sagarmala programme aims at enhancing the country's port capacity to over 3,300 million tonnes per annum (mtpa) by 2025. As per a Ministry of Shipping communication, this envisages 2,219 mtpa of capacity at the Major Ports and 1,132 mtpa at the non-major ports by 2024- 25. This is part of Sagarmala's special attention towards capacity enhancement and utilisation of the ports to cater to the projected traffic.

Key Elements of Sagarmala project and opportunities are:

- **Port Modernization:**
 - Improve operations efficiency and capacity of major ports
 - Develop 4-5 new ports to cater to cargo traffic growth and reduce logistics cost
 - Develop a Transshipment Hub Port near international shipping route
- **Port Connectivity Improvement:**
 - Increase coastal shipping volumes of key cargo's E.g. Coal, Steel, Cement, to reduce logistics cost and decongest rail and road network
 - Eliminate process bottlenecks to reduce container logistics time and cost
- **Port-led Industrial Development:**
 - Port led development of heavy industries. E.g. cement and steel clusters to leverage coastal shipping for moving raw materials and finished products
 - Port led discrete manufacturing to reduce end to end container logistics cost
- **Coastal Community Development:**
 - Create human capital for port-led industrial development through coastal community skill development and livelihood generation programs
 - Create community development fund to ensure sustainable development
- In a Sagarmala project booklet released by Ministry of Shipping during the Maritime Investment Summit, 2016, following investments are envisaged.

Investments under Sagarmala

| Project | No.of projects | Estimated cost (Rs mn) |
|---|----------------|------------------------|
| Port Modernization | 70 | 3,69,980 |
| Port Connectivity | 94 | 11,93,600 |
| Port Led Industrialization | 17 | 15,17,450 |
| Coastal Community Development | 20 | 9,450 |
| Under Implementation (including under tendering projects) | 86 | 6,78,660 |
| Under Development | 69 | 7,36,600 |
| Total | 356 | 45,05,740 |

Source: Ministry of Shipping, CRISIL Research

The National Perspective Plan has been crafted after detailed consultations with key stakeholders in the central and state governments, public sector companies as well as private players from shipping, ports, ship-building, power, cement and steel sectors. It takes forward Sagarmala's vision of substantially reducing export-import and domestic trade costs with a minimal investment. More than 150 projects have been identified as part of the National Perspective Plan (NPP) under the ambitious Sagarmala Programme.

Under Sagarmala, the government has targeted an investment of Rs 7.78 trillion over fiscals 2015-35. Of these, only 18% of the investments are towards ports modernisation while the remaining are towards port-linked industrialisation, port connectivity and coastal community development.

Even though the project was initiated in fiscal 2015, only 61% of the projects under the scheme have been identified with the rest still at the conceptualisation stage. Of these (61%), ~3% of the total investments have fructified, while 58% are under various stages of implementation as of Sept 2019.

In the period July 2019 – October 2020, 20 Sagarmala projects worth Rs. 4,543 crore have been completed which comprise 9 projects of Port Modernization worth Rs. 1,405 crore, 7 Port Connectivity projects worth Rs. 2,799 crore and 4 Coastal Community Development projects worth Rs. 339 crore - according to a press release by Ministry of Shipping.

Multimodal Logistics Parks

A logistics park is a notified area that facilitates domestic and foreign trade by providing services such as warehousing, cold storage, multi-modal transport facilities and container freight stations. This area also acts as a place where a company can unload cargo for distribution, redistribution, packaging and repackaging. Most logistics parks are developed close to established and emerging industrial hubs in the country in order to tap their logistics needs.

While FTWZs were aimed at facilitating import and export of goods, the need for a one-stop-shop that could additionally cater to the domestic market has led to the development of logistics parks.

MMLP (Multimodal logistics Parks) refers to a hub providing integrated logistics facilities with mechanised handling and inventory management. However, there is no regulatory definition for MMLP yet in India. MMLPs are being designed to act as one-stop solutions with facilities such as custom clearance service, warehouses, cold storage, vehicle parking area, and other value added services.

Difference between Logistics Park and FTWZ

| Logistics parks | Free Trade & Warehousing Zone SEZ |
|---|---|
| A logistics park is a special area that has warehouses, including a cold chain for perishables, container freight station and an area earmarked for automobiles. These parks focus on domestic markets. | Free Trade & Warehousing Zones (FTWZ) are Special Economic Zones (SEZs) wherein mainly trading and warehousing activities are carried on. They cater mainly to the international markets. |
| No specifications laid down for minimum built-up area. | Minimum area requirement for FTWZs is 40 hectares with a built-up area of not less than than 0.1 million sq mtr. |
| Given the status of an infrastructure industry, these parks enjoy incentives including a tax exemption of 22% on income earned for a continuous period of 10 years. | Incentives are the same as those given to SEZs. |
| Logistics parks offer tax benefits only to developers. | FTWZs offer tax benefits to both developers and tenants. FTWZ is a special category of SEZ and is governed by the SEZ Act. |
| Majority of logistics parks are located around SEZs to ensure better supply chain management. | |

Source: CRISIL Research

At present, these are planned at numerous locations across the country by different ministries. The development of MMLPs was initially proposed by the Ministry of Railways along dedicated freight corridors in 2009.

As per a Press Information Bureau’s (PIB) release dated July 20, 2017, the Ministry of Road Transport and Highways (MoRTH) has proposed to develop 35 multimodal logistics parks (MMLP) in the country, to make freight transportation in the country more efficient by facilitating use of a favourable modal mix of transport, thereby reducing logistics costs and also pollution. These are being planned on the hub and spoke model to facilitate efficient movement of freight along routes of economic importance. The Multi Modal Logistics Parks are being planned as centres of freight aggregation with warehousing, cold storage and other such facilities. These parks will be built on NH outside cities, so they will help reduce traffic congestion and also reduce pollution.

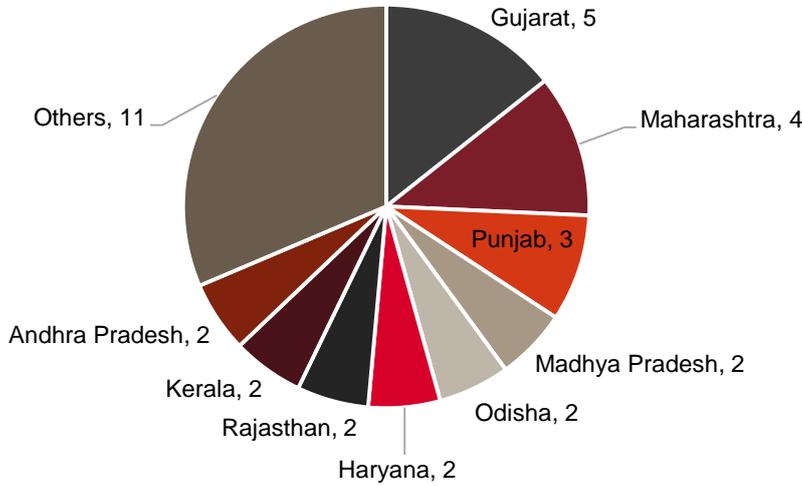
The first phase would involve development of 15 multimodal parks at various strategic locations identified by the ministry; these areas account for over 40% of total road freight in the country as per a planning commission study.

Some of the key locations identified by the ministry are important consumption regions such as Delhi (NCR), Mumbai, Bangalore, and Chennai among others. Shri Gadkari informed that work has already begun for setting up Logistics Parks at Chennai, Bangalore, Hyderabad, Vijaywada, Surat and Guwahati.

Proposed cost for developing these multimodal parks is estimated by the ministry at about Rs~329 billion; of this, development of allied infrastructure is estimated to account for 36%, followed by cost of land and storage development.

The states of Gujarat, Maharashtra and Punjab account for 5, 4 and 3 proposed MMLPs respectively, while states of Madhya Pradesh, Odisha, Haryana, Rajasthan, Kerala and Andhra Pradesh each account for 2 proposed MMLPs.

State wise proposed MMLPs

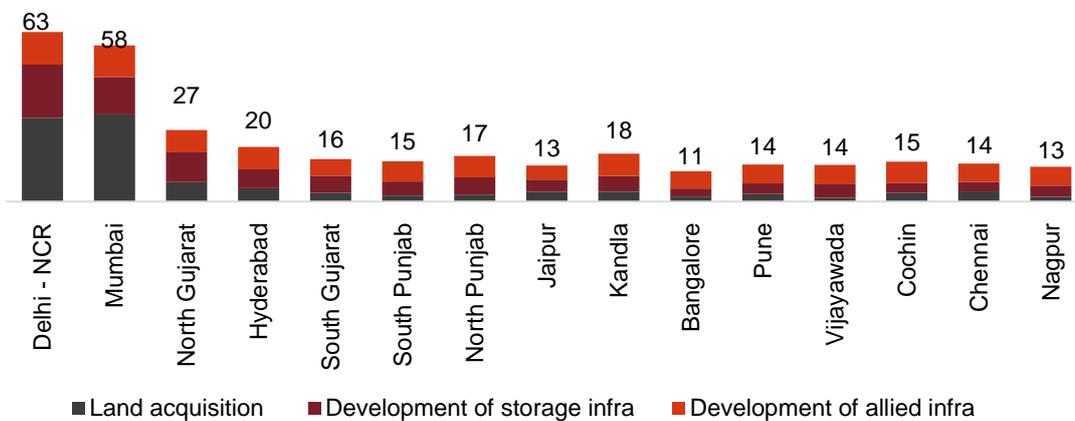


Source: MoRTH, CRISIL Research

The first phase of this would involve development of 15 multimodal parks at various strategic locations identified by the ministry which account for over 40% of the total road freight in the country as per a planning commission study.

Some of the key locations identified by the ministry are key consumption regions such as Delhi (NCR), Mumbai, Bangalore and Chennai among others.

Location wise proposed development cost of MMLPs (Rs. billion)



Source: MoRTH, CRISIL Research

However, on-ground execution of the project has been slow. MMLPs suffers from issues such as lack of standard definition and involvement of multiple ministries. To reduce the gap between planning and execution, the government has suggested creation of a multi-modal logistics park authority in its National Draft Logistics Policy. This will be a centralised agency that will oversee the planning and development of these parks.

As per the project guidelines, the land to develop the MMLP is to be provided by the respective state governments, while the connecting rail, port and railway connectivity will be ensured by the respective ministries. The participation of private players such as 3PL players or logistics service providers has been invited to develop and operate the infrastructure, which could act as an opportunity for expansion of organised players.

Key regulations governing multimodal logistics

Some of the key regulations and Acts governing multimodal transportation of goods are described below.

Multimodal Transportation of Goods Act, 1993 (as amended in December, 2000)

India's Multimodal Transportation of Goods Act 1993 provides for "the regulation of the multimodal transportation of goods, from any place in India to a place outside India, on the basis of a multimodal transport contract and for matters connected therewith or incidental thereto." The Act defines the term "multimodal transportation" as "carriage of goods by two or more modes of transport from the place of acceptance of the goods in India to a place of delivery of the goods outside India".

The Act also includes provisions for regulation and conditions for registration of multimodal transport operators (MTO). Additionally, the Act comprises provisions which spell out various procedures and liabilities arising from a multi-modal transport contract.

Registration of Multimodal Transport Operators Rules, 1992 & MTD Rules, 1994

Every company intending to operate as a multimodal transport operator, has to register itself with the relevant competent authority (e.g., Directorate General of Shipping). Registration of Multimodal Transport Operators Rules outline the procedure for application and renewal of registrations of MTOs with competent authorities.

On the other hand, Multimodal Transport Document Rules, 1994 define the terms of contract and documentation to be followed by a multimodal transport operator and a consignee when entering into a multimodal transportation contract.

Free trade and warehousing zone

A free trade and warehousing zone (FTWZ) according to Special Economic Zones (SEZs) Act, 2005 is an SEZ where trading, warehousing, and activities related to the two are carried out. In other words, free trade warehousing zone is a special category of SEZ with emphasis on trading and warehousing. The objective of FTWZs is to create trade-related infrastructure for facilitating import and export of goods and services in a convertible foreign currency.

Major Ports bill, 2020

The Major Port Authorities Act, 2020, shall apply to the Major Ports of Chennai, Cochin, Deendayal (Kandla), Jawaharlal Nehru (Nhava Sheva), Kolkata, Mormugao, Mumbai, New Mangalore, Paradip, V.O. Chidambaranar (Tuticorin) and Visakhapatnam. It was introduced in March 2020 with idea that it's not to privatize major ports but to give them more powers to take decisions in a competitive market.

Warehousing (Development and Regulation) Act, 2007: Impact on agri-warehousing

According to a report of the Standing Committee on Food, Consumer Affairs, and Public Distribution (2006-07), warehousing receipts did not enjoy the fiduciary trust of depositors and banks, as there were concerns of not being able to recover loans in the event of fraud, mismanagement of warehouses or insolvency of the depositor. As a result, there were impediments in the negotiability of warehouse receipts, which created difficulties for farmers and other depositors of goods. Accordingly, in 2007, the Warehousing (Development and Regulation) Act was passed.

- The Act makes warehouse receipts (WR) tradable as a negotiable instrument.
- Warehousing Development & Regulatory Authority (WDRA), which was formed in October 2010, accredits warehouses to issue WRs, and also protects the interests of those involved in issue, trade or collateralization of these WRs.

Implications

- **Lower cost of financing:** Farmers that were earlier dependent on moneylenders are able to get easy access to credit from banks at better rates.
- **Better realization:** The farmer can now avoid distress sale of their produce and spread the financial liabilities over the entire year. This is particularly beneficial for commodities not backed by minimum support prices.
- **Higher storage requirement:** WRs lead to higher storage requirements, giving the warehousing industry a boost in rural areas - fulfilling the gap in the logistic chain of agri-business in the rural sector.

Various Government schemes in Warehousing

| | Scheme | Investments / Subsidy |
|--|---|---|
| Agri Marketing Infrastructure | The scheme is aimed at creating marketing infrastructure projects and augmenting storage capacity across the country | The scheme provided subsidy of 25 to 33 per cent of project cost for construction/renovation of rural godowns. Central assistance of Rs 40 billion was to be granted during 12th plan period, but the scheme is on hold since 2014. |
| Private Entrepreneurs Godown (PEG) 2008 scheme | Formulated in 2008 with the objective of creating additional storage capacity for food grains through private sector participation | The private entrepreneurs guarantee scheme is based on increasing the storage capacity of FCI in PPP mode. In this scheme FCI provides guarantee in the form of rent for godown hired for period of 10 years for private parties and for public sector it is 9 years. |
| Scheme for financing Warehousing Infrastructure under RIDF and WIF | The Rural Infrastructure Development Fund (RIDF) scheme deploys bank funds for financing rural infrastructure which involves the storage of agricultural inputs and agricultural produce, especially food grains, all dry, wet and cold storage needs of agricultural produce like fruits and vegetables, and integrated loans to food parks. | In the budget 2015-16, there has been no allocation but earlier in the budget for 2014-15, Warehouse Infrastructure Fund allocated Rs 50 billion to NABARD to support creation of infrastructure for storage of agri-commodities |

Source: CRISIL Research

Key policy initiatives in Railways

Below are some of the major initiatives undertaken by railways

Special Freight Train Operator (SFTO) Scheme

Share of rail in transportation of commodities like fertilizers, chemicals have been traditionally very low. SFTO scheme was launched in 2010 to encourage private investment in special purpose wagons required for transportation of these commodities. Original policy was revised in 2018.

Objective:

- To increase share of railways in transportation of non-conventional commodities in high capacity and special purpose wagons
- To introduce better designs of wagons to increase per train through put
- To provide opportunity to logistics services providers/ manufacturers to invest in wagons and connect with the end users/market while benefitting from rail transport

Auto Freight Train Operator (AFTO) Scheme

Under Automobile Freight Train Operator (AFTO) Scheme 2010, to increase railway's share in transportation of automobile traffic, Ministry of Railways decided to grant eligible parties the right to require the Railway Administration to haul their Automobile Freight Train (AFT) on Indian Railway network for movement of Automobiles.

Policy was revised in 2018 to encourage higher private investment in special wagons, high capacity BCACBM auto carriers while providing some relaxations.

Objectives

- Introduce wagon designs suitable for movement of automobiles at costs comparable or better than road
- Allow handling of automobile from all container terminals
- Allow loading automobile and auto spares in privately owned wagons in different directions for optimal utilisation of stock
-

Wagon Leasing Scheme (WLS)

Objectives:

- To develop a strong wagon leasing market
- To encourage third party leasing of wagons

Features:

- Types of wagons for leasing
 - High Capacity wagons HCW
 - Special Purpose wagons SPW
 - Wagons for container movement
 - HCW & SPW to end users
- Rakes to be procured from wagon manufacturers or through import
- Bilateral contract between wagon leasing company and lessee
- Freight concession under LWIS to be offered to Lessee

General Purpose wagon investment Scheme (GPWIS)

On the basis of feedback received from investors and end users Ministry of railways liberalized General Purpose Wagon Investment Scheme (GPWIS) for prospective investors.

Objectives:

- To achieve desired growth in freight traffic on railways

- To provide better and timely availability of General Purpose Wagons (GPW) to Railway Freight Wagons Users (PSUs, Industries and other stakeholders)
- To allow private firms to invest in general purpose rakes for transporting restricted commodities like coal, coke, ore and minerals

Features:

- Eligible to procure wagons
 - Producers or consumers of the goods
 - PSUs
 - Logistics Providers
 - Port Owners
 - Mine Owners
 - Wagon Leasing companies
- Rakes procured under GPW not to be merged with railway's pool of wagons and to be distinctly indicated through colour scheme
- 10% rebate on base freight
- End users (other than logistics service providers) also have been granted permission to load third party cargo in their rakes in empty direction.
- Design Loan charges on General Purpose wagons have been reduced from 5% to 1%.

Liberalized wagon investment scheme (LWIS)**Objectives:**

- To increase rail co-efficient by facilitating shift from road to rail
- To attract private investment in High Capacity Wagons (HCW) & Special purpose wagons (SPW)
- Induct high capacity wagons to increase throughput per train

Features:

- Following wagons can be procured:
 - High Capacity Wagons (HCW)
 - Special purpose wagons (SPW)
- Below investors may procure wagons
 - Wagon leasing companies
 - End Users
 - Logistics providers exclusively for end user
- 15% rebate for a period of 20 years for SPW
- 12% rebate for a period of 20 years for HCW

Roll On-Roll Off services (Ro-Ro service)

Konkan railways came up with the concept of Ro-Ro facility around 2000 and offered Ro-Ro services between Kolad (Mumbai) – Verna (Goa) and Surathkal (Mangalore)-Kolad (Mumbai). Other railway divisions like South Western Railways and WDFC (Western dedicated freight corridor) have also introduced the Ro-Ro service. Konkan railways looking to expand the services on other routes.

Objectives:

- Alternative to traditional road transport
- Faster, cost efficient and safe transport
- Eco friendly initiative to limit pollution, reduce fuel consumption and road congestion

Konkan Railways continues its successful track record in running the Ro-Ro service. In September 18, Konkan Railways undertook maiden journey on the new route from Surathkal, Karnataka Goods shed to Western Railway's Karambeli goods shed in Gujarat.

On the other hand, for South Western Railways, after the maiden trip (August 2020) from Nelamangala in Bengaluru Rural to Bale in Solapur district of Maharashtra, the services have been grounded due to financial unviability (Rs 2 per tonne per km for Ro Ro service vs Rs 1.28 per tonne per km for road).

Success of WDFC in running the Ro-Ro service remains a monitorable.

Express delivery

Objectives:

- To make railway operations more efficient and to improve infrastructure development pace allow private players to own and operate trains
- Private capital to be used to augment infrastructure

Features:

- Private players to own, design, build, finance and operate 151 passenger trains to be run on 109 routes (Initiated in July 2020)
- Private freight trains to be roped in on similar lines.

Railway Station redevelopment

In 2012, A Special Purpose vehicle, Indian Railway Stations Development Corporation Limited (IRSDC), a Joint Venture company of Rail Land Development Authority (RLDA), a statutory authority under the Ministry of Railways and Ircon International Limited (IRCON) was incorporated to focus on the development of the railway platforms.

Objectives:

- To develop/ re-develop the existing/new railway station including redevelopment of station buildings, platform surfaces as well as upgradation of passenger amenities.
- Development of real estate on Railway/ Government land and its commercial utilization
- To undertake projects including planning, designing, development, construction, improvement, commissioning, operation, maintenance, and financing of projects and various services relating thereto including marketing, collecting revenues, etc. relating to railway stations and railway infrastructure
- To carry on any railway infrastructure work including development of railway stations on Build-Operate-Transfer (BOT), Build-Own-Operate-Transfer (BOOT), Build-Lease-Transfer (BLT), etc. or otherwise or any other scheme or project found suitable in and related to the field of railway station infrastructure projects

IRSDC projects

| Projects under planning | Ongoing Projects |
|--------------------------------|-------------------------|
| Nagpur | Habibganj |
| Gwalior | Gandhi Nagar |
| Amritsar | Anand Vihar |
| Sabarmati | Bijwasan |
| Shivaji Nagar | Chandigarh |
| Surat | |
| Baiyappanahalli | |
| Jaipur | |
| Kanpur | |
| Thakurli | |

Source: Indian Railway Stations Development Corporation Limited IRSDC website

9. Other drivers for logistics

Developments in food processing

Mega Food Parks

Mega food parks scheme was launched in 2008-09 to provide a boost to the food processing sector by value addition and limiting food wastage at each stage of the supply chain. It aims to link agricultural production to the market by bringing together farmers, processors and retailers so as to ensure maximizing value addition, minimizing wastage, increasing farmers' income and creating employment opportunities particularly in rural sector.

Food processing related exports: North India

In North India, Uttar Pradesh is largest in terms of food items exports routed through ICDs, followed by Haryana, Punjab, Rajasthan, Delhi and Uttarakhand. Exports from Uttar Pradesh stood at 1.6 million tonnes in fiscal 2021 (Apr-Feb), while exports from Haryana and Punjab were at 1.4 million tonnes and 0.38 million tonnes, respectively.

Food items exports – States in North India

| Exports through state's ICDs (million tonnes) | FY19 | FY20 | FY21 |
|---|------|------|------|
| Uttar Pradesh | 1.70 | 1.52 | 1.55 |
| HARYANA | 0.97 | 0.93 | 1.51 |
| Punjab | 0.44 | 0.39 | 0.44 |
| Rajasthan | 0.24 | 0.20 | 0.13 |
| Delhi | 0.10 | 0.08 | 0.06 |
| Uttarakhand | 0.02 | 0.01 | 0.02 |

Source: APEDA, Industry, CRISIL Research

Key exports from UP are Buffalo Meat, Non-Basmati rice, Fresh vegetables and Wheat. Major items exported through Haryana are Basmati Rice, Non-Basmati Rice, Buffalo meat and Natural honey, while key commodities for Punjab are Basmati rice, Alcoholic beverages, cereal preparations, Non-Basmati rice and Natural honey.

Key export commodities (Million tonnes)

| | | | |
|------------------------|-------------|---------------------------------|-------------|
| Uttar Pradesh | 100% | HARYANA | 100% |
| BUFFALO MEAT | 34% | BASMATI RICE | 76% |
| NON BASMATI RICE | 20% | NON BASMATI RICE | 10% |
| OTHER FRESH VEGETABLES | 9% | BUFFALO MEAT | 7% |
| WHEAT | 7% | NATURAL HONEY | 2% |
| BASMATI RICE | 6% | GUARGUM | 1% |
| Punjab | 100% | Rajasthan | 100% |
| BASMATI RICE | 75% | GUARGUM | 35% |
| ALCOHOLIC BEVERAGES | 8% | DAIRY PRODUCTS | 10% |
| CEREAL PREPARATIONS | 6% | CEREAL PREPARATIONS | 8% |
| NON BASMATI RICE | 5% | NON BASMATI RICE | 7% |
| NATURAL HONEY | 3% | PROCESSED FRUITS, JUICES & NUTS | 6% |

Source: APEDA, Industry, CRISIL Research

Largest ICD in UP is Nautanwa/Sonauli, which primarily serves Nepal bound cargo, ICD Panipat is largest in Haryana, ICD Chowpayal is largest in Punjab, while ICD Thar Dry Port is largest in Rajasthan.

Key ICDs across states, for food items exports (Million tonnes)

| Uttar Pradesh | | 100% | HARYANA | | 100% |
|---------------------------|-----|-------------|--------------------------|--|-------------|
| NAUTANWA (SONAULI) ICD | 34% | | ICD SAMALKHA PANIPAT | | |
| CFS ALBATROSS/ICD | | | Haryana | | 39% |
| DADRI | 17% | | ICD SONIPAT ICD | | 38% |
| ICD NOIDA-DADRI | 10% | | ICD PATLI | | 8% |
| ICD LONI | 7% | | ICD GARHIHARSARU | | 6% |
| ICD PANKI, UP | 6% | | ICD Piyala Ballagarh ICD | | 4% |
| Punjab | | 100% | Rajasthan | | 100% |
| ICD CHOWPAYAL Punjab | 49% | | ICD THAR DRY PORT | | 41% |
| ICD SAHNEWAL, GRFL Punjab | 26% | | ICD JODHPUR | | 25% |
| ICD LUDHIANA | 17% | | MAHINDRA CITY TEXTILES | | |
| ICD KANECH, INLOGISTICS | | | SEZ TN | | 17% |
| Punjab | 5% | | ICD THAR DRY PORT, | | |
| CFS/ICD CHHEHETA | | | JODHPUR | | 12% |
| AMRITSAR | 2% | | ICD KATHUWAS ALWAR | | 2% |

Source: APEDA, Industry, CRISIL Research

Reefer Container trade: North India

Reefer container exports are higher across clusters NCR is the largest cluster, followed by UP. The key commodities for reefer container exports are Buffalo meat, other meat, food products, pharmaceuticals and fruits/vegetables. Key commodities for imports are frozen food, chocolates, pharmaceuticals, fruits, apples and agro products.

Cluster wise container trade for reefer containers

Key commodities for reefer containers

| Cluster | Reefer TEU Exports (FY20) | Commodity | Reefer TEU Exports (FY20) |
|----------------------|---------------------------|-------------------|---------------------------|
| Ludhiana | 1,225 | Buffalo Meat | 20,073 |
| NCR | 32,786 | Meat | 12,562 |
| Rajasthan | 146 | Food products | 8,571 |
| UP | 10,548 | Pharma | 2,800 |
| West UP/ Uttarakhand | 63 | Fruits/Vegetables | 298 |
| Grand Total | 44,768 | | |
| Cluster | Reefer TEU Imports (FY20) | Commodity | Reefer TEU Exports (FY20) |
| Ludhiana | 277 | Food products | 2,176 |
| NCR | 2,544 | Fruits/Vegetables | 453 |
| Rajasthan | 134 | Pharma | 324 |
| UP | 169 | Buffalo Meat | 50 |
| West UP/ Uttarakhand | 22 | Agro | 44 |

| | |
|-------------|-------|
| Grand Total | 3,146 |
|-------------|-------|

Source: RITASS Mumbai, Industry, CRISIL Research

Impact of dedicated freight corridor

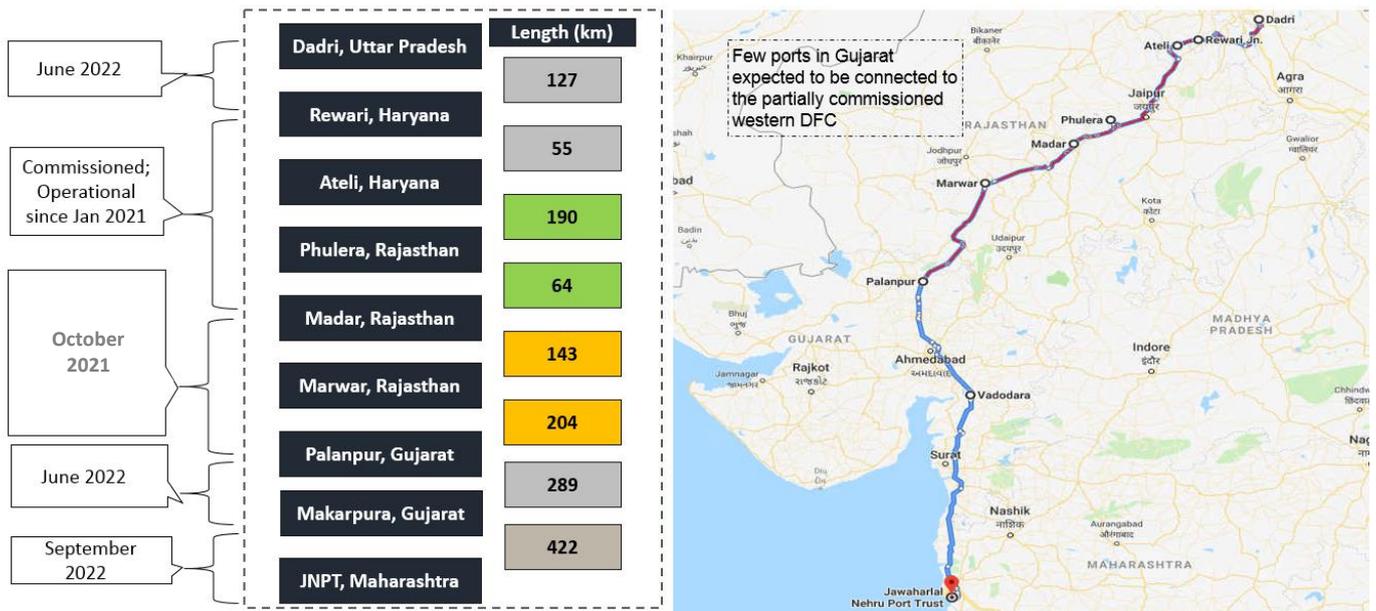
Dedicated freight corridor aimed at easing railways capacity constraints

Constructed exclusively for movement of goods train, the first phase of the dedicated freight corridor (DFC) project includes the Western DFC, running from Mumbai to Dadri, near Delhi, and the Eastern DFC, running from Dankuni in West Bengal to Ludhiana in Punjab. The western corridor will cater mainly to containers as 60% of container traffic originates from this region. The eastern corridor will cater primarily to dry bulk cargo. In fact, though this network accounts for only 20% of the tracks across the country, 55% of the traffic moves on it.

Despite operationalization of eastern and western DFC, other key routes of Indian Railways will continue to operate freight and passenger trains over the same network and it is imperative that to improve the timeliness and reliability of freight trains, concrete steps are taken to create dedicated freight corridors across central, eastern and southern regions as well.

Most of the dedicated freight corridor in advanced stage of completion

Containers, cement and imported coal movement to be aided by commissioning of Western DFC



Note: 1.Length mentioned are estimated 2.Green represents the route completed or to be completed by FY2021, yellow by FY2022 and grey after FY2022

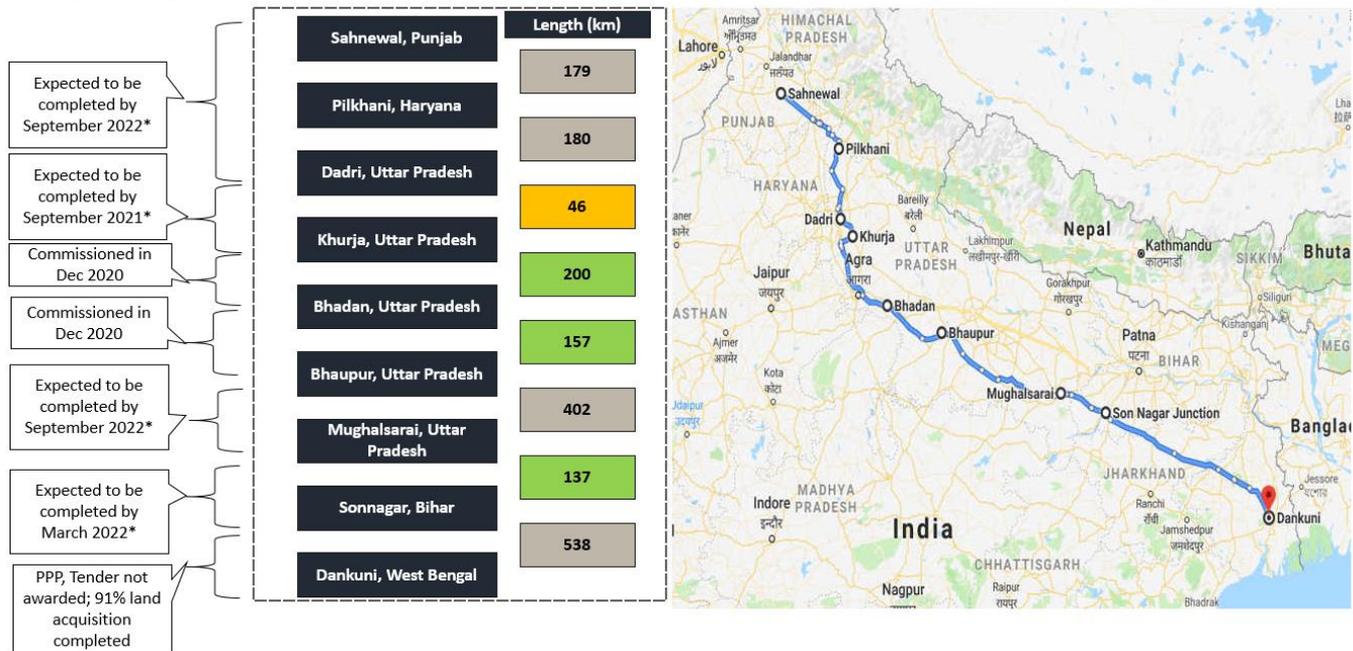
3. Map courtesy Google Maps 4. The route does not depict actual DFC route

Source: Dedicated Freight Corridor Corporation of India (DFCCIL) website (May 2021), Industry, CRISIL Research

The 192-km Ateli-Phulera section and the section between Rewari, Haryana and Madar, Rajasthan on the Western Dedicated Freight Corridor (WDFC) has been commissioned. We expect the entire stretch between Rewari and Palanpur to be operational by October 2021. This is expected to connect Gujarat and Rajasthan to North India via

the dedicated freight corridor. Movement of cement/clinker from Rajasthan and fertilizer, cement and containers from Gujarat to aid rail freight movement in fiscal 2022. The remaining Palanpur to JNPT stretch is expected to be completed by June-2022.

Major impact of eastern DFC to be seen from Q4 FY23, no major impact in FY22



Note: 1.Length mentioned are estimated 2.Green represents the route completed or to be completed by FY2021, yellow by FY2022 and grey after FY2022

3. Map courtesy Google Maps 4. The route does not depict actual DFC route

Source: Dedicated Freight Corridor Corporation of India (DFCCIL) website (May 2021), Industry, CRISIL Research

In November 2018, 194 km Khurja-Bhadan section of the Eastern DFC was commissioned. Sahnewal-Dadri is expected to be completed by June 2022. Dadri-Khurja stretch, which was slated to be completed by June 2021, is expected to be operational in later half of fiscal 2022. This stretch will connect eastern and western DFC. After completion of Mughalsarai - Dadri, a high share of the envisaged capacity of the eastern DFC would come online. Major issue is with the Sonnagar-Dankuni section, where tender has not been awarded yet, it will take another 3-4 years after awarding of the tender. We expect Eastern DFC to be fully commissioned by FY23-24.

Due to DFC, the wagon availability is expected to increase along with decrease in haulage time. Not only would DFCs ensure faster freight movement but also help the overall economy through decongestion of major highways due to the partial shifting of some freight to rail. It will also allow for faster evacuation of cargo from ports, improving efficiency. However, to maintain the rail share in tonnage in the long term, additional capacity needs to be added.

Dedicated freight corridor to aid an additional 55MT of cement movement to railways

Rail is the primary mode of transporting clinker from the mining location to the grinding unit near the consumption state. Limestone, a major ingredient in the manufacturing of clinker, is present in select regions near Karnataka,

Chhattisgarh, and Rajasthan. Commissioning of the dedicated freight corridors (DFCs) will aid in the annual addition of ~55 million tonnes (MT) of freight cement movement to railways between fiscals 2020 and 2025, curtailing road share. In fact, we expect the share of rail in cement freight to increase ~7% points between fiscals 2020 and 2025.

Dedicated freight corridor (DFC) to smoothen transport of food grains over rail

CRISIL Research expects food grain production to grow at a compound annual growth rate (CAGR) of 2-3% (in tonnage terms) between fiscals 2021 and 2026. As of fiscal 2017, Food Corporation of India, which transports 70-80% of total movement of food grains via railways, faced constraints in rake availability especially during busy seasons. This is expected to subside once DFC becomes operational and smoothen movement of food grains. However, DFC is unlikely to encourage additional loading of food grains due to:

- Focus on state-level procurement, leading to greater movement over shorter distances which favors roads
- FCI seeking to keep procurement of food grains at the same level of around 60MT, going ahead
- States attempting to become self-reliant in food grain production leading to lower procurement by FCI

However, the DFC is expected to lead movement of wheat from Punjab, Haryana and Uttar Pradesh to Bihar and West Bengal in the eastern DFC, and to Gujarat and Maharashtra in the western DFC. In a similar manner, movement of rice is expected to take place between Punjab and Haryana to Gujarat and Maharashtra.

Share of steel transportation by rail to increase in next five years

Despite higher freight costs (vis-a-vis other bulk segments), transportation of steel by rail entails lower loading/unloading and last-mile connectivity costs. It is also a more economical mode as:

- Most organised steel players have rail sidings, resulting in negligible last-mile costs. This lowers cost of transportation by railways for higher lead distances (over 575 km).
- Transportation of finished steel involves relatively higher lead distances of 1,000-1,500 km by rail and 800-1,000 km by roads, inherently rendering railways more favourable for steel transportation.
- On average, road transportation is almost 1.5 times costlier than rail transportation
- Dedicated freight corridor is expected to add 17MT traffic of pig/sponge iron to the Indian Railways' (IR) network, with the anticipated movement of pig/sponge iron, especially from the eastern cluster to steel mills in the National Capital Region, Ludhiana and Kanpur.
- 23 more two-point combinations opened for steel traffic for the steel sector
- Distance restriction on mini rakes of 1500 km removed with small surcharge for Steel.

CRISIL Research foresees steel transportation shifting further towards railways once the dedicated freight corridor is commissioned.

For iron ore, railways to continue to lead even in 2024-25; No direct impact of DFC

As majority of the end users of iron ore (Steel mills) tend to have iron ore sources near the end use centers, iron ore movement is not expected to benefit significantly from the dedicated freight corridor. The DFCs are expected to decongest the existing non-DFC routes and thus ease movement of iron ore through these routes. We expect

additional ~22MT of freight being carried by railways in the next five years with BTKM growth at a muted 4% CAGR between fiscal 2021 and 2026.

Impact of privatisation of CONCOR

CONCOR holds more than 60% share in CTO market of India, with a well spread network of ICD and PFT across the hinterland.

- Privatisation of CONCOR will help the acquiring private player to reconfigure their container logistics network of EXIM and domestic container rakes, ICD, CFS and PFT, with CONCOR's assets.
- This will help in streamlining of container logistics offerings across locations in hinterland. Consolidation will happen across locations which have considerable competition, while under penetrated locations will get access from private players with improved service levels.
- Players which have presence across the value chain will also be able to provide integrated services spanning, first mile, last mile, terminal handling, rake operations, consolidation/de-consolidation, port operations etc.
- Entities with stronger parentage, large container liners and terminal groups, mainline/direct shipping dependent port terminals, vertically integrated groups across shipping, port, and inland logistics, and diversified groups, present in cross-container logistics, can become more resilient with container train operations.
- Logistics players with port operations/liners can also have a better volume visibility, while diversified logistics players, with presence across the logistics value chain (contract logistics, warehousing, express services, bulk train operations, trucking), can also utilise synergies from other business verticals, with container train operations.

Polymers – Regulations and logistics

Overview of policy

The Petroleum, Chemicals and Petrochemicals Investment Region (PCPIR) policy, announced by the Government of India (GoI) in April 2007, envisages the development of Global Scale Industrial Corridors in the Petroleum, Chemical and Petrochemical sectors of the country in an integrated and environmentally friendly manner. To promote investment in Petroleum, Chemicals and Petrochemical industry and make the country an important hub for both domestic and international markets, the government wanted to attract major investment, both domestic and foreign, by providing a transparent and investment friendly policy and facility regime under which integrated Petroleum, Chemicals & Petrochemical Investment Regions (PCPIRs) may be set up.

Aimed at achieving synergies of value added manufacturing, research and development, PCPIRs intend to reap the benefits of co-siting, networking and greater efficiency using common infrastructure and support services. They would have high-class infrastructure, and provide a competitive environment conducive for setting up businesses. They would thus result in a boost to manufacturing, augmentation of exports and generation of employment.

Over the years, government approved below PCPIRs:

- Dahej, Gujarat
- Paradeep, Odisha
- Vishakhapatnam, Andhra Pradesh
- Cuddalore & Nagapattinam, Tamil Nadu

10. Consolidation and M&A in multimodal logistics

Investor focus on the logistics sector has remained high, driven by structural changes. These include GST implementation, infrastructure status for logistics, e-way bills, rationalisation of check posts, consolidation of warehouses, focus multimodal transport, policy initiatives in rail, , and increased formalisation in the sector.

Among logistics, CTO sector has witnessed a few key consolidation activities in past few years, such as CTO license of Reliance Infrastructure, acquired by Pristine (2017), DP World's acquisition of KRIBHCHO Infrastructure Ltd (KRIL) in 2019, Operations of Innovative B2B Logistics Solutions Pvt. Ltd. were acquired by Adani Logistics in 2020. Rakes of Arshiya Rail Infrastructure Ltd (ARIL) were acquired by Pristine Group and others in 2021. In 2022, as part of NCLT resolution of SICAL Logistics, Pristine is voted in favour by Committee of Creditors (CoC).

11. Player profiles

Brief profile of key players in the CTO space

| Company/ Group | | Brief Profile | Recent Tie- up/ M&A |
|-------------------------|------------------------------|--|--|
| Adani Logistics Ltd | | <p>Incorporated in 2005, Adani Logistics Ltd. is a part of Adani Group and wholly owned subsidiary of Adani Ports and Special Economic Zone Ltd. The company is engaged in the operation of container trains, inland container depots and container freight stations (CFS), apart from handling and transportation of coal at ports.</p> <p>It currently operates a fleet of 20 container rakes and has 3 ICDs located in North India – at Patli (Haryana) and Kishangarh (Rajasthan) and Kila Raipur (Punjab). ALL also manages coal handling operations at various ports.</p> <p>Company provides services through ICD locations Patli and Kila Raipur. And Multimodal logistics services at Kishangarh, Malur and Kanech.</p> | <p>In 2019, acquired Innovative B2B Logistics Solutions Pvt. Ltd</p> <p>In 2021. APSEZ bought controlling stake in Gangavaram port and 25% stake in Krishnapatnam port</p> |
| CONCOR | | <p>Container Corporation of India Ltd. (CONCOR) was incorporated in March 1988 under the Companies Act, and commenced operation from November 1989 taking over the existing network of 7 ICDs from the Indian Railways.</p> <p>It is one of the largest players in ICD space in India with a ~60 ICDs/CFSs in India, with 58 terminals and 3 strategic tie-ups.</p> <p>The company's primary operation is to provide inland transportation of containers from ports using rail wagons. The company also manages cold storage chains and warehouses. The GoI, through the Ministry of Railways holds majority stake in the company, 54.8% at the end of June 2021.</p> <p>~75% of the company's revenue is earned through CTO operations.</p> | Privatization of the company is currently underway |
| DP World | Container Rail Road services | <p>Container Rail Road Services (CRRS/ DP World Intermodal) commenced operations in 2007 when the Ministry of Railways opened up the rail sector to private participation, allowing for private container rail operations for transporting containers across the country. It is part of the DP World group, a global port and terminal operator.</p> | Part of the DP world group |
| | Kribhco Infrastructure | <p>Kribhco Infrastructure Private Limited (formerly known as Kribhco Infrastructure Limited) is operational since December 2009 and provides multimodal logistics solutions at pan India level.</p> <p>At present, it operates a terminal at Hazira and inland container depots (ICDs) at Rewari, Hindaun and Modinagar.</p> <p>The Rewari terminal got customs approval in 2016 and the Modinagar terminal got approval in 2017. Hindaun City (Rajasthan), is mainly utilised for stone transport.</p> | In May 2019, Hindustan Infralog Pvt Ltd has acquired 76% stake in KRIL. Part of DP World group. |
| Gateway Distriparks Ltd | | <p>Gateway Rail Freight Ltd (GRFL) was founded in 2005, as a subsidiary of Gateway Distriparks Ltd (GDL) and handles all rail operations of the Gateway Group. It is one of the largest private CTOs in the country and the company provides rail connectivity from its three ICDs to Mundra, Pipavav and JNPT.</p> | |

| Company/ Group | Brief Profile | Recent Tie- up/ M&A |
|--|--|--|
| | <p>Revenue streams of the company include Rail freight, terminal handling, storage charges, and road freight.</p> <p>Garhi Harsaru terminal is the flagship hub of the company, for double stacking. The other terminals in North India are Ludhiana and Piyala (Faridabad).</p> <p>GRFL has been merged with parent, as of fiscal 2022.</p> | |
| Hind Terminals | <p>Hind Terminals (HTPL) commenced commercial operations from December 2005 at Nhava Sheva. The company further entered into a Strategic Alliance Arrangement with Central Warehousing Corporation to develop, operate and maintain CWC Logistics Park for 15 years, expiring in 2022.</p> <p>The company is a part of the Sharaf Group of Companies, based out of UAE, which operates across diversified sectors. Besides Dronagiri Node, HTPL has ICDs located in Palwal and Kila Raipur (Ludhiana).</p> <p>Their rail operations commenced from April 2007.</p> | |
| JM Baxi: International Cargo terminals & rail infrastructure | <p>It was incorporated in 2006 as one of the first private rail operators in India and commenced operations in April 2008. It is part of the International Cargo Terminals and Infrastructure Private Limited company and promoted by J M Baxi group.</p> <p>The company is also into CFS, terminal handling services, handling of container & bulk cargo, containerised rail freight services, ICD and other ancillary services, through group companies.</p> <p>Company offers EXIM services from locations of JNPT, Pipavav, Mundra, Chennai/ Ennore, Vizag and Kochi ports.</p> <p>ICTIPL also has a fertilizer handling facility & bulk cargo handling arrangement in Rozi (Gujarat), and cold storage.</p> | In Dec 2020, Bain Capital acquired 30% stake |
| Pristine Logistics and Infraprojects | <p>Pristine Mega Logistics Park Pvt Ltd (PMLIPL) was incorporated in 2012, the company operates as CTO and ICD/PFT operator across locations, which have been set up across locations through different subsidiaries. The ICDs of the company are located at Ludhiana (operational from fiscal 2018), Kanpur (operational from fiscal 2011) and Siliguri (operational from fiscal 2019) and Patna (Bihta). The ICD locations are also notified as PFTs.</p> <p>The company also operates Own crude-edible oil storage and transportation facilities. Techlog Support Services (P) Ltd, is another subsidiary which provides container repair services.</p> <p>Holding company is Pristine Logistics and Infraprojects Pvt Ltd (PLIPL), in which Global Infrastructure Partners India is a major shareholder.</p> <p>The company also runs dwarf container trains that have been designed specifically by the company for carrying light weight commodities such as polymers, FMCG products and others.</p> | In 2017, acquired All-India container train operator CTO license of Reliance infra |

| Company/ Group | Brief Profile | Recent Tie- up/ M&A |
|----------------|--|---------------------|
| | CTO services account for majority of the revenue, and other revenue streams are terminal revenue and freight revenue from road transportation. | |

Source: Company reports, Rating rationales, Company websites

Other key players in PFT space are DP World's group company Continental Warehousing Corporation (Nhava Sheva) Ltd, Navkar Corporation, which has notified its rail linked terminal in Navi Mumbai as a PFT, and Palogix Infrastructure Pvt Ltd.

Terminals of key players

Player locations (As per FOIS website)

| Company/ Group | ICD/PFT | CFS/ICD Capacity |
|--------------------------------------|--|--|
| CONCOR | ~60 container terminals (EXIM, Domestic and Combined) 7 terminals are notified as PFTs <ul style="list-style-type: none"> • Vizag PFT • Durgapur PFT • Pantnagar PFT • Kathuwas PFT • Nagalpalle PFT • Jharsuguda PFT • Indore PFT | 5.5 – 6.5 MTEU |
| Gateway Rail Freight | <ul style="list-style-type: none"> • Garhi Harsaru – ICD/PFT • Faridabad – ICD/PFT • Ludhiana – ICD/PFT • Virangam – ICD | 0.8-0.9 MTEU |
| Adani Logistics Ltd | <ul style="list-style-type: none"> • Patli (Haryana) – ICD • Kila Raipur/Kanech (Ludhiana) – ICD/PFT • Kishangarh (Rajasthan) • Malur (Karnataka) | 0.7 – 0.8 MTEU |
| DP World | Kribhco Infrastructure <ul style="list-style-type: none"> • Pali (Haryana) – ICD/PFT • Hazira (Gujarat) – ICD/PFT • Modinagar (UP) – ICD/PFT | NA |
| | Continental Warehousing corporation (Nhava Seva) ²¹ <ul style="list-style-type: none"> • Panipat ICD/PFT • Ahmedabad ICD/PFT • Hyderabad ICD/PFT | 0.6-0.7 MTEU |
| Pristine Logistics and Infraprojects | <ul style="list-style-type: none"> • Kanpur ICD/PFT • Ludhiana ICD/PFT • Siliguri ICD/PFT • Patna ICD/PFT • Birgunj ICD (Nepal) | 0.65 MTEU |
| Hind Terminals | <ul style="list-style-type: none"> • Palwal (ICD/PFT) • Kila Raipur (Ludhiana) – (ICD/PFT) • Mundra CFS • Nhava Sheva (Dronagiri Node) CFS • Hazira CFS • Chennai CFS | Palwal (0.12 - 0.14 MTEU) Mundra (72,000 TEU/month) Nhava Sheva (30,000 TEU/month) |
| Palogix Infrastructure Private Ltd | <ul style="list-style-type: none"> • Durgapur PFT • Ghaziabad PFT | - |

²¹ CWCNSL also operates following CFS: Nhava Seva CFS, Tuticorin CFS, Chennai CFS and Mundra CFS

| Company/ Group | ICD/PFT | CFS/ICD Capacity |
|----------------|---|------------------|
| | Other PFTs are under implementation at Rudrapur (Uttarakhand) and Kolkata | |

Note: PFTs notified by Indian Railways are mentioned in this list

Source: FOIS website, Indian Railways, Company Reports, Industry, CRISIL Research

Trends in Operating Income, Operating Margin and Net Margin for players

| Company/ Group | | Particular | Units | Fiscal 21 | Fiscal 20 | Fiscal 19 | Fiscal 18 |
|--|---|------------|-------|-----------|-----------|-----------|-----------|
| Adani Logistics Ltd (Standalone) | | Op. income | Rs.Bn | 6.6 | 7.4 | 5.8 | 8.3 |
| | | OPM | % | 13.9 | 27.0 | 15.6 | 9.1 |
| CONCOR (Consolidated) | | Op. income | Rs.Bn | 64.3 | 66.5 | 70.7 | 67.5 |
| | | OPM | % | 16.3 | 25.9 | 25.5 | 22.8 |
| DP World | Container Rail Road services (Standalone) | Op. income | Rs.Bn | 2.9 | 1.5 | 2.5 | 1.3 |
| | | OPM | % | 9.1 | -1.6 | 6.1 | 6.2 |
| | | NPM | % | 3.6 | -7.3 | 0.7 | -2.3 |
| | Kribhco Infrastructure (Consolidated) | Op. income | Rs.Bn | 3.5 | 2.0 | 1.9 | 1.4 |
| | | OPM | % | 9.5 | 11.6 | 18.1 | 14.8 |
| | CWCNSL (Consolidated) | Op. income | Rs.Bn | - | 7.8 | 7.0 | 6.5 |
| OPM | | % | - | 11.5 | 6.8 | 15.0 | |
| Gateway Distriparks – (Consolidated) | | Op. income | Rs.Bn | 11.8 | 12.9 | 4.3 | 3.9 |
| | | OPM | % | 26.5 | 24.4 | 18.3 | 21.1 |
| Hind Terminals (Consolidated) | | Op. income | Rs.Bn | - | 10.3 | 10.8 | 10.3 |
| | | OPM | % | - | 17.0 | 12.4 | 13.5 |
| International Cargo terminals & rail infrastructure (Standalone) | | Op. income | Rs.Bn | - | 1.0 | 1.1 | 0.6 |
| | | OPM | % | - | 29.5 | 19.0 | 7.8 |
| Palogix Infrastructure Private Ltd (Consolidated) | | Op. income | Rs.Bn | - | 0.1 | 0.0 | 0.2 |
| | | OPM | % | - | 24.7 | -40.1 | -83.0 |
| Pristine Logistics and Infraprojects (Consolidated) | | Op. income | Rs.Bn | 5.5 | 4.6 | 3.5 | 2.7 |
| | | OPM | % | 17.5 | 9.3 | 7.3 | 12.2 |

Note: Fiscal 21 data is available only for select players

Operating Margin Operating Profit Before Depreciation, Interest and Taxes (OPBDIT)/ Operating Income

Net Profit Margin Profit After Tax / Operating income

Source: Company Reports, Industry, Registrar of Companies, CRISIL Research

Trends in Capital Employed, interest coverage and fixed asset turnover for players

| Company/ Group | | Particular | Units | Fiscal 21 | Fiscal 20 | Fiscal 19 | Fiscal 18 |
|---|--|-------------------------|-------|--------------|--------------|--------------|--------------|
| Adani Logistics Ltd (Standalone) | | OPBDIT/Capital Employed | % | 1.5 | 4.4 | 3.7 | 9.2 |
| | | Capital Employed | Rs Bn | 61.2 | 45.7 | 24.7 | 8.2 |
| | | Interest Coverage | Times | 2.5 | 3.4 | 4.2 | 2.5 |
| | | Fixed Asset Turnover | Times | 0.6 | 0.9 | 1.1 | 1.6 |
| CONCOR (Consolidated) | | OPBDIT/Capital Employed | % | 10.2 | 17.2 | 16.1 | 16.3 |
| | | Capital Employed | Rs Bn | 102.7 | 100.3 | 111.9 | 94.6 |
| | | Interest Coverage | Times | 24.4 | 36.3 | 263.5 | 244.8 |
| | | Fixed Asset Turnover | Times | 1.2 | 1.3 | 1.7 | 1.8 |
| DP World | Container Rail Road services (Standalone) | OPBDIT/Capital Employed | % | 14.1 | (1.6) | 27.9 | 72.5 |
| | | Capital Employed | Rs Bn | 1.9 | 1.5 | 0.5 | 0.1 |
| | | Interest Coverage | Times | 4.7 | 0.2 | 2.3 | 1.3 |
| | | Fixed Asset Turnover | Times | 2.2 | 2.1 | 6.0 | 2.8 |
| | Kribhco Infrastructure (Consolidated) | OPBDIT/Capital Employed | % | NA | 6.7 | 9.0 | 5.2 |
| | | Capital Employed | Rs Bn | NA | 3.5 | 3.7 | 4.0 |
| | | Interest Coverage | Times | 5.7 | 0.7 | 1.1 | 0.7 |
| | | Fixed Asset Turnover | Times | NA | 0.7 | 0.6 | 0.4 |
| | CWCNSL (Consolidated) | OPBDIT/Capital Employed | % | NA | 6.8 | 3.4 | 6.7 |
| | | Capital Employed | Rs Bn | NA | 13.1 | 14.1 | 14.4 |
| | | Interest Coverage | Times | 1.2 | 0.8 | 1.5 | 1.1 |
| | | Fixed Asset Turnover | Times | NA | 0.8 | 0.7 | 0.7 |
| Gateway Distriparks – (Consolidated) | | OPBDIT/Capital Employed | % | 18.4 | 18.1 | 4.3 | 7.3 |
| | | Capital Employed | Rs Bn | 17.1 | 17.4 | 18.3 | 11.4 |
| | | Interest Coverage | Times | 4.1 | 3.3 | 35.2 | 12.6 |
| | | Fixed Asset Turnover | Times | 0.7 | 0.8 | 0.5 | 1.4 |
| Hind Terminals (Consolidated) | | OPBDIT/Capital Employed | % | NA | 20.4 | 16.0 | 17.8 |
| | | Capital Employed | Rs Bn | NA | 8.6 | 8.4 | 7.8 |
| | | Interest Coverage | Times | - | 4.5 | 5.3 | 4.5 |
| | | Fixed Asset Turnover | Times | NA | 1.3 | 1.5 | 1.5 |
| International Cargo terminals & rail infrastructure (Standalone) | | OPBDIT/Capital Employed | % | NA | 10.1 | 8.0 | 2.1 |
| | | Capital Employed | Rs Bn | NA | 2.9 | 2.6 | 2.3 |
| | | Interest Coverage | Times | - | 1.6 | 1.3 | 0.3 |
| | | Fixed Asset Turnover | Times | NA | 0.5 | 0.6 | 0.3 |
| Palogix Infrastructure Private Ltd (Consolidated) | | OPBDIT/Capital Employed | % | NA | 4.3 | (2.6) | (26.8) |
| | | Capital Employed | Rs Bn | NA | 0.8 | 0.7 | 0.7 |
| | | Interest Coverage | Times | NA | 0.6 | -0.5 | -186.8 |
| | | Fixed Asset Turnover | Times | NA | 0.2 | 0.1 | 0.3 |

| Company/ Group | Particular | Units | Fiscal 21 | Fiscal 20 | Fiscal 19 | Fiscal 18 |
|---|----------------------------|-------|--------------|--------------|--------------|--------------|
| Pristine Logistics and Infraprojects (Consolidated) | OPBDIT/Capital Employed | % | 16.4 | 9.4 | 5.7 | 7.6 |
| | Capital Employed | Rs Bn | 5.9 | 4.6 | 4.5 | 4.3 |
| | Interest Coverage | Times | 3.2 | 3.0 | 8.3 | 0.6 |
| | Fixed Asset Turnover | Times | 1.0 | 1.5 | 1.7 | 1.4 |

Note: Fiscal 21 data is available only for few large listed players

Capital Employed Tangible Net Worth + Total Debt (Excluding Lease Liabilities) + Deferred Tax Liability

Interest coverage OPBDIT/ interest & finance charges

Fixed Asset Turnover Ratio Operating Income / Average of Net Property Plant and Equipment (Excluding CWIP)

Source: Company Reports, Industry, Registrar of Companies, CRISIL Research

Comparison of key CTOs

Major CTOs started operations only after the CTO Policy, 2006 came into effect. Prior to that CONCOR was the only container train operator in the country. Majority of the operators are running CTO services for more than 10 years now, except Pristine Logistics, which started CTO services in 2017, after acquiring the CTO license held previously by Reliance Infrastructure.

Following table provides the CTO volumes and revenues vis-à-vis years of operations as CTOs.

Comparison of CTOs

| Consignees | Years of CTO Operations (Est) ²² | Revenue (FY21, Rs bn) | Revenue (FY20, Rs bn) |
|---|---|--------------------------|--------------------------|
| CONCOR ²³ | 31 | 64.3 | 66.5 |
| Gateway Distriparks Ltd. – (Consolidated) ²⁴ | 14 | 11.8 | 12.9 |
| Adani Logistics ²⁵ | 14 | 4.4 | 5.3 |
| DP World | Container Rail Road Services ²⁶ | 2.9 | 1.5 |
| | KRIBHCO Infrastructure ²⁷ | 3.5 | 2.0 |
| Hind Terminals ²⁸ | 14 | NA | 10.3 |
| Pristine Logistics and Infraprojects ²⁹ | 4 | 5.5 | 4.6 |

²² As of FY21 end

²³ Overall revenue including CTO, ICD, PFT, CFS, Shipping etc.

²⁴ Overall revenue including CTO, ICD, PFT and CFS

²⁵ Overall revenue including CTO, ICD, PFT, CFS, GPWIS rakes and Agri rakes

²⁶ CTO revenue

²⁷ Overall revenue including CTO, ICD and PFT

²⁸ Overall revenue including CTO, ICD, PFT, CFS, Warehousing, Integrated Logistics etc.

²⁹ Overall revenue including CTO, ICD (India and Nepal), PFT and General Rakes

| | | | |
|--|----|----|-----|
| JM Baxi (International Cargo terminals & Rail infrastructure ³⁰) | 13 | NA | 1.0 |
|--|----|----|-----|

Note:

Revenue for Adani Logistics (Standalone), CONCOR (Consolidated), Container Rail Road Services (Standalone), KRIBHCO Infrastructure (Consolidated), Hind Terminals (Consolidated), International Cargo terminals & Rail infrastructure (Standalone) and Pristine Logistics and Infraprojects (Consolidated)

Source: FOIS website, Company websites, Registrar of Companies, Company Reports, Rating Rationales, Industry, CRISIL Research

³⁰In 2017, the rail operations was transferred under the parent viz. International Cargo Terminals and Infrastructure Pvt Ltd while the ICD business will continue to remain under ICTRIPL

12. Ports for exports from key states

Punjab

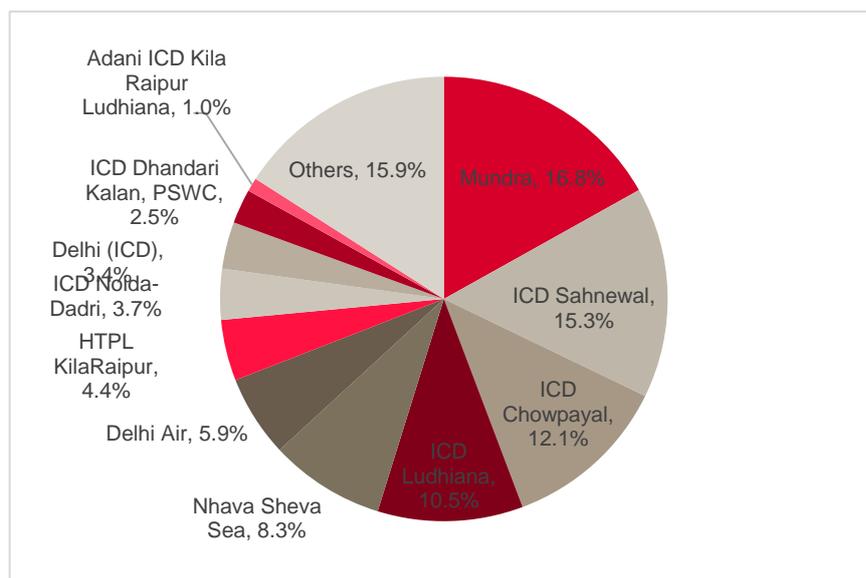
Key export commodities for Punjab are Rice, Cotton Yarn, Iron and Steel, Machinery and Pharma intermediates.

Key exports are Mundra, ICD Sahnewal and ICD Chowpayal.

Exports – Share of key commodities

| | |
|---------------------------------|-------|
| Rice - Basmati | 10.2% |
| Cotton Yarn | 6.1% |
| Products of Iron and Steel | 5.6% |
| Indl. Machinery for Dairy etc | 4.9% |
| Bulk Drugs, Drugs Intermediates | 4.6% |
| Auto Components/Parts | 3.5% |
| Cotton Fabrics | 2.9% |
| Buffalo Meat | 2.7% |
| Hnd Tool, Ctng tools of metals | 2.7% |
| RMG Manmade Fibres | 2.3% |

Exports – Share of key ports



Data refers to FY21

Source: DGCIS, Industry, CRISIL Research

Bihar

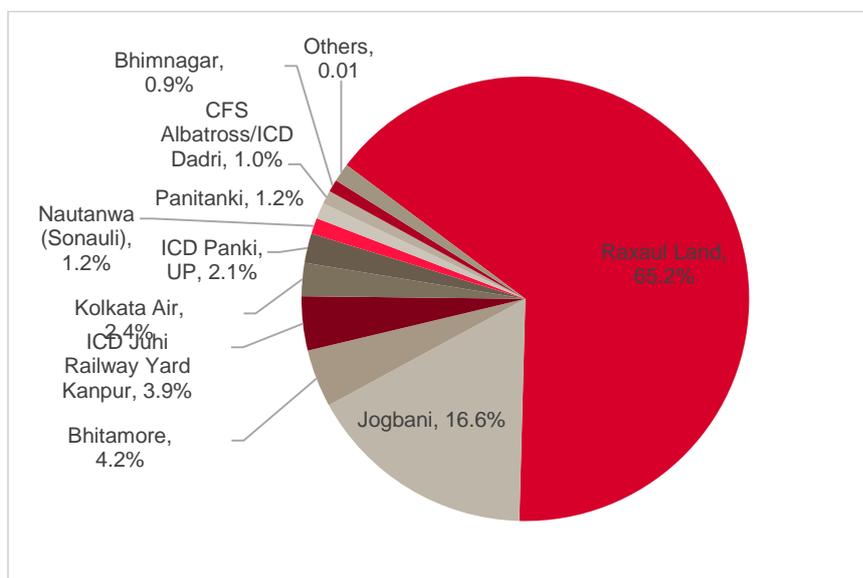
Key export commodities for the state are Petroleum products, Buffalo Meat, Cereal and Rice

Key exports are Raxaul, Jogbani, Bhitamore (Nepal bound trade) and ICD Kanpur Railway Yard and ICD Panki.

Exports – Share of key commodities

| | |
|--------------------------------|-------|
| Petroleum products | 53.0% |
| Buffalo Meat | 5.7% |
| Other Cereals | 3.7% |
| Rice (Other than Basmati) | 3.5% |
| Drug formulations, biologicals | 2.6% |
| Fresh Vegetables | 1.1% |
| Auto Tyres and Tubes | 1.1% |
| Wheat | 0.8% |
| Cotton Fabrics, Madeups | 0.4% |
| Coal, Coke and Briquettes etc | 0.4% |

Exports – Share of key ports



Data refers to FY21

Source: DGCIS, Industry, CRISIL Research

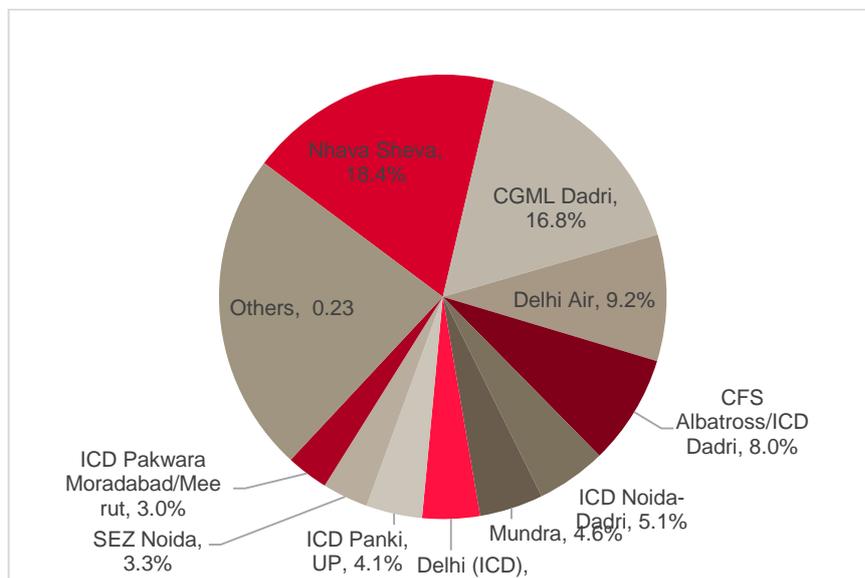
UP

Key export commodities for the state are Telecom instruments, Buffalo Meat, Aluminium products, Iron and Steel. Key export ports are Nhava Sheva, CGML Dadri, Delhi Air, ICD Dadri, ICD Noida-Dadri and Mundra.

Exports – Share of key commodities

| | |
|--------------------------------|------|
| Telecom Instruments | 9.3% |
| Buffalo meat | 8.8% |
| Aluminum, Products of Aluminum | 2.8% |
| Products of Iron and steel | 2.6% |
| Footwear of Leather | 2.5% |
| Carpet (Excl Silk) Handmade | 2.4% |
| RMG Manmade Fibres | 2.4% |
| Spices | 2.3% |
| RMG Cotton, incl accessories | 2.2% |
| Sugar | 1.7% |

Exports – Share of key ports



Data refers to FY21

Source: DGCI, Industry, CRISIL Research

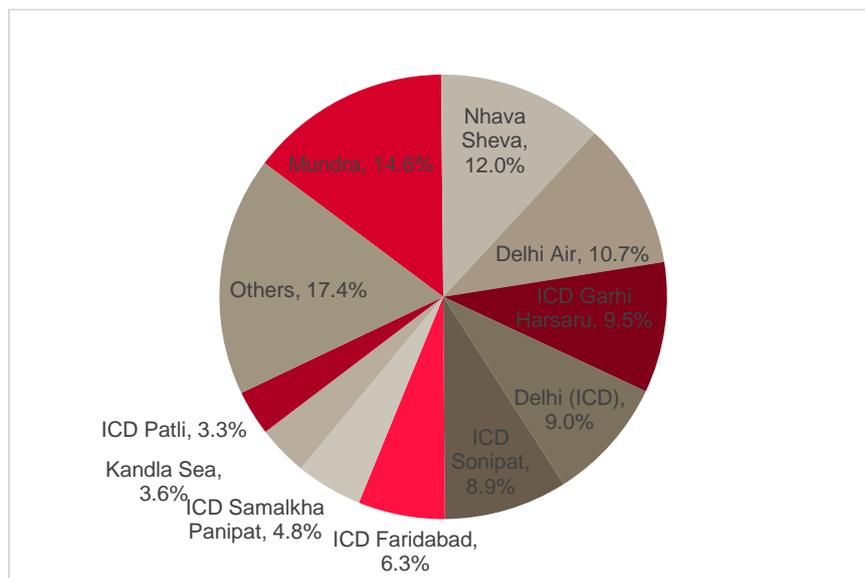
Haryana:

Key export commodities for the state are Rice Basmati, Carpets, Auto Components, RMG Cotton, and Electric equipment. Key export ports are Mundra, Nhava Sheva, Delhi Air, ICD Garhi Harsaru and Delhi (ICD).

Exports – Share of ley commodities

| | |
|---------------------------------------|-------|
| Rice - Basmati | 13.3% |
| Carpet (Excl Silk) Handmade | 3.7% |
| Auto Components | 3.5% |
| RMG Cotton, incl accessories | 3.3% |
| Electric equipment and machinery | 2.8% |
| Cotton Fabrics | 2.4% |
| RMG Manmade Fibres | 2.1% |
| Other miscellaneous engineering items | 2.0% |
| Products of Iron and Stee | 1.9% |
| Motor Vehicles/Cars | 1.8% |

Exports – Share of key ports



Data refers to FY21

Source: DGCI, Industry, CRISIL Research

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