

# Vision of Indian Railways towards Efficient Intra-Regional Connectivity Linking to Country's Economic Growth Strategy

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# India



|                    |  |  |
|--------------------|--|--|
|                    |  |  |
| Area               |  | 3.2 million sq. Km.  |
| Stretch            |  | 3,214 Kilometers from north to south<br>2,933 Kilometers from east to west |
| Land Frontier      |  | 15,200 km  |
| Coastline          |  | 7516.5 km  |
| Population         |  | 1.2 billion (Census, 2011)   |
| Population density |  | 382 person per square kilometer  |

# The Indian Economy



- **Gross Domestic Production**
  - Nominal GDP - \$1.947 Trillion- 9<sup>th</sup> largest
  - PPP- \$4.7 Trillion -3<sup>rd</sup> largest
- **Indian Economy's Growth Rate**
  - 2004-10 - 8.40%, touched double digit in 2<sup>nd</sup> qtr. of 2006-07.
  - Expected in coming years- 8%
- **Major Growth Engines of Indian Economy**
  - Service sector- 54%
  - Agriculture -28%
  - Industry-18%

# GDP-India



|                                      | 2007-08   | 2008-09   | 2009-10   | 2010-11   | 2011-12   |
|--------------------------------------|-----------|-----------|-----------|-----------|-----------|
| GDP at Factor cost<br>(crore Rupees) | 3,896,636 | 4,158,676 | 4,516,071 | 4,937,006 | 5,243,582 |
| Growth rate(%)                       | 9.3       | 6.7       | 8.6       | 9.3       | 6.2       |

# GDP-Rail



|                        | 2007-08 | 2008-09 | 2009-10 | 2010-11 | 2011-12 |
|------------------------|---------|---------|---------|---------|---------|
| Rail GDP (crore)       | 38,235  | 41,161  | 44,763  | 47,404  | 50,945  |
| Growth in Rail GDP (%) | 9.8     | 7.7     | 8.8     | 5.9     | 7.5     |

# Why Rail?



- 75% lesser carbon emissions than Road
- Safer
- Efficient Land Use



# IR- Key Facts

- Network of 64000 route-kms- 3rd Largest
- Integrated markets and connected communities over length and breadth of India
- Carries about 7000 million passenger per year
- 900 million tonnes of freight traffic annually
- Third largest railway network in size
- Topmost passenger carrier (in PKms)
- Fourth largest rail freight carrier
- Carries 35% of total freight traffic (tonne-kms)
- 70% share of core infrastructure sectors (coal, power, steel, cement, fertilizer etc.)
- 1.4 million employees

# IR- Key Facts (contd.)



- Total number of stations – 7131
- Number of trains run daily – 11000 [7000 passenger]
- Passenger's carried daily – 14.84 million
- Interchange points with other modes of transport – At all stations with road
- Number of Computerised passenger reservation centres - 1180

# IR-International Comparison



vis-à-vis others: International comparison

(All figures pertain to the year 2008)

|                | Million traffic units<br>(PKM + NTKM) per<br>employee | Route kms per<br>million population | Route kms per<br>square kilometer<br>area |
|----------------|---|-------------------------------------|---|
| <b>USA</b>     | 15.3  | 747.4                               | <b>23.6</b>                               |
| <b>China</b>   | 1.6   | 45.5                                | <b>6.4</b>                                |
| <b>Germany</b> | 0.7   | 410.9                               | <b>94.9</b>                               |
| <b>France</b>  | 2.1   | 466.5                               | <b>54.2</b>                               |
| <b>Russia</b>  | 2.6   | 598.1                               | <b>4.9</b>                                |
| <b>India</b>   | 0.9   | 55.2                                | <b>19.3</b>                               |
| <b>Japan</b>   | <b>2.2</b>  | <b>157.5</b>                        | <b>53.0</b>                               |

# IR-Freight



| Commodity Group                          | 2008-09       | 2009-10       | 2010-11       | 2011-12       |              |
|--|---------------|---------------|---------------|---------------|--------------|
|  | in MT         | in MT         | in MT         | in MT         | in %age      |
| 1. Coal                                  | 369.63        | 369.15        | 420.37        | 455.81        | 47.04        |
| 2. Foodgrains                            | 35.51         | 38.96         | 43.45         | 46.4          | 4.79         |
| 3. Iron & Steel                          | 28.58         | 31.85         | 32.82         | 35.15         | 3.63         |
| 4. Iron ore                              | 130.58        | 132.74        | 118.46        | 104.7         | 10.8         |
| 5. Cement                                | 86.24         | 93.15         | 99.08         | 107.66        | 11.11        |
| 6.POL (Mineral oils)                     | 38.08         | 38.88         | 39.29         | 39.77         | 4.1          |
| 7. Fertilizers (Chemical manures)        | 41.35         | 43.68         | 48.22         | 52.69         | 5.44         |
| 8. Limestone & Dolomite                  | 13.34         | 14.77         | 16.37         | 17.66         | 1.82         |
| 9. Stone(incl. gypsum) other than marble | 10.48         | 11.44         | 11.66         | 12.96         | 1.34         |
| 10. Salt                                 | 4.83          | 4.76          | 4.64          | 5.14          | 0.53         |
| 11. Sugar                                | 4.36          | 3.97          | 3.76          | 4.56          | 0.47         |
| <b>Total</b>                             | <b>762.98</b> | <b>810.08</b> | <b>838.12</b> | <b>882.5</b>  | <b>91.07</b> |
| 12. Commodities other than above         | 70.41         | 77.71         | 83.61         | 86.55         | 8.93         |
| <b>Grand Total</b>                       | <b>833.39</b> | <b>887.79</b> | <b>921.73</b> | <b>969.05</b> | <b>100</b>   |

# Freight- Efficiency Indices



|   |          | 2008-09 | 2009-10 | 2010-11  | 2011-12 |
|---|----------|---------|---------|----------|---------|
| Net tonne kilometers per wagon per day@ |          | 8,687   | 9,222   | 9,247    | 9,261   |
| Wagon Kilometers per wagon per day      |          | 254     | 256     | 262      | 265     |
| Net tonne kilometers per engine hour    | Diesel   | 14,357  | 16,465  | 16420*   | 15,889  |
|   | Electric | 23,025  | 24,672  | 24436    | 24,048  |
| Net tonne kilometers per engine day     | Diesel   | 270,912 | 285,008 | 301,626* | 300,281 |
|   | Electric | 425,329 | 443,386 | 450,282* | 429,193 |

# IR-Passenger



|         |                       |                 | (in millions)  |
|---------|-----------------------|-----------------|----------------|
| Year    | Suburban<br>(Classes) | Non<br>Suburban | Grand<br>Total |
| 1950-51 | 412                   | 872             | 1,284          |
| 1960-61 | 680                   | 914             | 1,594          |
| 1970-71 | 1,219                 | 1,212           | 2,431          |
| 1980-81 | 2,000                 | 1,613           | 3,613          |
| 1990-91 | 2,259                 | 1,599           | 3,858          |
| 2000-01 | 2,861                 | 1,972           | 4,833          |
| 2008-09 | 3,802                 | 3,118           | 6,920          |
| 2009-10 | 3,876                 | 3,370           | 7,246          |
| 2010-11 | 4,061                 | 3,590           | 7,651          |
| 2011-12 | 4,377                 | 3,847           | 8,224          |

# Safety



| Year    | Collisions | Derailments | Level crossing accidents | Fire in Train | Misc. accidents | Total | Train accidents per million train Kms. |
|---------|------------|-------------|--------------------------|---------------|-----------------|-------|--|
| 2007-08 | 7          | 100         | 77                       | 5             | 4               | 193   | 0.21                                   |
| 2008-09 | 13         | 85          | 69                       | 3             | 7               | 177   | 0.19                                   |
| 2009-10 | 9          | 80          | 70                       | 2             | 4               | 165   | 0.17                                   |
| 2010-11 | 5          | 78          | 53                       | 2             | 1               | 139   | 0.14                                   |
| 2011-12 | 9          | 55          | 61                       | 4             | 2               | 131   | 0.12                                   |



# Vision 2020 of IR

## Vision statement

Indian Railways shall provide efficient, affordable, customer-focused and environmentally sustainable integrated transportation solutions. It shall be a vehicle of inclusive growth, connecting regions, communities, ports and centers of industry, commerce, tourism and pilgrimage across the country. The reach and access of its services will be continuously expanded and improved by its integrated team of committed, empowered and satisfied employees and by use of cutting-edge technology.



# Vision 2020

- **Leapfrogging to a higher growth trajectory**
- **Network Expansion** 
- **Capacity Creation**
- **Zero Tolerance for Accidents**
- **Reducing Indian Railways "Carbon Footprint"**
- **Bold and Innovative Measures**

# Goals



## Summary of broad goals

| Category                                     | Target      |
|--|-------------|
| Doubling (including DFC)                     | 12,000kms   |
| Gauge conversion                             | 12,000kms   |
| New line                                     | 25,000kms   |
| Electrification                              | 14,000kms   |
| Procurement of wagons                        | 289136      |
| Procurement of diesel locomotives            | 5334        |
| Procurement of electric locomotives          | 4281        |
| Procurement of passenger coaches             | 50,880      |
| World-class stations<br>(Bid-out/concession) | 50 stations |
| High-speed Corridors                         | 2000 kms    |

# Projected Freight Loading



## Summary of projected freight loading by IR by 2020

| S.No. | Commodity                     | Originating loading (MT) |
|-------|-------------------------------|--------------------------|
| 1.    | Coal                          | 700                      |
| 2.    | Raw Material for Steel Plants | 39                       |
| 3     | Pig Iron & Finished Steel     | 108                      |
| 4     | Cement                        | 250                      |
| 5     | Iron Ore (Exports)            | 75                       |
| 6     | Iron Ore (Domestic)           | 150                      |
| 7     | Food grains                   | 50                       |
| 8     | Fertilizers                   | 70                       |
| 9     | POL                           | 48                       |
| 10.   | Containers                    | 210                      |
| 11.   | Others                        | 150                      |
| 12.   | Total                         | 1850                     |
|       |                               | (1203 billion NTKMs)     |



# Strategies- Freight

- Proliferation of 25 t axle load running for iron ore
- Raising the current axle load regime from 22.82 tonnes to 23.5 tonnes
- Proliferation of Long Haul
- Use of GPS technology and RFID technology for tracking purposes.
- Use of EOTT and Distributed Power Systems
- Run “**HEAVIER, LONGER, FASTER**” trains

# Projected Growth-Passenger



## Projected growth of passenger traffic

| Year    | Passenger (Million) | PKMs (Billion) |
|---------|---------------------|----------------|
| 2011-12 | 8200                | 1100           |
| 2019-20 | 15180               | 2360           |

# Strategies- Passenger



- Enhancing accommodation in trains.
- Enhancing speed of trains.
- Introduction of tailored services.
- Development of alternative terminals.
- Expeditious operationalization of the Dedicated Freight Corridor



# ROAD MAP FOR DEVELOPING HIGH SPEED RAIL CORRIDORS

Ministry of Railways has selected following six corridors for conducting pre-feasibility studies:

1. Delhi-Chandigarh-Amritsar (450 km approx.)
2. Pune-Mumbai-Ahmedabad (650 km approx.)
3. Hyderabad-Dornakal-Vijaywada-Chennai (664 km approx.)
4. Chennai-Bangalore-Coimbatore-Ernakulam (649 km approx.)
5. Howrah-Haldia (135 km approx.)
6. Delhi -Agra-Lucknow -Varanasi - Patna (991 km approx. )

# Key Challenges



- **Resource Mobilization**
- **Capacity Constraints**
- **Reliability of Assets**
- **Safety**
- **Slow Speeds**
- **Door to Door Handicap**
- **Project Execution**
- **Technological Up gradation**
- **Improving Carrying Capacity**
- **Supply constraints and recovery on Passenger Business**
- **Up gradation of Quality of Services**



# Green Initiatives

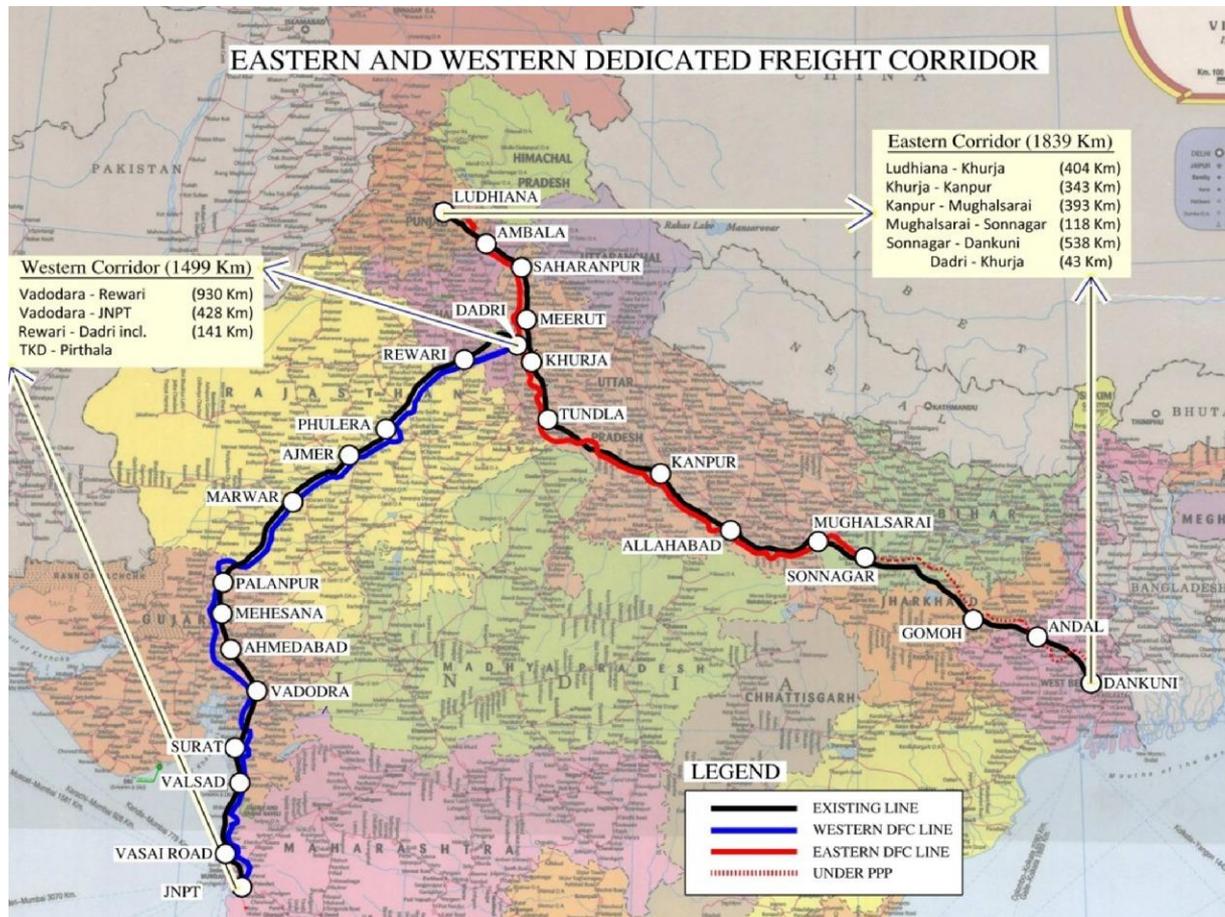
- Alternative fuels
- Bio-toilets
- Non-conventional energy sources
- Energy productivity improvement





Thank You

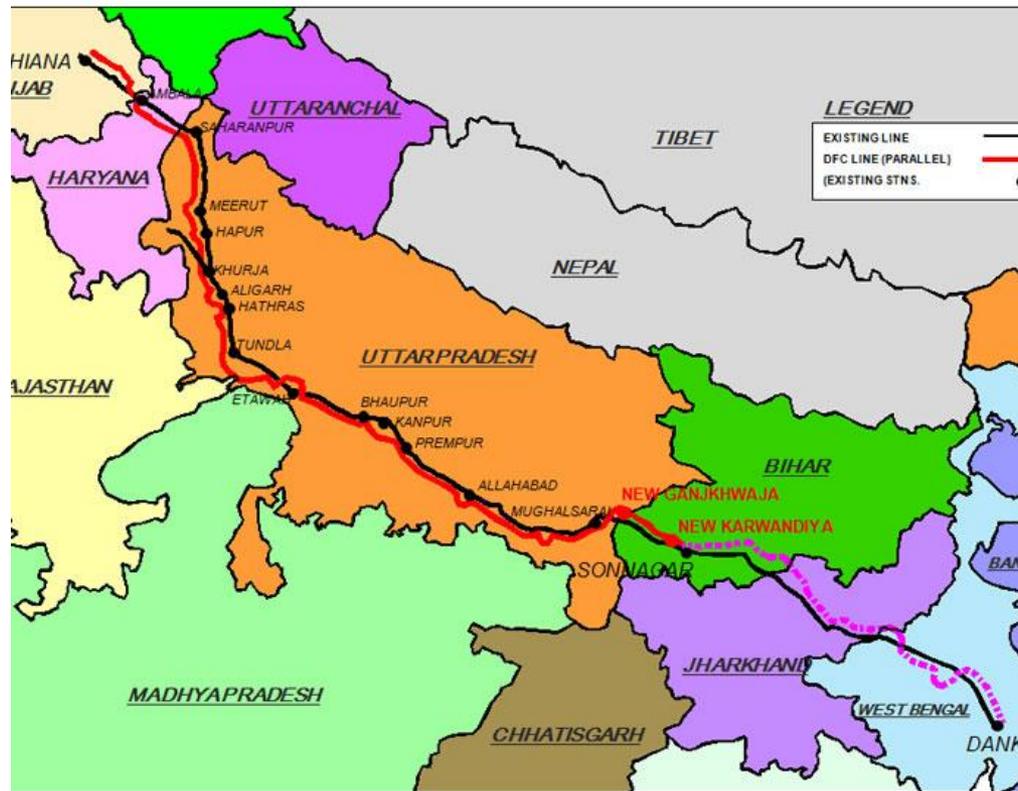
# Dedicated Freight Corridors



# Dedicated Freight Corridor- Eastern



डेडीकेटेड फ्रेट कारीडोर  
DEDICATED FREIGHT CORRIDORS  
(EASTERN)



# Dedicated Freight Corridor- Western



डेडीकेटेड फ्रेट कारीडोर  
DEDICATED FREIGHT CORRIDOR  
(WESTERN)



# Konkan Railway



# Other Expansions



- Jammu and Kashmir
- North Eastern Region

