STUDY OF TRANSPORTATION OF IRON ORE OVER INDIAN RAILWAYS

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TRAFFIC DIRECTORATE
RESEARCH DESIGNS AND STANDARDS ORGANISATION,
MANAK NAGAR, LUCKNOW-226011
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Study of transportation of Iron Ore over Indian Railways

1.0 Introduction:

India is one of the richest countries of the world in iron ore deposits. It ranks fourth in terms of iron ore production globally. Iron ore production in the country stood at 202 million tonnes in FY2020-21. Previously it was recorded at 246 million tonnes in FY2019-2020. Due to economic disruptions post Covid-19 outbreak, iron ore production fell sharply by almost 44 million tonnes to 202 million tonnes in 2020-21 vis-a-vis 246 million tonnes in the previous year 2019-2020. However, the country's exports increased by 62 per cent to 60 million tonnes against 37 million tonnes. It created an overall short supply of around 70 MT after adjusting incremental exports and drop in production.

India has around eight per cent of world’s deposits of iron ore. It will last at least another 200 years. It is the basic key raw material used for making pig iron, sponge iron and finished steel. Mined iron ore contains lumps of varying sizes. The blast furnace used for processing ‘Iron ore’ at manufacturing units requires lumps between 7 to 25 mm. As such, bigger lump ore is required to be crushed. Crushed ore is divided into various groups by passing it over sieves and lumps (7 to 25 mm in size) are separated from the fines (less than 7 mm). If the lump is of appropriate quality, it can be charged to the blast furnace without any further processing. Iron ore fines, which cannot be put directly in blast furnace, however, must be agglomerated, which means re-forming them into lumps of suitable size by a process called sintering/pelletisation. Various varieties of Iron ore, except Pellets/ Sinters, are traded and loaded in wagons from mine Areas / loading points.
Production of iron ore in the country is through a combination of large mechanised mines in both public and private sectors and several smaller mines operated in manual or semi mechanised basis in the private sector.

Globally it is one of the largest traded commodities. India is the top Iron Ore mining and exporting country. Large reserves of Iron Ore in India enable Iron Ore exports after meeting 100% domestic requirements. Consumption of iron ore in a country is the indicator of its level of economic development, because iron is used in almost all types of machines, machine tools, construction of buildings, factories and various means of transport. Iron and steel make up a core component of the real estate sector. Demand for these metals is set to continue given strong growth expectations for the residential and commercial building industry. India became the world second largest crude steel producer in 2018 with output 106.5 million tons.

At present, over 99 per cent of India's iron ore is produced by just five states of Karnataka, Orissa, Chhattisgarh, Goa and Jharkhand. Karnataka is the largest producer and accounts for nearly one-fourth of the total iron ore produced in India. Jharkhand has a quarter of India's iron ore deposit. Chief mines are located at Budaburu, Noamundi and Gua. It's believed that Chiria mine in Jharkhand has the largest iron ore deposits in the world. Reserve of 2,000 million tons of iron ore is located here.

1.1 Transportation of Iron Ore by Indian railway:

Iron ore is an important commodity transported by the IR, both in terms of volume of traffic and also in terms of freight earnings. Iron ore is transported for domestic consumption in the Country and also for non-domestic consumption like sale/export. So far as transport of Iron ore for domestic consumption is concerned, IR is a major transporter. Volume of iron ore transported by railway in India from financial year 2011 to 2020 is as under (in million Tonnes):

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Governmental reforms and deregulation of the mining industries will encourage more private and foreign investors to enter the business and expand the production capacity. As the public investment in railway infrastructure is also growing, the transportation of iron ore is expected to increase steadily in the next few years.

**2.0 Dual Freight Policy for Iron Ore: (Now Abolished)**

IR Introduced, in May 2008 the Dual Freight Policy (DFP) under which, transportation of Iron ore was categorised into two classes on the basis of end use viz. ‘domestic consumption’ and 'other than domestic consumption’.

The former was assigned a lower Class and the latter a higher Class. The above classes cover various types of Iron ore viz., lumps, fines, calibrated form, pellets etc. The freight difference between the two assigned classes was on an average more than three times. Domestic Rail Freight for Iron Ore was charged at lower class (170 class) as compared to iron Ore for export (200x).
With effect from 6th June 2009, the Railway Board revised the freight to be charged on iron ore traffic for other than domestic use, from Class 200X to Class- 180 plus a Distance Based Charge (DBC). With the primary objectives of lowering the cost of transport of ‘Iron ore’ for domestic producers and to keep freight charges for export of Iron ore in sync with its rising international spot market prices and garner high freight revenues in the event of increase in international price of Iron ore. Manufacturers of Iron and Steel, Cement and Pellets were the authorized customers eligible for booking ‘Iron ore’ at domestic rate as per the Rate Circulars issued by Railway Board subject to laid down terms and conditions.

It is to be noted that only manufactures of iron and steel were eligible for the domestic rate. In July 2008, iron pelletisation units were added to this category. The Class-170 assigned to domestic consumption was changed to Class-180 (attracting a higher tariff rate) with effect from 13th November, 2008. For Indian Railways had been charging iron ore meant for exports @Rs 300 per ton over and above the freight rate for domestic transportation of the mineral. This in turn was making iron ore exports unviable, especially given the international low prices.

2.1 Abolishing Dual Freight Policy for Iron Ore:

Industry representative urged the government to bring parity in rates of iron ore transportation irrespective of point of origin and destination. In a bid to boost freight traffic volumes, the Indian Railways abolished its dual freight policy for carrying iron ore. The Comptroller and Auditor General of India (CAG) had in May 2015 observed the government lost Rs 29,000 crore over five years as a result of the dual rate policy, unearthing the iron ore freight scam. This decision has resulted in a boost to the loadings of iron ore.
Railway Board vide circular No. 10 of 2019 dated 29.03.2019 notified that the dual freight policy applicable for transportation of Iron Ore and Iron Ore Pellets whether meant for domestic consumption for manufacture of Iron and Steel as well as cement or meant for other than domestic consumption will be charged at class-165(Trainload).

3.0 New ‘Iron-Ore Policy 2021’:

A new iron-ore policy governing allocation of rakes and transportation of iron-ore has come into effect from 10.02.2021. The provisions of the new policy have been updated in the Rake Allotment System module by CRIS. The aim of policy is to attune it to the present day needs of customers and assure them that Indian Railways is fully committed to meet the complete requirement of transportation of iron ore customers and provide total logistics support to steel industry to meet the competitive challenges domestically and globally. Production of steel is critically dependent on transportation of iron and other raw materials. The policy sets down clear guidelines on how to fully meet the requirement of customers by leveraging infrastructure facilities available at loading and unloading ends to the fullest. Important highlights of the new policy are:

- Existing categorisation based on customer’s profile into CBT/Non CBT customers henceforth is being done away with. Old and new plants are to be treated similarly as far as allotment/loading of rakes is concerned.

- Categorization of Priority of movement of Iron Ore has now been based on the availability of Railway infrastructure developed by the customer for loading/unloading and the nature of movement between various types of sidings with a view to maximize iron-ore movement by rail.

- The priority preferences for the customers will be self-generated by the system (Rake allotment scheme) based on customer profile (name of
manufacture, consignor name, consignee name, siding/PFT name and code) fed in the system by the concerning zone.

- Higher priority given to movement of iron-ore traffic for domestic manufacturing activity.

- Within domestic movement of iron-ore traffic, priority preference given to Steel/Pig Iron/Sponge Iron/pellet/sinter plant owning customers having their own private sidings at both loading as well as unloading ends (C+), customers with private siding at either loading or unloading end (C), customers without any private siding of their own relying totally on public goods sheds/sidings (C-) in that order.

- Customers are free to choose the priorities or combination of priorities for moving their traffic as per eligibility and necessity. No permission is required to be obtained for choosing priorities or combination of priorities.

- Export traffic shall be given priority ‘D’. To differentiate rail-cum-sea traffic from export traffic, the former should be accompanied by a self-declaration that such traffic is meant for domestic consumption and railway will not be held responsible for any wrong declaration submitted by the manufacturer.

- Pellet and sinter traffic will also move under priority D.

- Any type of customer can move traffic under priority D as per his requirement.

- Dispatch of ‘low grade fines or iron ore rejects’ generated during the process of manufacturing has been freely allowed under priority D to any location.

- Under contractual traffic General Purpose Wagon Investment Scheme (GPWIS), customer is free to place indents as per their requirement.

- With the aim to facilitate ‘Ease of doing business’ scrutiny of documentation by Railways has been removed. EDRM office, Kolkata which has been sanctioning programme for movement of iron-ore traffic will have no
regulatory role in the new policy. The office will be undertaking analysis of various iron-ore traffic for further improvement of Railway freight loading.

- Customers now desirous of moving their traffic under any priority will have to give undertaking that they have procured, transported and utilized materials as per rules and regulations of Central and State Governments. For lapses, customers will be liable to be taken up as per the law of land and railway will stand indemnified for any such lapses committed by customers.

‘Iron-ore Policy, 2021’ issued by Railway Board vide letter no. 2020/TT-III/32/4 on date 15.01.2021 as mentioned above is attached as ANNEXURE-I.

Iron-ore is the second most important stream of traffic of Railways and along with steel accounts for nearly 17% (53.81 Million Tonne of Steel & 153.35 Million Tonne of Iron ore) of total 1210 Million Tonne freight loading of IR in 2019-20. The new Iron-ore Policy, 2021 issued by Ministry of Railways is expected to have positive impact on the steel industry, provide powerful impetus to the core sector of the economy and boost country’s economic growth.

4.0 Modes of Transportation of Iron Ore:

Railway, Road, Water ways-(Goa), Coastal Shipping, (KIOCL/ESSAR) are various modes of transportation of Iron ore. Railways and Road are the most important modes of transportation among the various modes of transportation of Iron Ore. In India the most commonly used mode for Transportation of Iron Ore is Railways. Iron Ore is moved from mines to Steel plants/Sponge iron plants/Pig iron plants and ports.
5.0 **Issues and Challenges being faced by Indian Railways transportation of Iron Ore & Steel:**

It is experienced by steel industry that Transporting Iron Ore from local mines has become difficult as freight and passenger trains in India operate on the same tracks and goods trains often have to make way for passenger traffic, prolonging turnaround time for wagons hauling commodities. Therefore, producers along the coast buy from overseas because they face domestic logistics challenges, mainly as a result of an overloaded railway system. Steel Industry faces problems as inadequate rail and road infra does not allow to swiftly dispatch finished products to consumption centers or receive raw material from mines once new capacity comes on stream.

There are many challenges in Rail Transportation, the most important being high costs and inadequate capacity. Our transport systems for bulk commodities are barely able to cope with the traffic today. The trunk railway network is heavily congested. Generally, a rail route is considered congested when the capacity utilization increases beyond 80 percent. Almost all the major rail routes over which iron ore are transported are operating above 100 percent of capacity.

Indian Iron Ore Freight Rates are 500% more than its competitor- Australia. High Freight Rates are the major reason for drastic fall in Iron Ore loading by Indian Railways in recent years.

Major issues facing Iron Ore transportation through railways are:

1. Inadequate Rail Capacity for both Domestic Steel Plants as well as for Exports.
(2) Low average speed of freight traffic by Rail leads to longer lead times and reduced throughput through ports as time taken for convergence for cargo is long.

(3) Sharing of railway lines for both passenger and goods results in priority for passengers thereby delays and congestions for goods traffic.

(4) Lower Haulage capacity leads to higher lead time.

The depressed demand scenario of the domestic and global steel industry has impact on the transportation of ore by rail. Drop in loading from NMDC’s Bailadila sector (KK line), which is responsible for ensuring sufficient supplies of iron ore to the RINL has registered a drop has severely impacted IR’s loading. Global production and consumption scenario indicates that iron ore prices will continue to face pressure from consuming industries.

The consuming industries such as steel are facing price pressures due to over production and export from China along with subdued demand from infrastructure and housing sectors.

### 6.0 Loading and Earning of Iron Ore over IR

<table>
<thead>
<tr>
<th>year</th>
<th>Weight (in Million Tons)</th>
<th>Absolute variation over last year</th>
<th>Loading Percentage to total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019-20</td>
<td>153.37</td>
<td>16.03</td>
<td>12.69</td>
</tr>
<tr>
<td>2018-19</td>
<td>137.34</td>
<td>-2.46</td>
<td>11.25</td>
</tr>
<tr>
<td>2017-18</td>
<td>139.80</td>
<td>2.25</td>
<td>12.06</td>
</tr>
<tr>
<td>2016-17</td>
<td>137.55</td>
<td>20.61</td>
<td>12.43</td>
</tr>
<tr>
<td>2015-16</td>
<td>116.94</td>
<td>4.17</td>
<td>10.62</td>
</tr>
<tr>
<td>2014-15</td>
<td>112.77</td>
<td>-11.50</td>
<td>10.30</td>
</tr>
<tr>
<td>2013-14</td>
<td>124.27</td>
<td>12.87</td>
<td>11.82</td>
</tr>
</tbody>
</table>
It is observed from the table above that percentage variation of Iron Ore loading lies between 12.85% to 10.30%. It has also been clear from the above data analysis that there is a substantial increase in absolute variation of Iron Ore loading in the year 2019-20 and decrease in the year 2018-19, 2014-15, 2011-12 and 2010-11.

(ii) **Earnings from Iron ore traffic:**

<table>
<thead>
<tr>
<th>Year</th>
<th>Earnings Rs. (in Crores)</th>
<th>Absolute variation over last year</th>
<th>Percentage to total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2019-20</td>
<td>7286.65</td>
<td>-2090.34</td>
<td>6.54</td>
</tr>
<tr>
<td>2018-19</td>
<td>9376.99</td>
<td>575.28</td>
<td>7.65</td>
</tr>
<tr>
<td>2017-18</td>
<td>8801.71</td>
<td>625.86</td>
<td>7.76</td>
</tr>
<tr>
<td>2016-17</td>
<td>8175.85</td>
<td>1279.58</td>
<td>8.01</td>
</tr>
<tr>
<td>2015-16</td>
<td>6896.27</td>
<td>-996.59</td>
<td>6.45</td>
</tr>
<tr>
<td>2014-15</td>
<td>7892.86</td>
<td>204.12</td>
<td>7.66</td>
</tr>
<tr>
<td>2013-14</td>
<td>7688.74</td>
<td>244.6</td>
<td>8.40</td>
</tr>
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</table>
It is observed from that earning percentage of Iron Ore has variation between 6.54% to 14.85%. There is a remarkable variation in earning of Iron Ore in the Yr.2019-20 as compared to last year i.e. 2018-19. It has also been clear from the above data analysis that there is a substantial downfall in earning during the three year i.e. 2011-12, 2015-16 and 2019-20.

7.0 Loading and Unloading points of Iron Ore:

Iron Ore is mainly loaded from 97 loading points over seven - Zonal Railways viz. SWR, WR, SER, SECR, WCR, SR and ECoR and is unloaded at 198 unloading points spread over 15-Zonal Railways.

8.0 List of the Iron Ore Mines in India (Owners & Mines) is given in ANNEXURE-II

9.0 Destination of Iron Ore Transportation for Domestic Use:
Some of major Domestic Iron and Steel Plants in Public Sector are at Bhilai Steel Plant (SAIL), Raurkela Steel Plant, Bokaro Steel Plant, Durgapur Steel Plant, IISCO (SAIL)- Burnpur, Salem Steel Plant (SAIL), Vishweshwaraya Iron Steel Plant (VISL) - Bhadravati Karnataka, Vishakhapatnam Steel Plant.

(RINL) - Vizag etc. While Domestic Iron and Steel Plants in Private Sector are at Tata Steel Plant (erstwhile TISCO)- Kalinga Nagar Jamshedpur, Essar Steel Plant- Hazira, JSW Steel- Bellary, Jindal Steel and Power- Chattisgarh, Bhushan Steel Plant (Tata Steel BSL)- Angul.

9.1 Destination of Iron Ore for Exports:
List of major ports handling Iron Ore is as under:
There are 12 major ports in India, Kandla, Mumbai, JNPT, Marmugao, New Mangalore, Cochin, Chennai, Ennore, VO Chidambarnar, Visakhapatnam, Paradip and Kolkata (including Haldia).

9.2 Major iron ore exporting ports in India currently used for discharging imported cargoes:
Kandla and Hazira ports are located on west coast. Redi, Panaji, Mormugao, Karwar & Belekeri, New Mangalore ports are located on south west coast and are closer to mines resulting in low cost logistics. Haldia, Dhamara and Paradip ports are located on east coast and are also closer to mines resulting in low cost logistics. Vizag, Kakinada, Gangavaram, Krishnapatnam, Ennore, Chennai, Tuticorin ports are located on south eastern coast.

10.0 Types of Wagons used for transportation of Iron ore:
A BG Bogie Open wagon type `BOXN-HA' has been designed for carrying increased payload for bulk movement of Coal and Iron Ore over Indian Railways. The length and width of the wagon are same as those of existing BOXN wagon except the height of wagon, which is 3450 mm from rail level.

Types of Wagon and Specification used for transportation of Iron Ore are as under:

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Type of wagon</th>
<th>Tare Weight</th>
<th>Payload ( Permissible Carrying capacity)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>CC+4</td>
</tr>
<tr>
<td>1</td>
<td>BOXN</td>
<td>22.47t</td>
<td>58.81t</td>
</tr>
<tr>
<td>2</td>
<td>BOXN-HA</td>
<td>23.17t</td>
<td>65.23t</td>
</tr>
<tr>
<td>3</td>
<td>BOXN-HS</td>
<td>22.47t</td>
<td>58.81t</td>
</tr>
<tr>
<td>4</td>
<td>BOXN-HL</td>
<td>20.6t</td>
<td>71.0t</td>
</tr>
<tr>
<td>5</td>
<td>BOXN-EL</td>
<td>22.47t</td>
<td>75.73t</td>
</tr>
<tr>
<td>6</td>
<td>BOXN-LW</td>
<td>20.41t</td>
<td>60.87t</td>
</tr>
<tr>
<td>7</td>
<td>BOY</td>
<td>20.71t</td>
<td>71.49t</td>
</tr>
<tr>
<td>8</td>
<td>BOY-EL</td>
<td>20.71t</td>
<td>77.29t</td>
</tr>
<tr>
<td>9</td>
<td>BOBS</td>
<td>30.4t</td>
<td>61.2t</td>
</tr>
</tbody>
</table>

11.0 Capabilities & weaknesses:

(i) **Capabilities:**

Indian Railways are extremely competitive in high-volume commodities like coal and iron-ore that move from siding to siding. Coal and Ores are particularly amenable to mechanized handling at both loading and unloading ends, further reinforcing the cost advantage. In such cases, rail transportation cost comes very close to total logistics cost. In commodities like
cement, iron & steel, food grain etc, railways are competitive, but market characteristics (rake-size cargo may not always be required for all destinations), inadequate mechanization of terminals, unreliability of supply of covered-type rakes (which have multiple uses, at times get deployed for nationally urgent tasks like movement of fertilizer) and relatively inefficient turn-rounds of rolling stock compared to open-type rakes used for mineral cargos has held down railway’s share compared to the high potential.

Indian Railways have also an excellent operating culture to monitor use and movement of freight rakes in real-time. All major freight terminals have computerized Terminal Management Systems. Entire freight and passenger operation and movement of rakes/trains are captured though computerized systems and MIS is generated.

(ii) **Weaknesses:**

Capacity constraints on most of the busiest routes on Indian Railways do not allow any opportunity for realization of the full market potential and promising and delivering a predictable level of service.

Freight services are managed as a production function with excessive stress on productivity of assets rather than satisfaction of customers’ needs. Productivity of assets is undeniably a worthwhile objective to pursue and improved rake utilization and turn-round over the years have enabled IR to meet requirements of bulk customers. However, there is a need to strike a balance between optimizing asset utilization and fulfilling the customers’ requirements if the aim is to increase railway’s share of cargo handled. Freight Marketing Directorate needs regular detailed interaction with stakeholders to enhance for loading of Iron ore in the Ministry of Railways, marketing function in the sense of understanding and responding to customers’ needs is conspicuous by its absence.
For the most part, IR does not perceive or define the freight business in terms of delivering transport solutions or logistics solutions. Transport and logistics are gravitating towards supply chain management and railways have to change to fit in with the rapidly changing landscape increasingly dominated by specialist logistics providers who put premium on reliability, efficiency, speed of transit and total cost of the supply chain. Indian Railways’ customers have negative perceptions on its handling of demurrage (detention of rolling stock at terminals) and disposal of claims. (These issues can be handled through increased use of IT). Overdependence on a narrow basket of commodities has its risks. Railway does not take responsibility for last-mile connectivity from the nearest railhead to customers’ facilities nor does it incentivize customers to invest in such connectivities. It also does not incentivize customers to install rapid handling systems which can greatly improve the efficiencies of utilization of rolling stock.

12.0 Challenges from new modes of Transport

12.1 Slurry pipeline(Hydro) Transport of Iron Ore– working mechanism of Slurry(Hydro) Pipeline:

The concentrate of Iron Ore is mixed with water and then pumped over a long distance to a port where it can be shipped for further processing. At the end of the pipeline, the material is separated from the slurry in a filter press to remove the water. This water is usually subjected to a waste treatment process before disposal or return to the mine.

Slurry transport of Iron Ore concentrate through pipelines is an environment friendly method for Iron Ore transportation. In recent years, iron ore transportation through slurry pipeline has captured attention of not only Indian steelmakers but also of the Indian government.
Alternative modes of transporting iron ore, such as through slurry pipelines is an option in reducing the problems of congested transportation network in mining areas. It appears that iron ore transportation through slurry pipelines has many advantages and gradually more steelmakers may look at it as a convenient option for iron ore supply from mine heads. Operational cost in case of ore transportation through slurry pipelines is comparatively quite lesser than rail and road transportation. Thus, pipelines are an efficient mode of transporting iron ore over longer distances where transportation through rail and roads is much costlier. Apart from being an environment friendly means of easy, bulk and distant transportation of iron ore concentrate, slurry pipelines offer following other advantages like minimum social impact, insensitivity to surface conditions like storm etc and easy operation & maintenance.

The Indian government has set a target to increase India’s steel output to 300 million tonnes by 2025. According to the Infrastructure Study Report for 300 mnt Steel by 2025, to achieve such capacity by 2025-26, the processed iron ore requirement would be of the order of 450-490 mnt pa.

The proposed projected growth of steel industry would impart tremendous pressure on railways with respect to inward and outward traffic, loading and evacuation of raw materials & finished products. Major identified iron ore resources in India are located in environmentally fragile zones, far away from the steel plants and ports. Many potential sources such as Rowghat in Chhattisgarh, Chiria in Jharkhand, Gandhmardan, Daitari, Malangtoli region of Odisha, Bababudhan of Karnataka and Ongole region of Andhra Pradesh are still not adequately supported by railway infrastructure. Development of slurry transportation facilities may take place in these regions.

### 12.2 Present Scenario of Slurry Pipelines in India:
Presently there are only three operational Iron Ore Slurry Pipelines in India. The two slurry pipelines of Essar Steel are transporting iron ore to the steel maker to its two pellet plants. The 267 km slurry pipeline transports iron ore fines from Kirandul mines located in Chhattisgarh to its Vizag pellet plant of 8 MnT pa capacity. While the 2nd pipeline which is 253 kms long connects its beneficiation facility at Dabuna (Keonjhar) to its Paradeep based pellet plant with 12 MnT pa capacity. Apart from these two, BRPL’s slurry pipeline carries high grade iron ore concentrates in form of slurry which is transported to its pellet plant. Hydro transport of Iron Ore in KIOCL is functioning for a stretch of 67KM. In addition to this, many steel makers and pellet makers have their plans in place for setting up slurry pipelines. Also there are two ongoing slurry pipeline projects of NMDC and JSPL.

13.0 Suggestions for improving throughput of Iron Ore over IR:
Several Infrastructure constraints which are barriers to increased level of transportation exist which need to be addressed. Extreme focus on infrastructure is essential for Railways to become a significant freight handler.

1) Rail Transportation can become competitive by increasing Throughput, Line Capacity, Carrying Capacity of Wagons, Mines-Port Connectivity etc.

2) The lower axle load and lower payload to tare weight ratio restricts quantity hauled. Upgradation of rail wagons (higher axle load, better tare to pay-load by shifting away from carbon steel to stainless steel and aluminum/other light-weight bodies, increased payload wagons, better maintenance cycles, etc). Current axle load ranging from 20-23 tonnes which needs to increase to 25 tonnes axle load or more for hauling more quantity/rake. Current weight to payload ratio is 1:2.7.

3) Usage of lighter material like steel in place of iron for rolling stock could increase tare to payload ratio 1:3.4 thereby increasing quantity hauled/rake.

4) Improved infrastructure and rolling stock maintenance:
Designing/modifying tracks and rolling stock to higher axle load will increase throughput.

5) Suitable Freight discounts to parties will enable IR to compete with road traffic.

6) IR does not operate truly heavy-haul freight trains that bring high level of cost efficiency to freight operations. Compared to 20,000 tonnes-37,000 tons trains run in China, South Africa, Brazil and Australia, maximum gross load carried on trains in IR is 5400 tons. Both the carrying capacity of wagons and the length of trains would need to be increased to bring in heavy-haul operations.

7) Attainment of the market share goals would depend crucially on how fast and efficiently Indian Railways augments its network and carrying capacity where it is needed.
(i) Early commissioning of Eastern & Western dedicated freight corridors.

(ii) Segregation of freight and passenger corridors over trunk routes—more DFC’s should be planned and commissioned quickly.

(iii) Upgradation of speeds over both the freight and passenger corridors to match or exceed international benchmarks.

(iv) Construction of high-speed networks.

(v) Induction of modern and efficient rolling stock.

(vi) Use of modern track/signaling and information technology to optimize capacity utilization.

(8) Capacity augmentation projects must be taken up on route-wise consideration. The projects undertaken for the operational purposes must be justified on the basis of either operational necessity or economic return and prioritized according to the urgency. Funding for these projects should be ensured through increased allocation towards investment in DFCs, rolling stock and others like new lines, doubling and gauge conversions that add to carrying capacity.

(9) Service delivery: Indian Railways can use the capacity created and achieve the market share goals only if its services match the customers’ expectations and win their loyalty. For this, Indian Railways has to develop a deep understanding of the market, customers and devise solutions that anticipate and meet their needs in different segments. In the freight service, the bulk commodities and non-bulk commodities would demand different approaches.

(10) Marketing and business strategy: Before the investments bear fruit and adequate capacity is created, IR should consolidate its presence in the bulk cargo segments by providing or facilitating last-mile connectivities, ensuring adequate rolling stock and incentivizing its mechanized handling. Moreover, last mile connectivity on PPP should be developed in a time bound manner. It
would expand partnership with private sector to facilitate private freight terminals, special freight trains and third-party leasing of wagons. It would also work closely with state and city authorities to set up rail-based multi-modal logistics parks to attract increasing volumes of miscellaneous cargo to rail.

(11) Freight: The strategy for freight business would specifically cover running of Premium freight services with differential pricing, supply and timely Supply of rakes on demand. running of trains on schedule with guaranteed transit time, development of a few selected corridors for heavy-haul operations & movement of bulk commodities by private train operators.
(12) Following specifications need to be standardised in construction of DFCs
(i) Track fit for 25t axle load and upgradable to 32.5t axle load
(ii) 1 in 200 gradients with a maximum 2° curve
(iii) Fit for 100 kmph speeds
(iv) Long loops to permit long haul running (equivalent to 2 normal trains);
(v) Automatic Signalling

(13) At present, most of the freight transport is carried out in customer-owned private sidings. These are basically meant for exclusive use of major customers. There are also roughly 1300 good sheds owned and managed by railways. Of these, around 500 handle more than 10 rakes per month. Not only the railway good sheds with potential need to be augmented to handle at least one rake per day (with planned investment in lighting, circulating area, approach road and facilities for customers), private sector would need to be encouraged come forward to build new efficient terminals equipped with related logistics services like warehousing and inter-modal transfers etc.
(14) Short supply in rake availability has become a matter of concern. Availability of rakes should be improved. As majority of sponge
manufacturing units are facing the problem of receiving Iron Ore and dispatch of their products to different destinations in the country due to shortage of rakes which affects their competitiveness. This results into inventory buildup at posts leading to additional cost. The sponge iron manufacturers are forced to transport their cargo from far off ports like Gangavaram in Visakhapatnam by rail and transport cargo on road from Paradip port which escalates cost in addition to operational difficulty.

(15) Freight Trains need to be heavier, longer and faster in order to maximize the use of existing infrastructure. Heavy haul technology should be used wherever possible and new lines should be designed for it. It increases the capacity of trains about four-fold so that a train per day that results in transport of about one Mtpa (million tons per annum) using current technology would result in transport of 4 Mtpa.

Sources:

(i) CAG Audit Report No.14 of 2015 (Railways)
(ii) PAC/Performance Audit Report No.60 of 2016-17
(iii) RB circulars TCR/1078/2015/24 dated 09.05.2016 & 29.03.2019
(v) IR Year Book 2018-19
GOVERNMENT OF INDIA (BHARAT SARKAR)
MINISTRY OF RAILWAYS (RAIL MANTRALAYA)
(RAILWAY BOARD)

No. 2020/TT-III/32/4 New Delhi, Dated: 15-01-2021

The General Managers,
All Indian Railways.


Ref: Railway Board’s letter No. 2007/TT-III (S)/32/16
dated 29.10.2007

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The policy on ‘Programming of Iron Ore Traffic has been revised and
will be called ‘Iron-ore Policy, 2021’. The same is enclosed herewith for
information and necessary action. This policy will come into effect from
10.02.2021

Please acknowledge receipt.

(Anshu Malik)
Joint Director, Traffic Trans/F
Railway Board

Encl: As above

No. 2020/TT-III/32/4 New Delhi, Dated: 15-01-2021

Copy forwarded for information and necessary action to:

1. The PCOMs, All Indian Railways.
2. The PCCMs, All Indian Railways
3. CAO/FOIS/CRIS, Chanakyapuri, New Delhi.
4. Director General, National Academy of Indian Railways, Vadodara.
5. The Director (Rail Movement), Eastern Railway House, 17 N.S. Road,
Kolkata.

(Anshu Malik)
Joint Director, Traffic Trans/F
Railway Board

Encl: As above

Copy to:
AM(T), AM(C), EDTT(Coal), EDTT(F), EDTC(R), ED(FM).
Policy on programming of Iron-ore traffic, 2021

Introduction:

A policy regarding Iron Ore Programming was issued by Railway Board on 29.10.2007. With the passage of time and changing dynamics of iron and steel scenario in the Country many clarifications/modifications to 2007 policy were issued over the years. Over last few years several developments have taken place like withdrawal of dual freight policy, introduction of GST, duplication of scrutiny of large number of documents by EDRM office which is already done by other Govt Agencies, dispensing with the classification of different types of steel producers as integrated, mini etc by Ministry of Steel. Demands and representations were also being received from trade and Zonal Railways to review the existing policy. Besides, Steel industry works in a very competitive environment and production of steel is critically dependent on transportation of iron and other raw materials. Accordingly, after examining all the issues and with the aim to promote domestic manufacture of steel under Atmanirbhar Bharat Scheme and to maximize iron-ore loading, Iron-ore Policy has been revised with an attempt to attune the policy on iron ore to the present day needs. It is intended to set clear guidelines on how to fully meet the requirement of customers by leveraging infrastructure facilities available at loading and unloading ends to the fullest. The aim of policy is also to re-assure customers that Railways is fully committed to meet the complete requirement of transportation of iron ore customers provided adequate infrastructure is available/created at both loading and unloading ends. On its part, Railways itself will continue to strive to improve its public sidings at loading/unloading end and work closely with Ports to make the unloading efficient and to enhance capacity at Ports. Railways will also work with the customers to create adequate infrastructure by way of Private sidings and PFTs.

1. Main Policy Guidelines

   a) Existing categorisation on the basis of customer’s profile into CBT/Non CBT customers henceforth is being done away with. Old and new plants will be treated similarly as far as allotment/loading of rakes is concerned.

   b) Priority of movement of Iron Ore will be on the basis of availability of Railway infrastructure developed by the customer for loading/unloading and the nature of movement between various types of sidings with a view to incentivising development of railway infrastructure of iron ore such that it is realigned in favour of customers having infrastructure to handle loading/unloading in their private
sidings. Assured allotment in supply of wagons is therefore to be given to such customers who have invested in private terminals.

c) Categories of Priority: Customers owning steel /Pig Iron/Sponge Iron/pellet/sinter plants can be categorized into three groups such as C⁺ customers, C Customers and C⁻ customers. Customers having their own private sidings at both loading as well as unloading ends shall be classified as C⁺ category. Customers with private siding at either loading or unloading end shall be classified into C category. Other Customers without any private siding of their own, who totally rely on public goodsheds/sidings, shall be grouped into C⁻category. The Preferential Traffic schedule (PTS) shall be accordingly revised.

<table>
<thead>
<tr>
<th>Traffic Pattern</th>
<th>Priority to be accorded</th>
</tr>
</thead>
<tbody>
<tr>
<td>When iron-ore traffic is loaded from customer's own private siding to his own private siding at unloading end for domestic manufacture.</td>
<td>C⁺</td>
</tr>
<tr>
<td>When iron-ore traffic is booked from one end to the other and customer is having his own private siding at one end for domestic manufacture.</td>
<td>C⁻</td>
</tr>
<tr>
<td>When manufacturer moves iron ore traffic from goods shed to other goods shed for domestic manufacture.</td>
<td>C⁻</td>
</tr>
<tr>
<td>Iron-ore traffic not eligible under priority C⁺ or priority C or priority C⁻. This will include all export traffic.</td>
<td>D</td>
</tr>
</tbody>
</table>

Note:
- Priority C⁺ will get preference over priority C which will get preference over priority C⁻.
- Co-users of private sidings cannot be treated as owners of such terminals and will not get preference admissible to owners of Private sidings.
- Common user terminals in ports will be treated as Good Shed.

d) Customers desirous of moving traffic under any of above mentioned priorities will approach Zonal Railways for updating information in RAS such as name of manufacturer, consignor name, consignee name, siding name and code, PFT name code etc. RAS will generate preferences i.e., priority C⁺, C, C⁻ and D based on the logic and information fed into the system within the framework outlined here.

e) Export traffic will be booked under priority D. To differentiate rail-cum-sea traffic used for domestic steel making from export traffic, the former should be
accompanied by a self-declaration that such traffic is meant for domestic consumption and the consignor will be held responsible for any wrong declaration, if any, submitted to Railways.

f) Customers are free to choose the loading/unloading points or combinations thereof for moving their traffic as per need. No permission is required to be obtained for choosing such combinations. The priority will automatically apply as per the classification outlined at 1(c) above. Any type of customer can move traffic under priority D as per his requirement.

g) Pellet and sinter traffic will move under priority 'D'.

2. General Policy Guidelines:

a) Customers wanting to move their traffic under any priorities will ensure that they have procured, transported and utilized materials as per rules and regulations of Central and State Governments. For lapses, customers will be liable to be taken up as per the law of land and railway will stand indemnified for any such lapses committed by customers. Apart from this zonal railway (PCOM) will reserve the right to initiate suitable penal action including black listing for at least 3 months.

b) The customer is free to place indents for contractual traffic (GPWIS) as per their requirement.

c) Customers will be allowed to have the facility of rake diversion, rebooking and short of destination delivery with approval from Railway Board subject to extant commercial regulations/formalities being complied with.

d) A manufacturing plant is permitted to dispatch low grade fines or iron ore rejects generated during the process of manufacturing under priority D to any destination. Self-declaration will have to be submitted that such movement does not violate in any manner the law of the land and Railway will not be held responsible for any wrong doing by the customer.

e) The registration for iron ore/pellet indents should be enhanced to Rs.2 lakhs to ensure that inflated indents are minimized.

3. The revised iron Ore Policy will be called 'Iron-ore Policy 2021'.

4. CRIS should undertake updation of the new iron-ore in RAS accordingly.

5. This new Iron Ore Policy will supersede all existing guidelines pertaining to the movement of iron ore rakes.

6. This will take effect from 10.02.2021.

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(File No.2020/TT-III/32/4)
List of the Iron Ore Mines in India (Owner & Mines):

Central Zone/ Chattisgarh :
1. M/s. National Mineral Development Corporation Ltd. – Bailadila Iron Ore Project

Western Zone/Goa & Maharashtra :
1. M/s. Sesa Goa Ltd. – Codli Iron Ore Mines, Sonshi Gaval Iron Ore Mine
2. M/s. Dempo Mining Corporation Ltd. – Bicholim Iron Ore Mines
3. M/s. Chowgule & Co. Ltd. – Costi & Tundu Iron Ore Mines
5. M/s. Sociedade De Fomento Industries Pvt. Ltd. – Shigao Iron Ore Mines
7. M/s. Salgaonkar Mining India Ltd. – Smi Tatodi Iron Ore Mines
11. M/s. Maharastra State Mining Corporation Ltd. – Khuisipar Iron Ore Mines

Southern Zone/Karnataka :
1. M/s. Kudremukh Iron Ore Co. Ltd. – Kudremukh Iron Ore Mines
5. M/s. Sandur Manganese & Iron Ore Ltd. – Deogiri Iron Ore Mines
9. M/s. Dalmia Cement (Bharath) Pvt. Ltd. – Bharatarayanaharu Iron Ore Mines
10. M/s. Visvesvaraya Iron & Steel Co. Ltd., Steel Authority of India Ltd. – Kemmangundi Iron Ore Mines
12. M/s. P Balasubba Setty & Sons Pvt. Ltd. – Karadikolla Sureeh Iron Ore Mines,

Eastern Zone/Jharkhand & Odisha:
1. M/s. TATA Iron & Steel Company Ltd. – Noamundi Iron Ore Mines, Joda East Iron Ore Mines
4. M/s. Essel Mining & Industries Ltd. – Jilling Langolata Iron Ore & Manganese Mines,
5. Kasia Iron Ore Mines
7. M/s. Serajuddin & Co. – Balda Iron Ore Mines