Indian Railways

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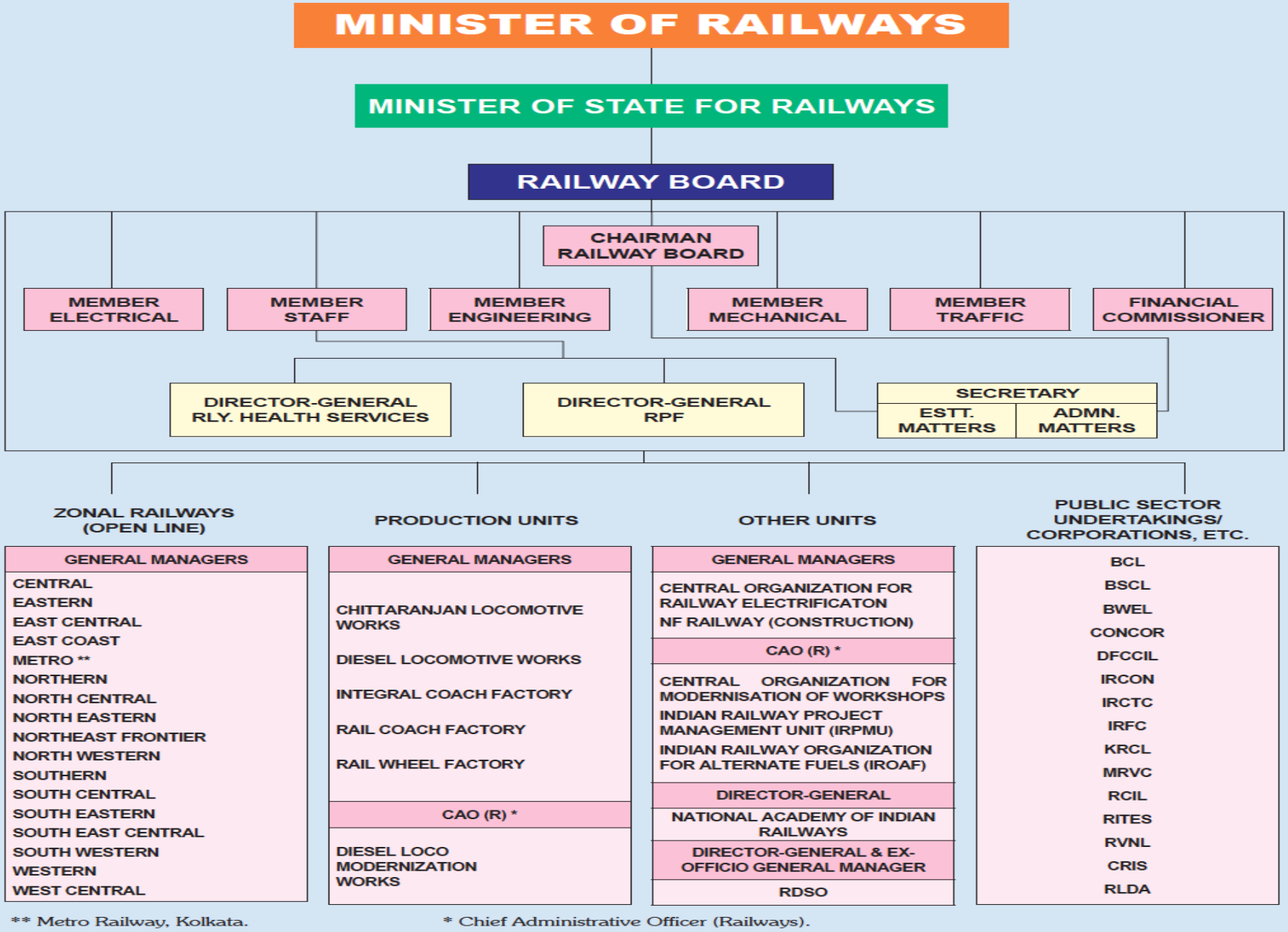
Indian Railways: Role

- Cost effective Bulk Transport
- Less land use and less energy
- Integrate Fragmented Markets
- Cheap transport for masses across the country
- Socio Economic Development
- National Integration
- Strategic

Indian Railways: Role

- Lifeline of the nation carrying 40% of freight and 20% of passenger traffic of the country
- Carried 1054 mt of freight traffic and transported more than 8 billion originating passengers in 2013-14
- 12,000 + trains per day including 9,500 + passenger trains
- Carried 66% of all coal, 82% all fertilizers, 60% of all iron-ore, 45% of all cement, 22% of all POL and 17% of all Food grains transported in the country.

ORGANIZATION STRUCTURE



** Metro Railway, Kolkata.

* Chief Administrative Officer (Railways).

Organisational Structure

3 tier Management

- Apex –**Chairman and Members,** Railway board
- Middle -17 zones headed by **General Managers**
- Lower -68 divisions headed by **Division Railway Managers**

Network and Resources*

- Multi-gauge with Broad gauge (1676mm) 86%, Metre Gauge 11%, and Narrow Gauge 3%
- 65,426 Route Km
- 30,884 Electrified Route Km(47% of total route km)
- 7,172 Stations
- 9,956 Locomotives
- 244,731 wagons & 63,870 passenger cars including EMU's
- 3 Passenger Car Manufacturing Units, 2 Locomotive Manufacturing Units, 2 Wheel and Axle Plant and 1 Locomotive Rebuilding Plant
- 55 Workshops for Repair of Rolling Stock and Manufacture of Parts
- 125 hospitals & 586 Health Units (Includes 5 specialty hospitals)
- 1.307 Million Employees

* as on 1.4.2013

Network and Resources

Production Units

- **Integral Coach Factory**, Perambur, (1600 coaches per annum)
- **Rail Coach Factory**, Kapurthala, (1600 coaches per annum)
- **Diesel Locomotive Works**, Varanasi, (300 locomotives per annum)
- **Chittaranjan Locomotive Works**, Chittaranjan, (275 locomotives per annum)
- **Rail Wheel Factory**, Yelahanka (190,000 wheel discs, 100,000 axles per annum) and,
- **Diesel Loco Modernisation Workshop**, Patiala. (Rebuilding of 50 locomotives and Manufacturing 80 locomotives per annum)

Network and Resources

Central Organisations

- Central Organisation for Railway Electrification, Allahabad
- Central Organisation for Modernisation of Workshop, New Delhi
- Research, Design and Standards Orgnisation, Lucknow

Network and Resources

Public Sector Units/Corporations/Registered Societies

1. Bharat Wagon and Engineering Company Ltd.
2. Centre for Rail Information Systems.
3. Container Corporation of India Ltd.,
4. Dedicated Freight Corridor Corporation of India Ltd.,
5. Indian Railway Catering and Tourism Corporation Ltd.,
6. Indian Railway Finance Corporation Ltd.,
7. IRCON International Limited,
8. Konkan Railway Corporation,
9. Kutch Railway Corporation Ltd.
10. Mumbai Rail Vikas Corporation,
11. Pipavav Railway Corporation Ltd.,
12. Rail India Technical and Economic Services Ltd.,
13. Rail Land Development Authority,
14. Rail Vikas Nigam Ltd.,
15. Railtel Corporation of India Ltd.,

Trend of Freight Traffic

Year	Loading (MT)	NTKMs (Billion)	Lead
2010-11	**922**	**626**	679
2011-12	**970**	**640**	660
2012-13	**1010**	**642**	636
2013-14	**1054**		
CAGR (10YRS.)	***7.01%***	***6.74%***	

Trend in Passenger Traffic

	No. of Passengers (Million)			
Year	**Suburban**	**Non - Suburban**	**Total**	**YOY %**
2010-11	4220	3590	7809	7.77%
2011-12	4383	3923	8306	6.37%
2012-13	4489	4012	8501	2.34%
2013-14	4770	4319	9089	
CAGR (10 YRS.)	3.87%	6.48%	5.01%	

State-Wise Route kms

Uttar Pradesh	8546
Rajasthan	5838
Maharashtra	5528
Gujarat	5283
Andhra Pradesh	5185
Madhya Pradesh	4903
Tamil Nadu	4171
West Bengal	3911
Bihar	3330
Karnataka	3002
Assam	2284
Orissa	2282
Punjab	2134
Jharkhand	1955
Haryana	1595
Chhattisgarh	1186

Kerala	1050
Uttaranchal	345
Himachal Pradesh	285
Delhi	204
Jammu & Kashmir	138
Goa	69
Tripura	64
Chandigarh	16
Nagaland	13
Pondicherry	11
Mizoram	2
Arunachal Pradesh	1
Manipur	1
Meghalaya	0
Sikkim	0

Reach - Route Kms. Per 100,000 Population

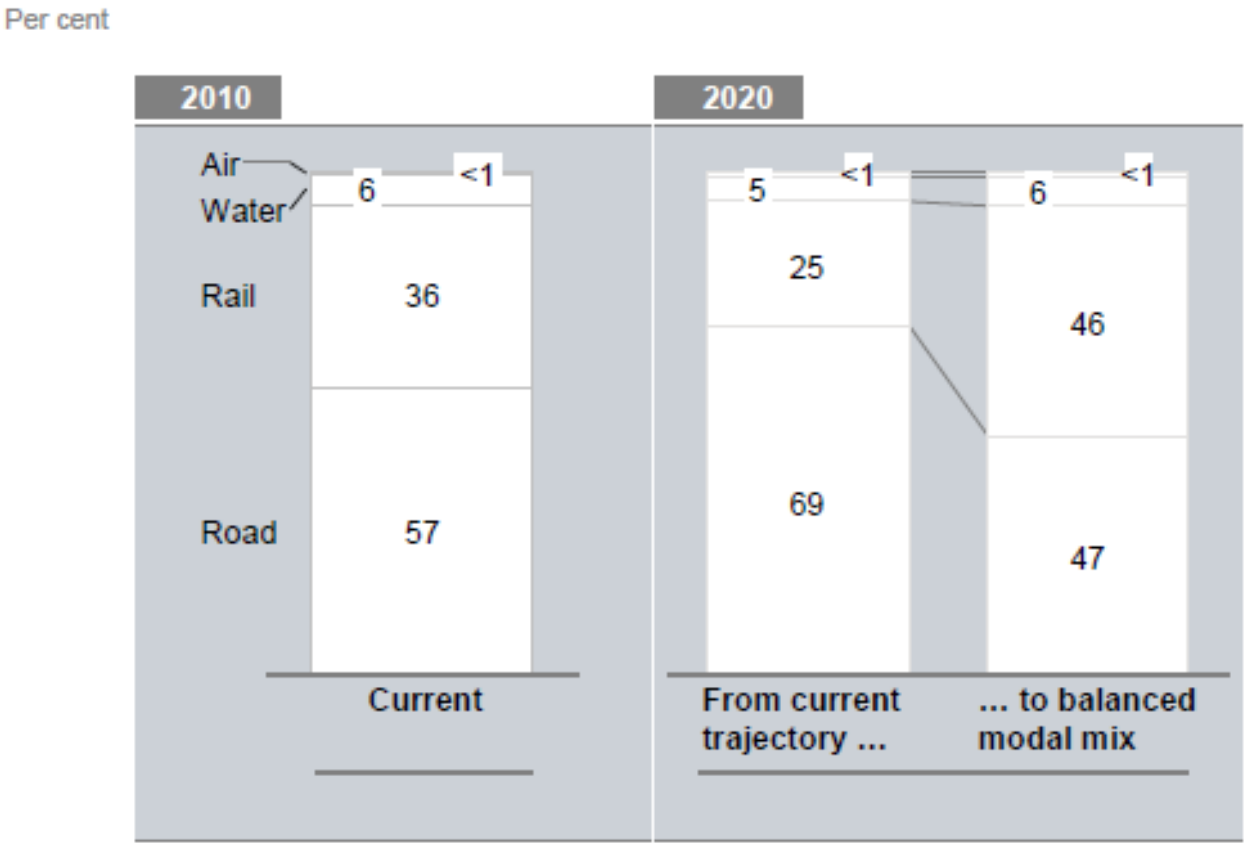
Gujarat	10.5
Rajasthan	10.49
Assam	9.45
Punjab	8.65
Madhya Pradesh	7.93
Haryana	7.34
Andhra Pradesh	6.78
Tamil Nadu	6.74
Jharkhand	6.68
Orissa	6.29
Chhattisgarh	5.68
Maharashtra	5.64
Karnataka	5.64
Uttar Pradesh	5.16
Goa	5.16
West Bengal	4.56
Himachal Pradesh	4.42

Uttranchal	4.2
Bihar	4.15
Kerala	3.3
Delhi	1.45
Tripura	1.4
Pondicherry	1.14
Jammu & Kashmir	0.95
Chandigarh	0.86
Nagaland	0.65
Mizoram	0.17
Arunachal Pradesh	0.12
Manipur	0.06
Meghalaya	0
Sikkim	0
Andaman & Nicobar Islands	0

Network and Resources- Constraints

- IR's main trunk routes viz., the GQ and the diagonals which form 16% of the network but carry 58% of the freight traffic and 52% of the passenger traffic are badly saturated
- Since 1950-51, freight output and passenger output have gone up by 11 times and 9 times while route kms have gone up by only 1.2 times
- Common infrastructure for passenger and freight traffic hampering resource optimisation
- Multigauge network causing bottlenecks and losses
- Inadequate capacity for production of required number of electric locomotives, diesel locomotives and passenger coaches

Investment in Railways needs to go up for the desired modal mix.



Source: Transforming the Nation's Logistics Infrastructure, McKinsey and Company 2010.

Initiatives/ Plans

- Segregating freight traffic from passenger traffic through construction of Dedicated Freight Corridors

- Setting up of
  - New Rail Coach Factory at Rae Bareilly & Kancharapara(1500 coaches pa)
  - New Diesel Locomotive Factory at Marhowra (150 locos pa)
  - New Electric Locomotive Factory at Madhepura (120 locos pa)
  - New Wheel Factory at Chapra (100,000 wheel sets pa)

- Upgradation of feeder routes of DFC and Mineral routes for 25t axle load

Need For Dedicated Freight Corridor

"Clogged Rail Lines Slow India's Development"

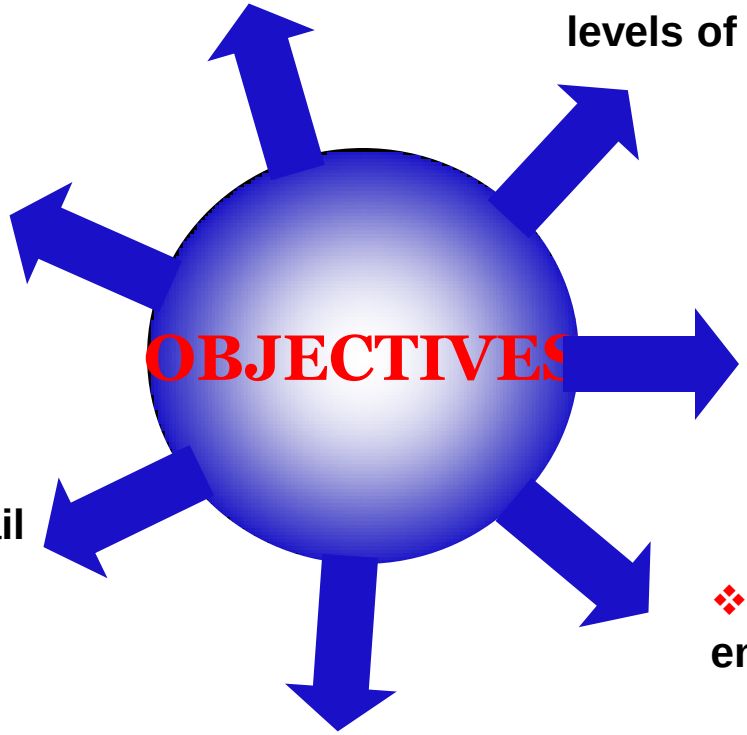
New York Times

June 15, 2010

	Distance	Travel Time (Freight)
Singapore – Mumbai Port	2400 Nautical Miles	4 – 5 days
Mumbai Port - Delhi	870 Miles	More than 2 Weeks

CONCEPT PLAN OF DEDICATED FREIGHT CORRIDOR NETWORK

Objectives



- Increase rail share in freight market
- Create additional rail infrastructure to cater to high levels of transport demand
- IT packaging of Freight Services
- Reduce unit cost of transportation resulting in market competitive rail tariff for customer
- Create rail connectivity to bulk customers not using rail network through PPP model
- Provide seamless end to end solution to the customers
- Segregate freight infrastructure for focused approach on both passenger and freight business of Railways

Basic Design Features

	Indian Railway	DFC Routes
Traction	Electrical (25 KV)	Electrical (2x25 KV)
Station Spacing	7-10 Km	40 Km (Approx.)
Signaling	Absolute /Automatic with 1 Km spacing	Automatic with 2 Km spacing
Communication	Emergency Sockets/ Mobile Train Radio	Mobile Train Radio

Traffic Projections

- Coal Traffic on the Eastern Corridors will go up from 36.34 million tones in 2007-08 to 97.61 million tones in 2021–22.

- Iron and Steel Traffic on Eastern Corridor likely to go from 4.86 million tones in 2007-08 to 12.78 million tones in 2021-22.

- Cement Traffic for Northern Part of India may go from 3.39 million tones in 2007-08 to 10.54 million tones in 2021-22.

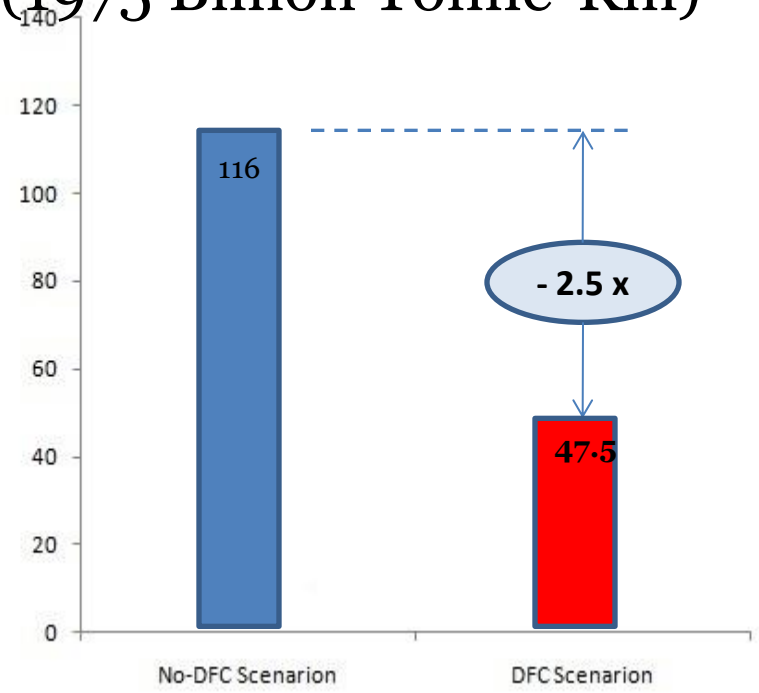
Traffic Projections

- Non-Containerized traffic on the Western Corridor slated to go up from 19 million tones in 2007-08 to 70 million tones in 2021-22
- Container traffic on Western Corridor likely to go from 17.23 million tones in 2007-08 to 91.42 million tones in 2021-22
- Imported Coal for Power Houses of Western and Northern India
- Automobile exports to touch 2 million per annum through Western Ports.

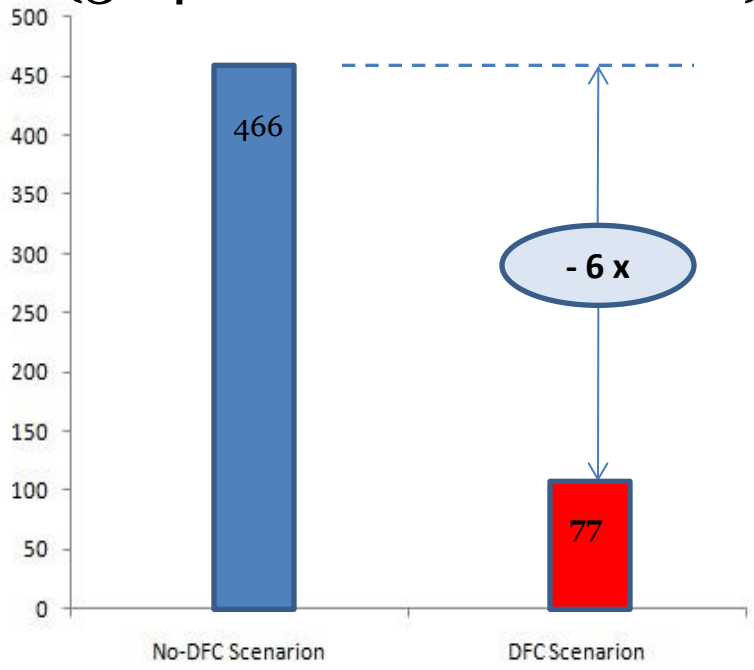
Carbon Footprints

Cumulative GHG emissions over 30 years

Eastern Corridor
(1975 Billion Tonne-Km)



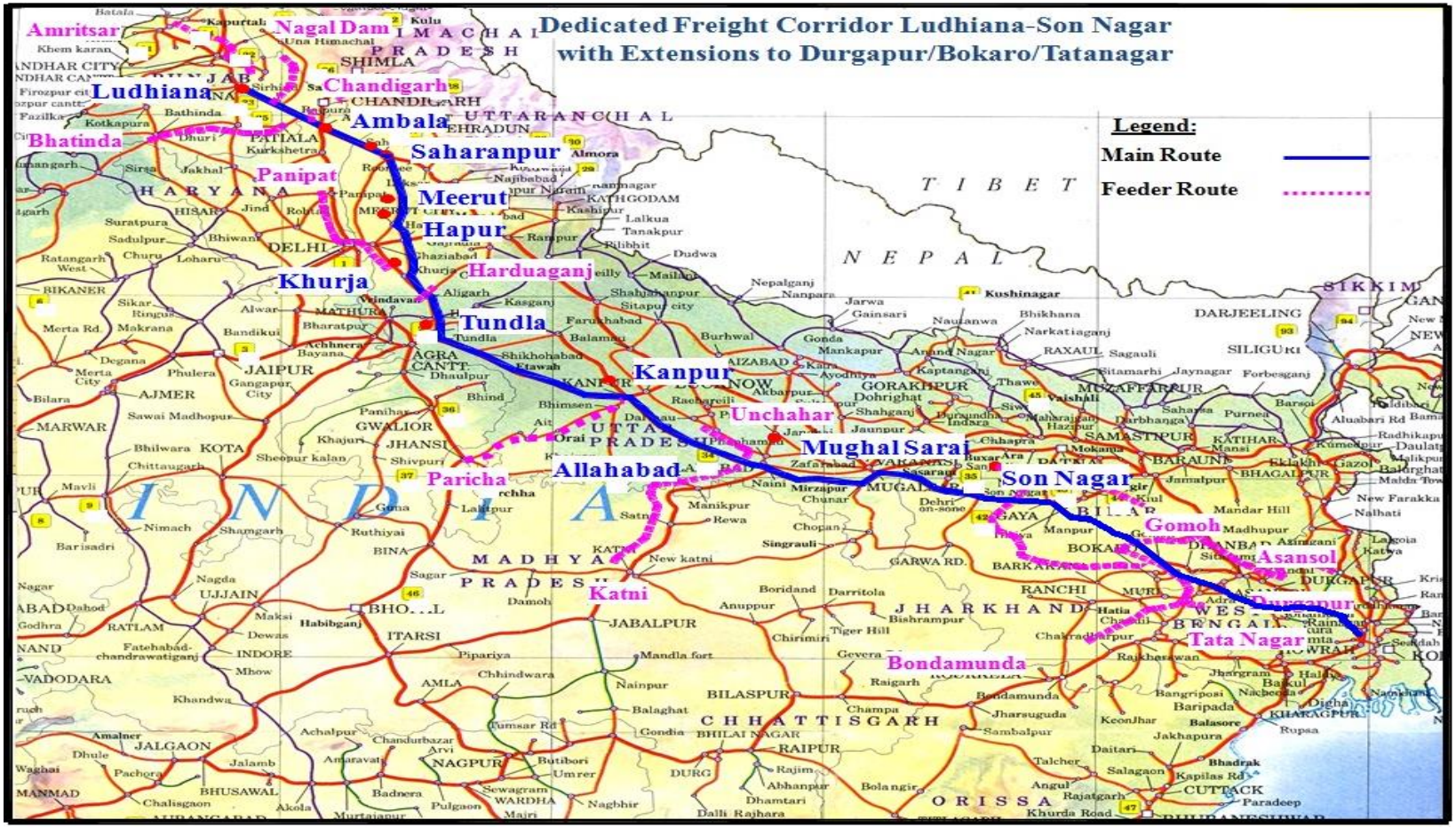
Western Corridor
(3241 Billion Tonne-Km)



Source: Report on 'Green House Gas Emission Reduction Analysis for DFC' by Ernst & Young

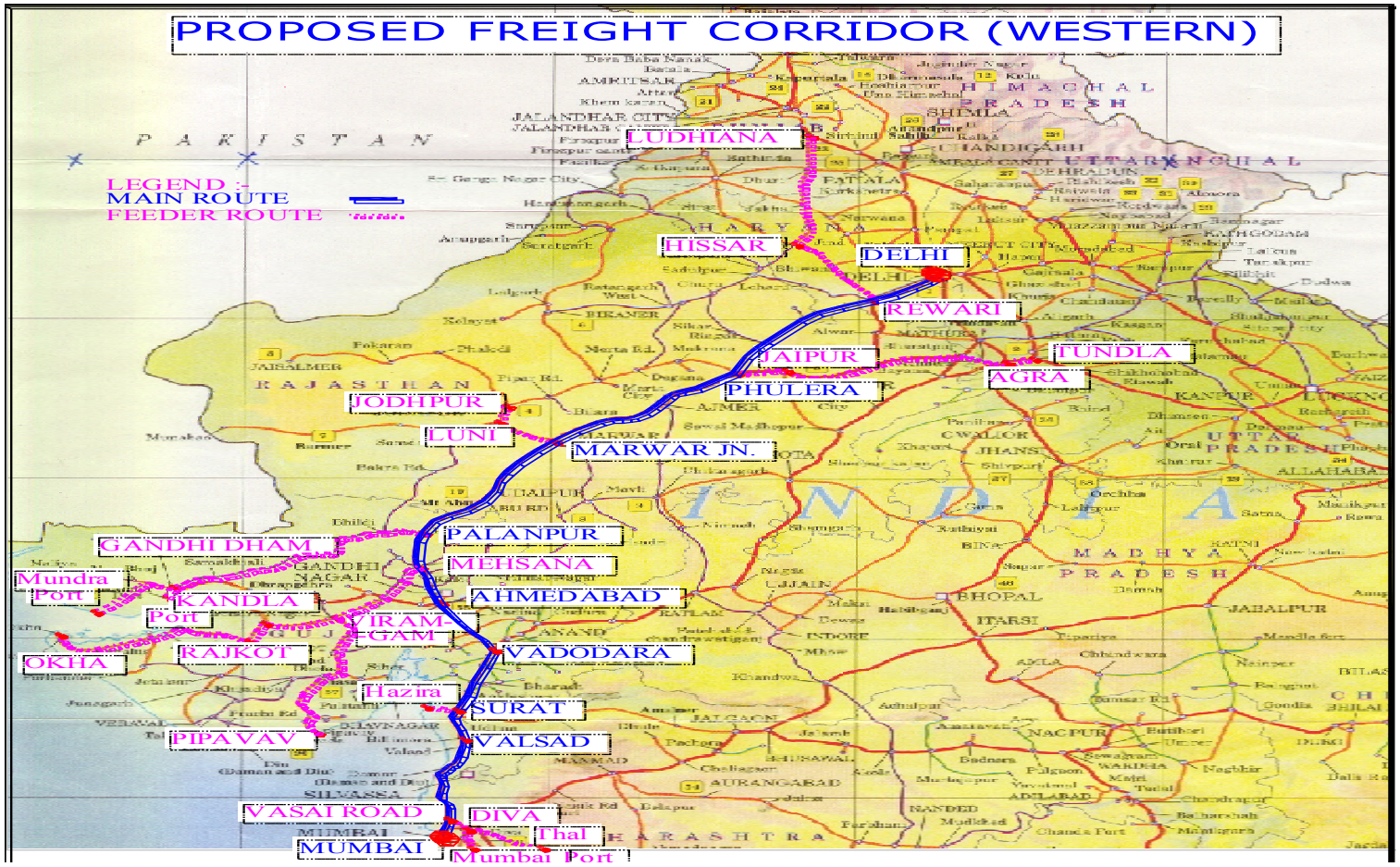
EASTERN CORRIDOR: DANKUNI – LUDHIANA

- ROUTE KM-1839 Km



WESTERN CORRIDOR: JNPT – DADRI

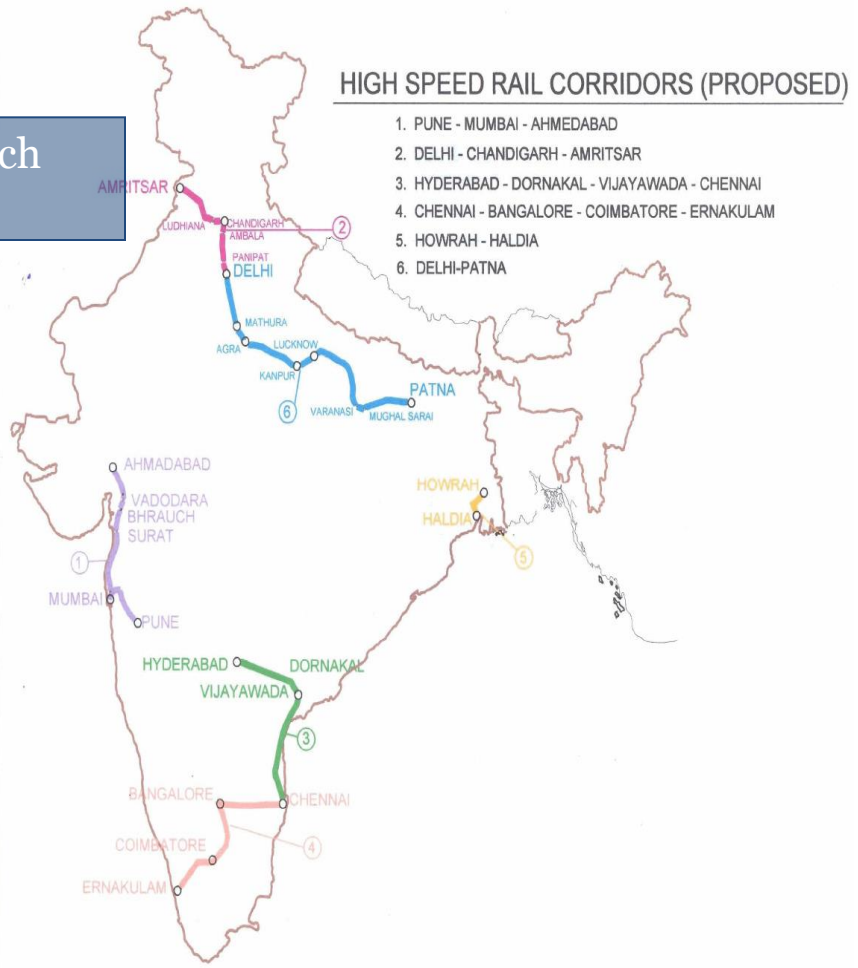
- ROUTE KM-1499 KM



High Speed Corridors Proposed

Initial the following 6 corridors are proposed for which Feasibility Study is being undertaken:

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



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Thank You