



Government of Gujarat

GUJARAT RAIL INFRASTRUCTURE DEVELOPMENT CORPORATION (G-RIDE)

Business Plan



BUSINESS PLAN:

**FORMATION OF A JOINT VENTURE COMPANY (JVC) BETWEEN INDIAN
RAILWAYS AND GOVERNMENT OF GUJARAT**

By:



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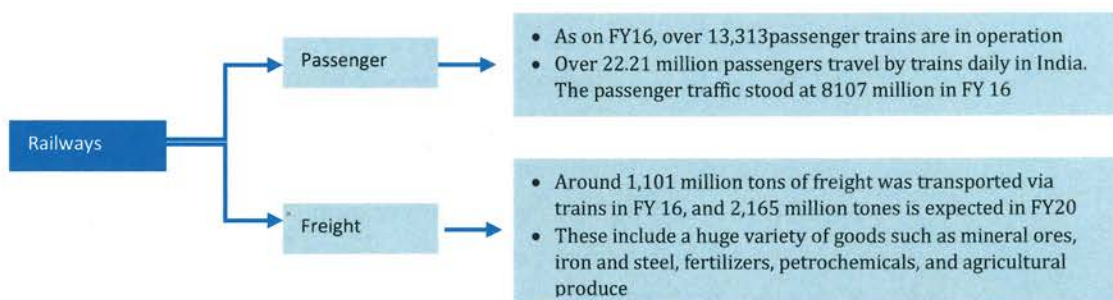
1. OUTLINE OF THE STUDY

1.1. OVERVIEW OF RAILWAY INFRASTRUCTURE IN INDIA:

Indian Railway (IR) occupies a unique and crucial place in the country's transport infrastructure. Indian Railways, managed directly by the Ministry of Railways, Government of India (GoI), is the third largest railway network in the world under a single management. With its network of 66,687 route km, IR has played a critical role in integrating markets and connecting communities throughout the length and breadth of the country. Further, it is also considered as Asia's largest and world's fifth largest railway network after United States of America, Russia, China and Canada.

IR is considered as primary mode of transportation for long-haul freight movement, long distance passenger traffic, and mass rapid transit in suburban areas. Freight and passengers are considered as key business operations. In spite of its key business, IR is also engaged in numerous linked services including parcel, catering and production units. Presently, it operates 22,525 trains a day, transporting 3.03 million tonnes of freight traffic and 22.21 million passengers. IR is the topmost rail passenger carrier (in terms of passenger km) and the fourth largest rail freight carrier in the world. During 2015-16, the freight loading by IR stood at 1,101 million tonnes, and the passengers transported, at 8.11 billion. Nearly 70 % of IR's revenues come from the freight operations. Over the years, IR has predominantly become a bulk freight carrier, accounting for about 94% of the freight revenue in the Country. . Passenger business accounts for nearly 60 % of IR's total transport efforts, in terms of train kilometers, but yield less than 30 % of the total revenues. Suburban services account for 57 % of the originating passengers, while contribute to only 8 % of the passenger revenue.

FIGURE 1: INDIAN RAILWAY OVERVIEW



Source: Ministry of Railways Vision 2020, Ministry of Railways, TechSci Research

1.2. RAILWAYS - THE CATALYST OF SOCIO-ECONOMIC DEVELOPMENT

Railways in India is a tool for development, equity and integration of all parts to the mainstream. The IR plays an integrated role in socio-economic development of the country. IR not only occupies a distinct position in the socio-economic map of the country but also it is considered as a vehicle and barometer of country's financial growth. Railways has served to integrate the fragmented markets and thereby, stimulating the emergence of a modern market economy. It connects industrial production centers with markets and with sources of raw

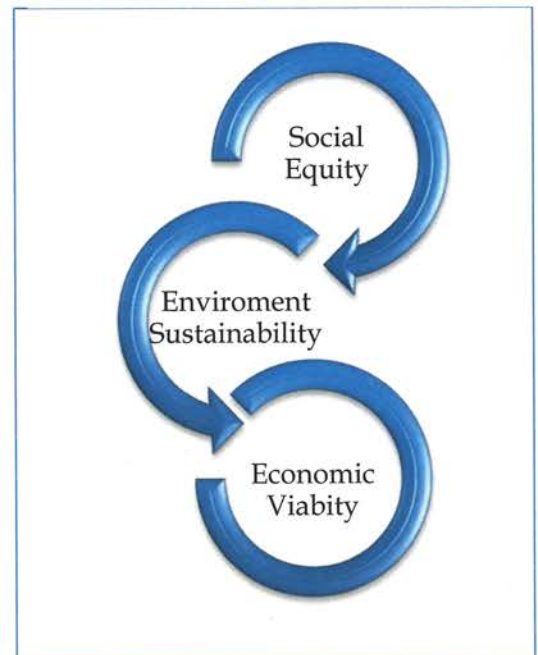
materials and facilitates industrial development and link agricultural production centres with distant markets. It provides rapid, reliable and cost-effective bulk transportation to the energy sector, to move coal from the coal fields to power plants and petroleum products from refineries to consumption centres. It links places, enabling large-scale, rapid and low-cost movement of people across the length and breadth of the country.

Railway is also considered critical from the perspective of defense movements, (which cannot be passed on to the private sector) and meeting the transportation requirement in the wake of national emergencies and natural catastrophes.

INDIAN RAILWAY CHALLENGES & REFORMS

IR has improved its network capacity over the past 65 years. It has added ~12,000 km of new lines since independence. It has grown passenger and freight volume faster than growth in population or the route kilometers. The network is being more intensively used at many places, and it is running beyond 100% capacity utilization. However, these supply-side improvements have not been commensurate with demand requirements. Some heavily traversed sections are working at more than 100% capacity utilization. Some tracks cannot carry heavy loads while others cannot run trains at higher speeds. Hence, it continues to lose its share to other modes of transport despite being the most cost effective medium. Indian Railway has lost its market share in the transport sector on the country from ~89%

FIGURE 2: RAILWAYS AND SUSTAINABLE DEVELOPMENT APPROACH



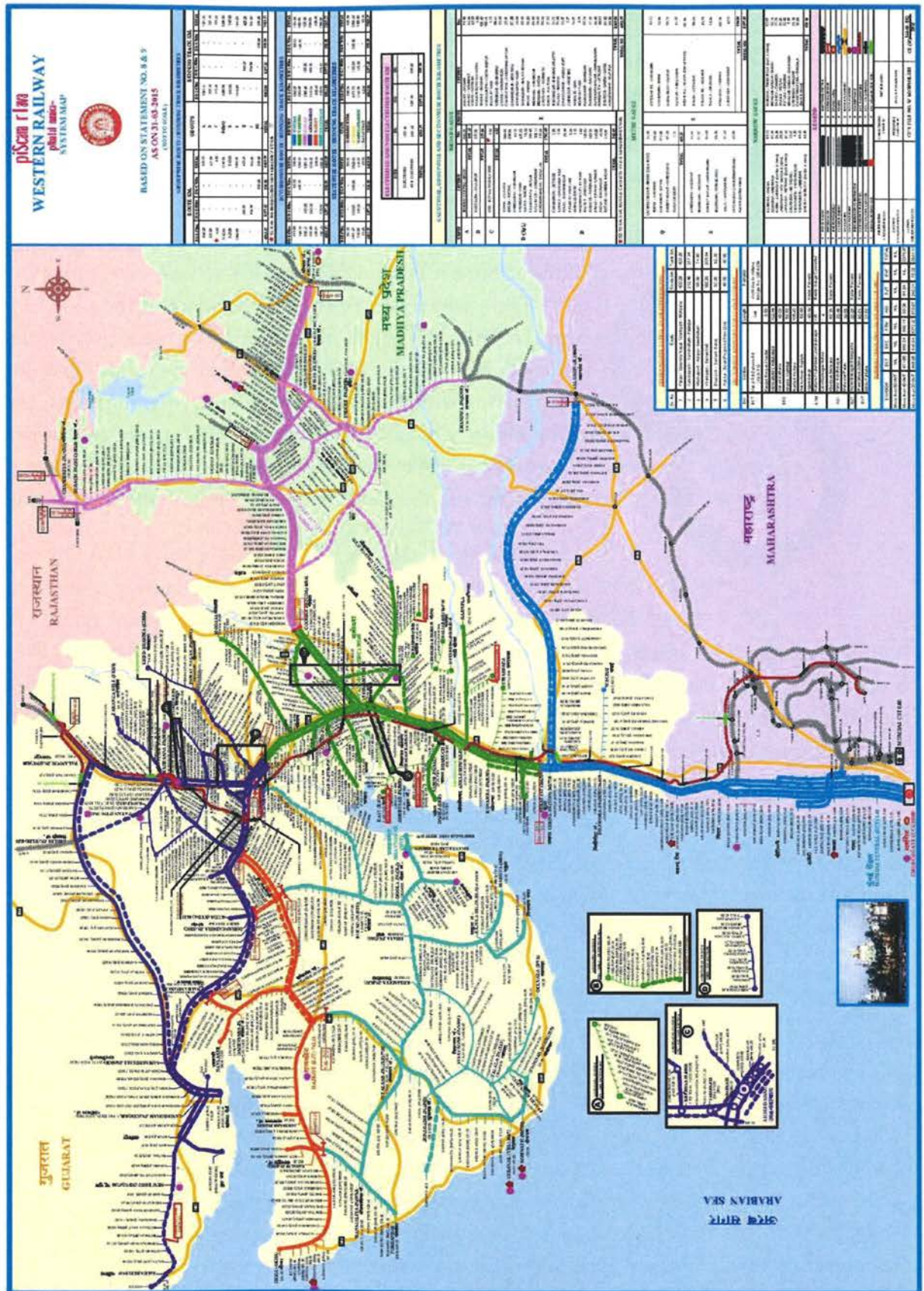
at the time of Independence to ~36% today. The other major challenge faced by IR is that it has to meet not only operational expenses but also generate adequate funds for investment. Traffic needs are likely to double in the next decade, and hence this will require huge investment for capacity expansion.

The Government of India is focused on increasing investing for railway infrastructure by making investor-friendly policies. It has enabled foreign direct investment (FDI) in railways to improve infrastructure for freight and high-speed trains. In the 2015-16 Indian Railways (IR) budget, Hon'ble Railway Minister Suresh Prabhu outlined a five-year capex plan of INR 8.56tn (USD 140bn), which is 1.8x of what IR spent in the past 15 years (~INR 4.6tn). The Ministry plans to reduce dependence on budgetary support and try to tap into new innovative sources of funds, including JV with PSUs, partnering with multilateral & bi-lateral organizations, and the PPP route. The Ministry plans to finance ~30% of the proposed investment through contributions from the States via the JV & PPP route. This document highlights the need and the plan for a JV in the state of Gujarat.

1.3. CURRENT RAIL NETWORK IN GUJARAT:

Western Railway, an important part of the Indian Railway system, serves the financial capital of India, Mumbai, along with almost entire area of Gujarat and some parts of Madhya Pradesh and Rajasthan. Western Railway, has played an important role in industrial, financial and social development of the Western regions of the country. Altogether Gujarat rail network is of 5108 Kms covering major cities like Ahmadabad, Surat, Vadodara, and Rajkot

FIGURE 3 : RAILWAY NETWORK IN GUJARAT



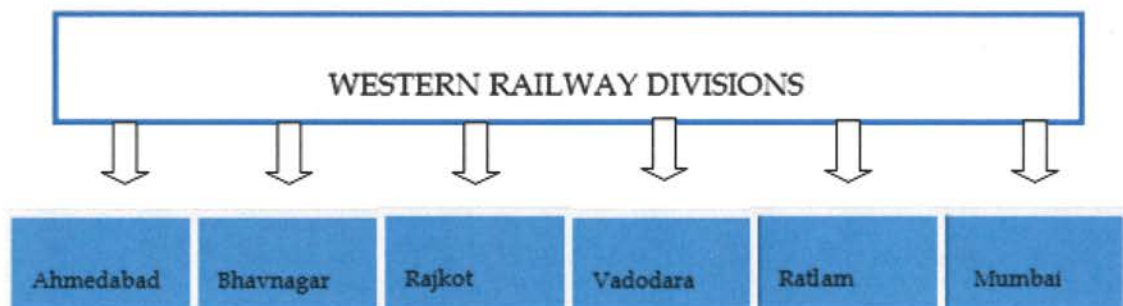
Source: Indian Railways

Indian Railways is undertaking Delhi-Mumbai dedicated freight corridor, moving across the state of Gujarat. A Pune - Mumbai - Ahmedabad High-Speed Passenger Corridor has also been proposed by the government which will cover the states of Maharashtra and Gujarat. The busiest railway junction in the state is the Vadodara Railway Station and it is the fourth busiest railway junction in the whole country. The station lies on the Western Railway Mainline connecting Delhi and Mumbai

1.4. ORGANIZATIONAL STRUCTURE

The major railway routes of Indian Railways which come under Western Railways are: Ratlam - Mumbai Central, Ahmedabad - Mumbai and Palanpur - Ahmedabad.

FIGURE 4 : ORGANIZATIONAL STRUCTURE WESTERN RAILWAYS DIVISIONS



Being the junction point for the Ahmedabad - Mumbai route and the Mumbai - Delhi route, Vadodara is the busiest junction Station of Indian Railways, while Ahmedabad Division earns highest revenue followed by Mumbai Division and Vadodara Division. Surat railway station is one of the busiest railway station in Western Railway in non-junction category where more than 160 trains passes per day.

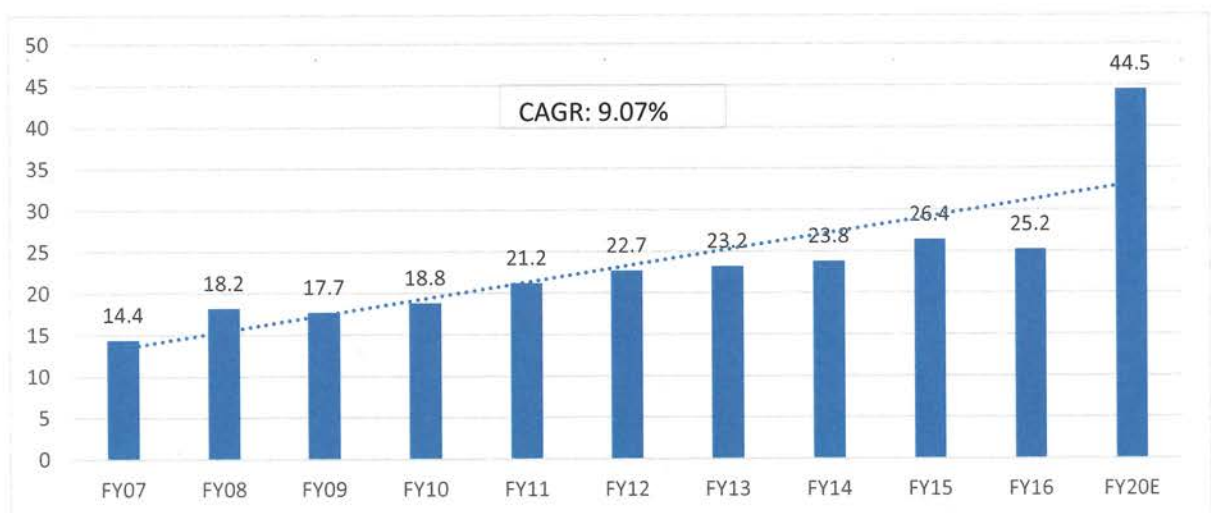
2. ECONOMIC SCENARIO

2.1. INDIAN RAILWAYS

The Government of India has focused on investing on railway infrastructure by making investor-friendly policies. It has moved quickly to enable Foreign Direct Investment (FDI) in railways to improve infrastructure for freight and high-speed trains. At present, several domestic and foreign companies are also looking to invest in Indian rail projects.

Revenue growth has been strong over the years, during FY07-16, revenues increased at a CAGR of 6.4 per cent to USD 25.2 billion in FY16. Revenues from the sector are estimated to reach to USD 44.5 billion by the end of FY20 and would expand at a CAGR of 9.07 per cent during FY07-20E

FIGURE 5: GROSS REVENUE TRENDS OVER THE YEARS (USD BILLION)

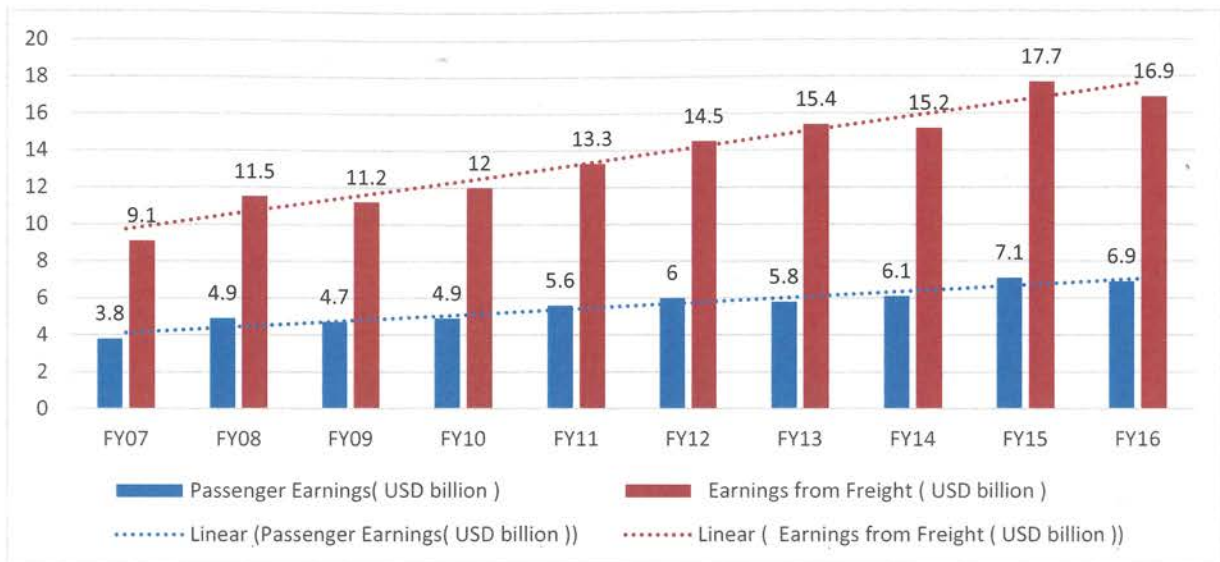


Source: Ministry of Railways, Make in India, Railway Budget FY15-16, Railway Budget FY16-17, TechSci Research

Indian Railway sector aims to boost passenger amenities. With the improvement in the economy and increasing industrial activity, it is expected that Indian Railway will touch the revenue of USD44.5 billion by 2020. In the last eight years, revenues from the passenger segment expanded at a CAGR of 6.9 per cent, with the total revenue earnings in FY16 tallying to around USD6.9 billion.

Indian Railways generated USD16.9 billion in earnings from commodity freight traffic during FY16. Increasing carrying capacity, cost effectiveness, improving quality of service will support the increment in the share of Railway in the freight movement from 35 per cent to 50 per cent by 2020.

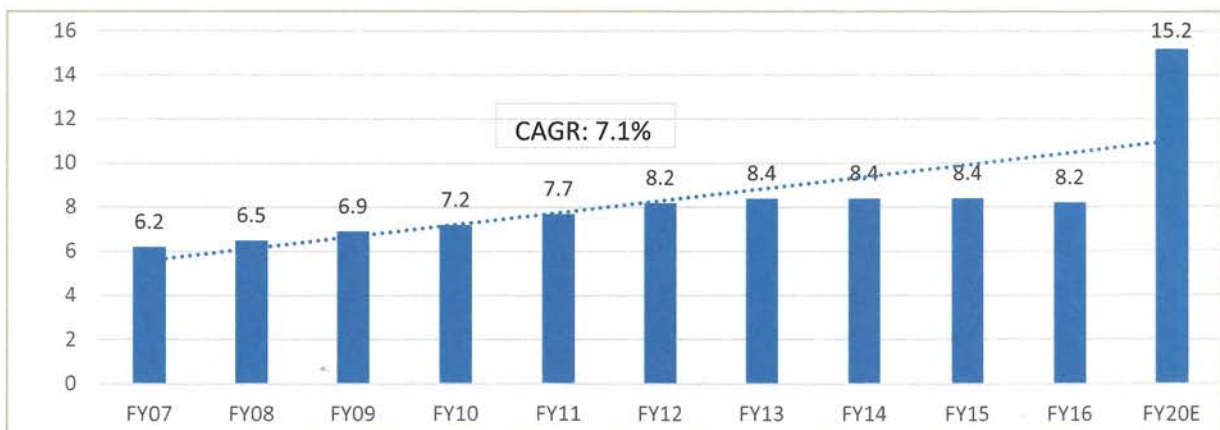
FIGURE 6: SEGMENT WISE REVENUE FOR INDIAN RAILWAY)



Source: Ministry of Railways Vision 2020, Ministry of Railways, TechSci Research

During 2007-16, passenger volume increased at a CAGR of 3.2 per cent and during FY16, passenger traffic using Indian Railways reached 8152 million. Passenger traffic is expected to increase to 15.18 billion by FY20. Annual passenger volume, using railways for commuting, increased at a CAGR of 7.1 per cent during FY07-20E. According to the 12th Five-Year Plan, passenger volumes would expand at a CAGR of 8.3 per cent during FY13-17

FIGURE 7: TREND IN PASSENGER VOLUMES (BILLION)

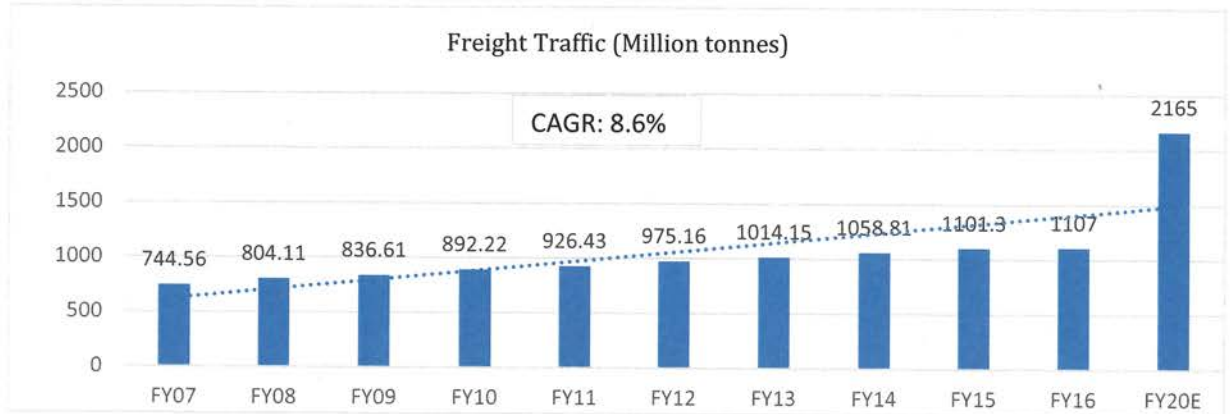


Source: Ministry of Railways Vision 2020, Ministry of Railways, TechSci Research

Indian Railways carried 1,107 million tonnes of revenue earning freight traffic in FY16, from 1,101.30 million tonnes in FY15. During FY07-FY16,

freight traffic is expected to grow at a CAGR of 4.5 percent. Indian Railway estimates originating loading for freight business segment would increase to 2,165 MT by FY20. Coal is the leading commodity for the freight business segment (49.35 per cent of the total freight in September 2015).

FIGURE 8: FREIGHT TRAFFIC (MILLION TONNES)

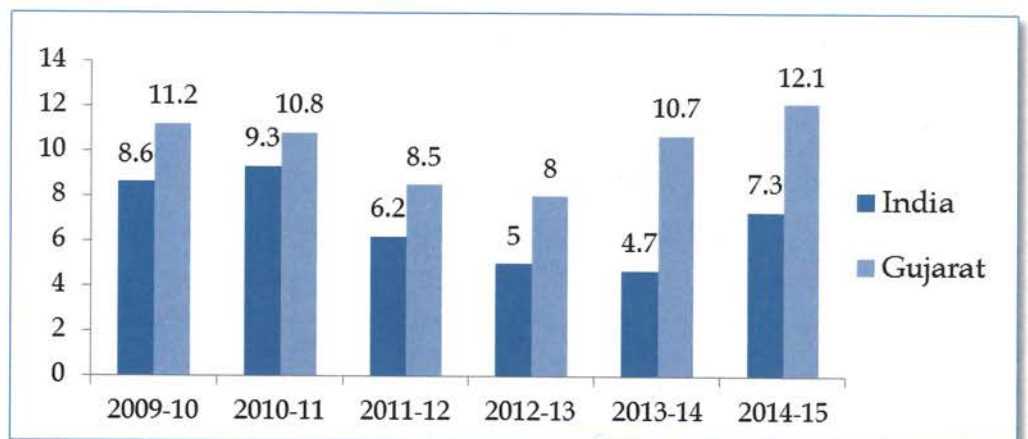


Source: Ministry of Railways Vision 2020, Ministry of Railways, TechSci Research

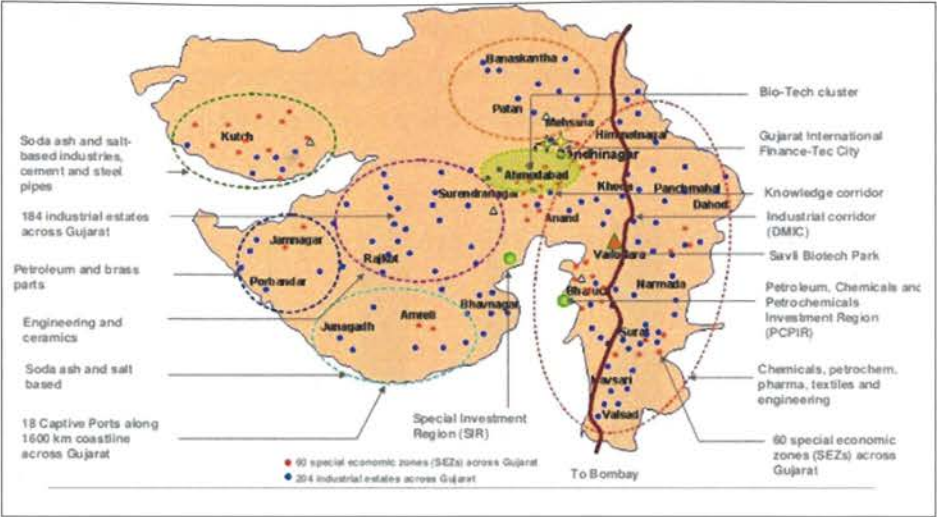
2.2. GUJARAT ECONOMIC AND INDUSTRY PROFILE

Gujarat offers a model for Economic Progress and Development for the developing nations. Its significant contribution to Indian Economy has made India visible to a competitive market in spite of the downturn in World Economy. Average annual Gross State Domestic Product (GSDP) growth rate of Gujarat from 2004-05 to 2015-16 was 12.02 per cent.

FIGURE 9 : COMPARATIVE GROWTH OF GDP AND GSDP OF GUJARAT



Gujarat has achieved the distinction of being one of the most industrially developed states and contributes about a quarter to India's goods exports. Emerging as 'Investor friendly' destinations in the country, Gujarat highlights a luxurious lifestyle of leisure, pleasure, business and Investments



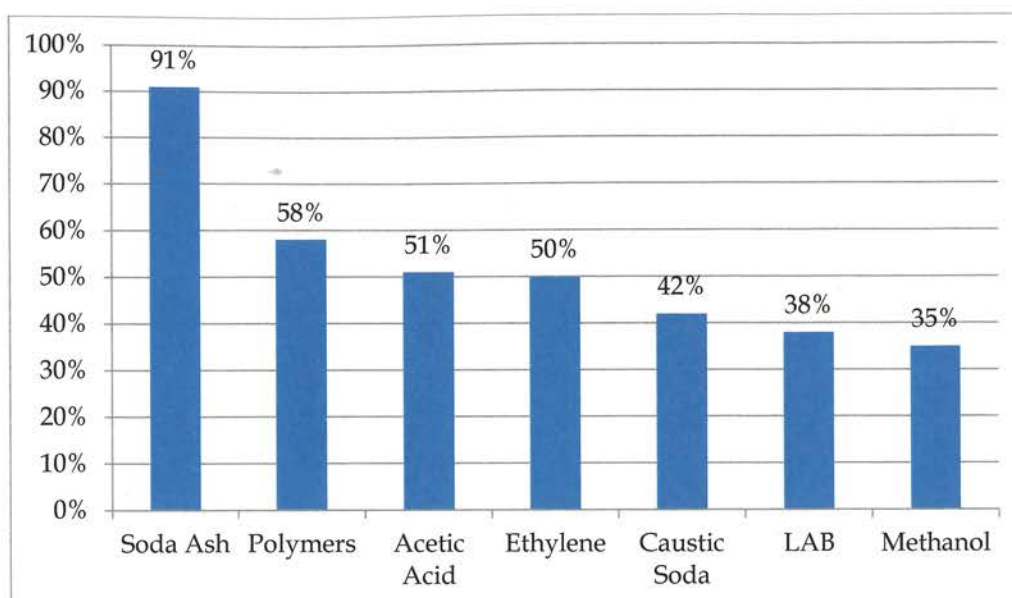
Source: www.gidc.com

Gujarat accounts for five per cent of the total Indian population, contributing about a quarter to India's goods exports. The Industry in Gujarat has evoked new models of development. Enhancing IRs and SIRs while traversing through Product Clusters, Industrial Estates, Industrial Parks and SEZ, these phases have met with success and co-exist as Gujarat plunges to expansion with Business growth. Increasing Industrial activity in Gujarat has led to vast Business Resources and immense prosperity for the people of Gujarat. Gujarat is a leader in industrial sectors such as chemicals, petrochemicals, dairy, drugs and pharmaceuticals, cement and ceramics, gems and jewellery, textiles and engineering. The industrial sector comprises over 800 large industries and more than 453,339 micro, small and medium industries.

2.2.1. CHEMICALS, PETROCHEMICALS AND PHARMACEUTICALS

The chemical industry in Gujarat is a significant component of the State's economy, contributing to more than 51% of Indian production of major chemicals with revenues at approximately more than INR 12,000 crore. Petrochemical Industry in Gujarat produces 13,048 ('000 Tonnes) of petrochemical products and also contributes around 62% to the total production of the country. Gujarat contributes 15% of the total national chemical exports. The Chemical Industry in Gujarat comprises of about 500 large and medium scale industrial units, about 16,000 of small scale industrial units and other factory sector units. Petroleum and chemicals and Petroleum Investment Region (PCPIR), a dedicated region is being set up at Dahej which may further strengthen the sector base.

FIGURE 11 : GUJARAT'S SHARE IN INDIA'S PRODUCTION OF MAJOR CHEMICALS



Source: FICCI, Department of Chemicals & Petrochemicals – Gov. of Gujarat; GPCB

Gujarat is the hub of Pharmaceutical Industry, the most developed and cost competitive sector with over 3415 manufacturing units and 33% of India's pharmaceutical turnover and 28 % of India's exports. 40% machinery used by Pharmaceutical sector in India is manufactured in Gujarat. Approximately 85,000 people are employed in Gujarat's pharmaceutical sector.

FIGURE 12 : PHARMACEUTICAL CLUSTERS IN GUJARAT

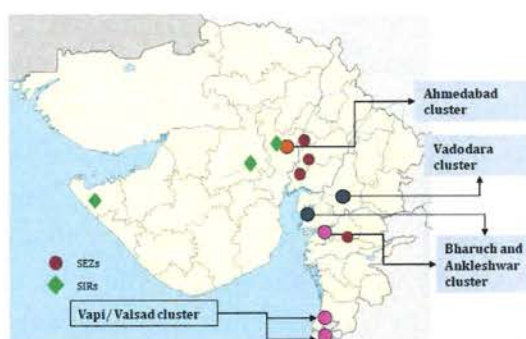
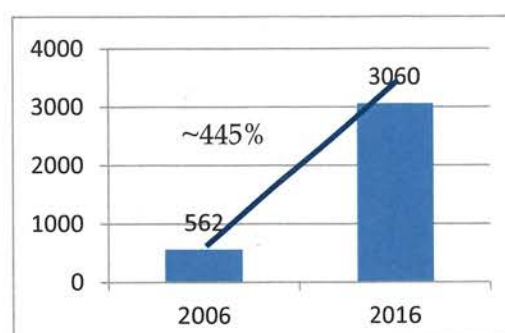


FIGURE 13 : PHARMACEUTICAL EXPORTS FROM GUJARAT (~USD MILLION)

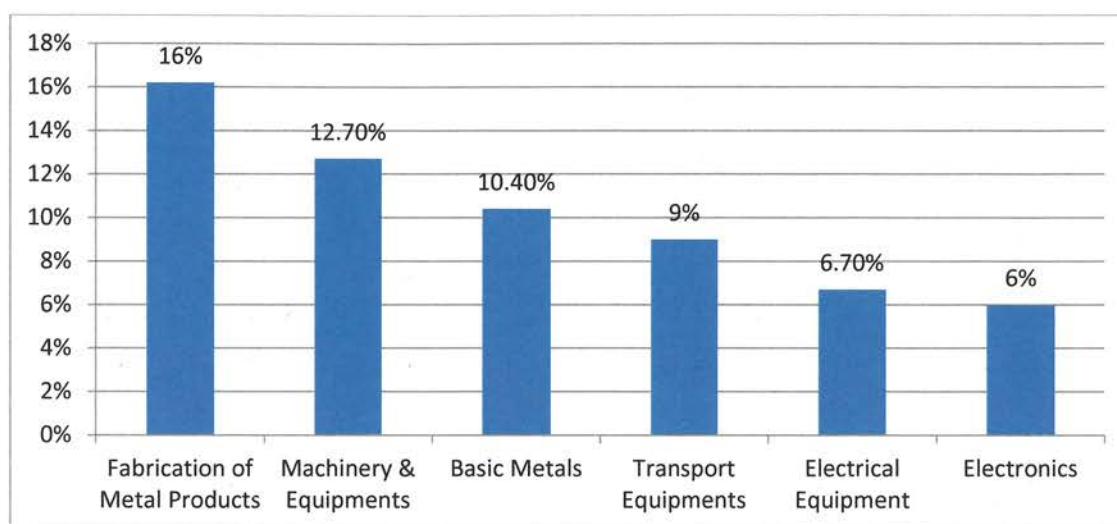


Source: Vibrant Gujarat 2017

2.2.2. ENGINEERING SECTOR & AUTOMOBILE

Engineering sector of Gujarat contributes around 18% to the state's total industrial production and around 9% to the national engineering output. Engineering sector in Gujarat comprises more than 300 units in large sector and 7,500 units in small and medium (SMEs) enterprises.

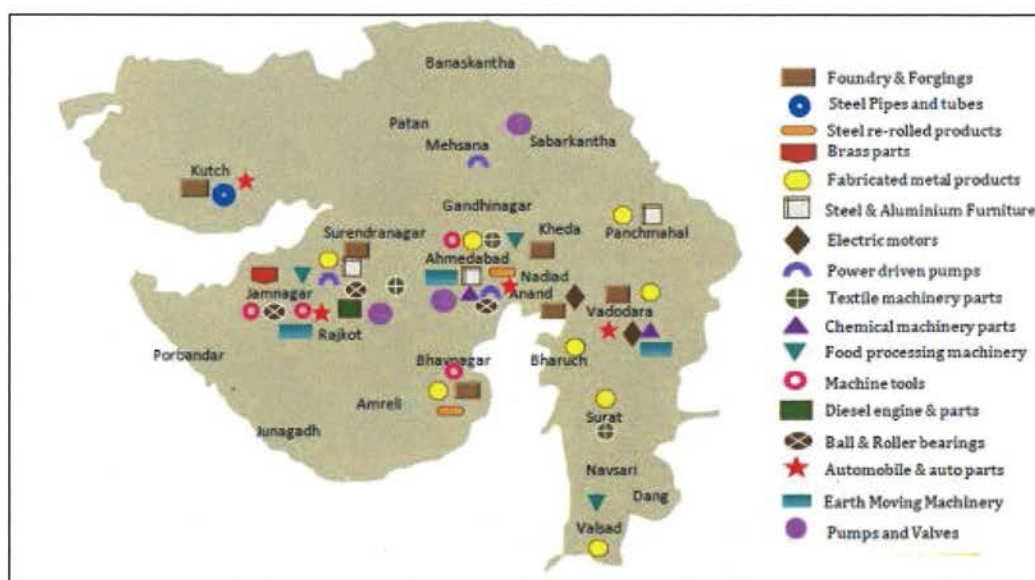
FIGURE 14 : SHARE OF GUJARAT IN NATIONAL ENGINEERING GOODS PRODUCTION



Source: IBEF Report

Gujarat houses 83 product clusters; out of which 30 are engineering product clusters. The brass parts cluster at Jamnagar has over 5,000 small units and meets almost 70% of the entire requirement for brass parts in India.

FIGURE 15 : ENGINEERING SME CLUSTERS IN GUJARAT



Source: Vibrant Gujarat 2017

2.2.3. TEXTILES AND APPARELS

Gujarat is known as the 'Manchester of the East' and 'Denim Capital of India'. Gujarat is the largest producer (33%) and exporter (60%) of cotton in the Country. Gujarat is the largest producer of denim (65%) in the Country and 3rd largest in the World. Gujarat has more than 1500 medium and large textile units. Gujarat's textile market is estimated to be around USD 25 Billion by 2017. Textile sector contributes 25% to the country's manufacturing sector and 12% to the Country's textile exports. It offers India's 12% textile exports.

Gujarat has a strong base across the entire textile value chain.

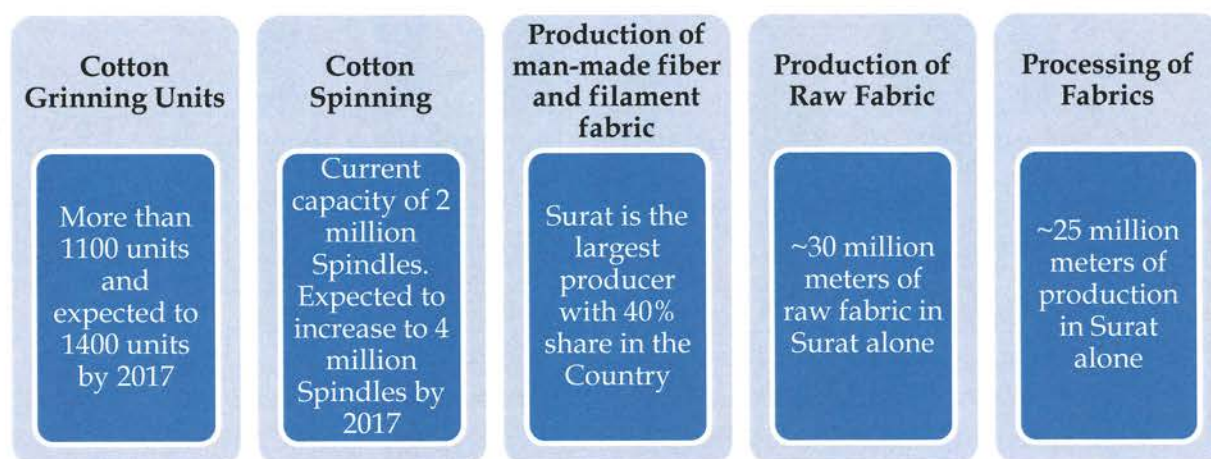
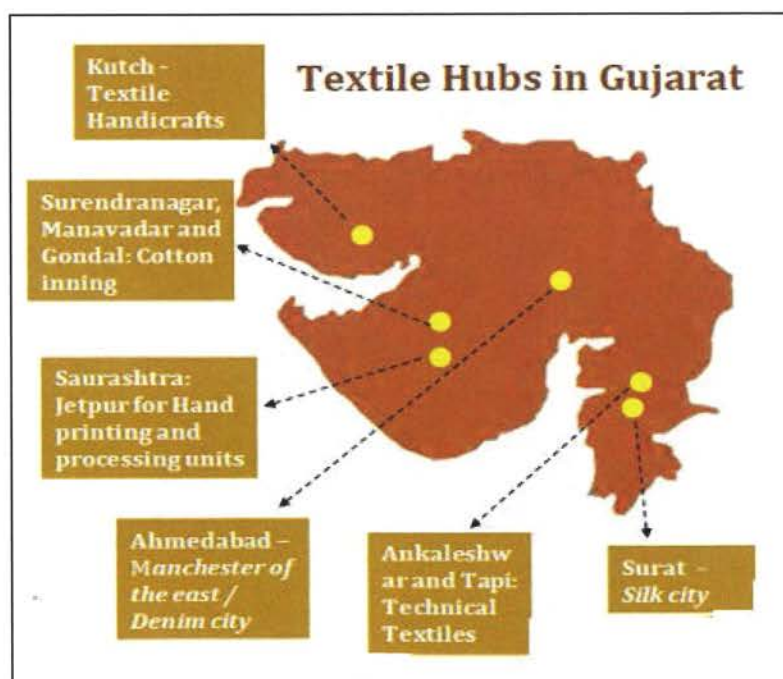


FIGURE 16 : TEXTILE HUBS IN GUJARAT



Source: Vibrant Gujarat 2017

2.2.4. GEMS AND JEWELLERY

Gujarat is the leading state in India in the Gems and Jewellery sector. Gujarat has the highest share (nearly 85 percent) in the total national Jewellery production and accounts for 72 percent of the world's share of processed diamonds. Surat has 65% share in India's diamond trade. 90 percent of the total diamonds in Gujarat are processed by about 10,000 diamond units located in and around Surat. Gujarat is also internationally renowned for the production of unique hand-made silver ornaments (85 percent of total silver Jewellery production of India). A gold jewellery manufacturing cluster in Ahmedabad has a productivity of around 50 grams of production /day, highest in the country

FIGURE 17 : GEMS & JEWELLERY CLUSTERS IN GUJARAT

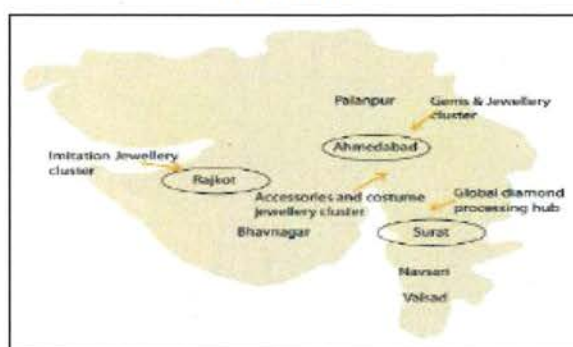


TABLE 1 : GEMS & JEWELLERY ACTIVITIES IN GUJARAT

| Region | Activity |
|-----------|---------------------------------------------|
| Surat | Diamond Processing, Jewellery |
| Palanpur | Diamond Processing |
| Ahmedabad | Diamond Processing, Gold & Silver Jewellery |
| Bhavnagar | Diamond Processing |
| Navsari | Diamond Processing |
| Rajkot | Gold & Silver Jewellery |
| Khambhat | Gems stone |
| Valsad | Jewellery |

Source: Vibrant Gujarat 2017

2.2.5. MINERAL AND NATURAL RESOURCES:

Natural Resources play an important role in industrial development. Gujarat is endowed with important resources like minerals, marine, agriculture. The important mineral resources in Gujarat include limestone, lignite, bauxite, bentonite, chalk, china clay, dolomite, marble and granite; besides oil and natural gas Minerals Resources.

FIGURE 18 : MINERAL RESOURCE MAP OF GUJARAT



Source: Compare Infobase Limited

2.2.6. AGRICULTURE, AGRO AND FOOD PROCESSING

Agriculture is an important natural resource used for industrial processing. Gujarat is known for the production of cash crops. The important agricultural crops are groundnut, cotton, tobacco, sugarcane, maize, rice, wheat, pulses, vegetables and fruits like banana and mango.

FIGURE 19 : AGRICULTURAL RESOURCE MAP OF GUJARAT

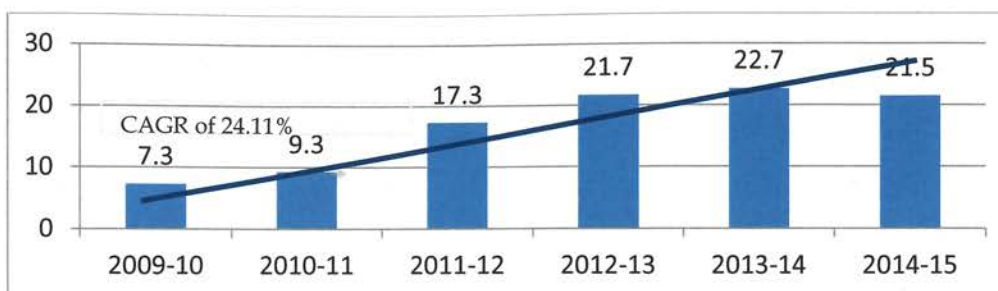


Source: Compare Infobase Limited

Gujarat is endowed with abundant natural resources in terms of varied soil, climatic conditions and diversified cropping pattern suitable for agricultural activities. Gujarat is a leading producer of various agricultural crops within India as well as worldwide. Gujarat has highest production in the world for Castor (67%), Fennel (67%), Cumin (36%), Isabgol (35%), and Groundnut (8%), and Guar seed (6%).

Gujarat tops Agriculture Growth table at 9.6% with Agriculture Infrastructure achieving maximum growth from 2001-2008. More than 30,000 food processing units are operating in Gujarat providing employment to over 1 million people. As per the Associated Chambers of Commerce and Industry of India (ASSOCHAM) out of the total investments worth over INR 829.40 billion attracted by food processing sector as of December 2014, Gujarat attracted the highest share at 20 per cent. Value of exports of processed food has steadily increased with an average annual growth rate of 20.53 % for five years ending 2013-14.

FIGURE 20 : EXPORT OF PROCESSED FOOD (USD MILLION)

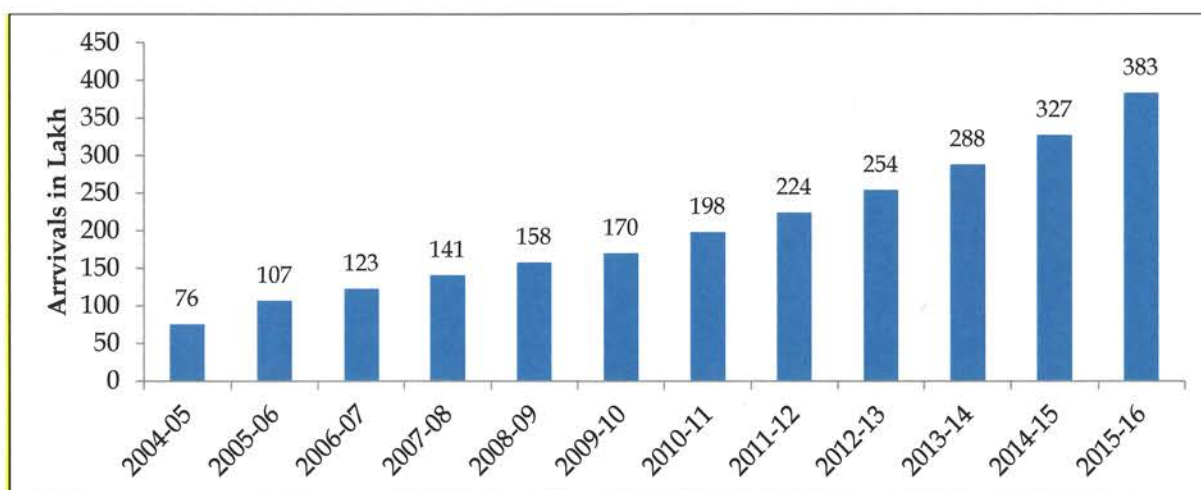


Source: Minister of Food Processing Industries (MOFPI), Agricultural and Processed Food Products Export Development Authority

2.2.7. TOURISM IN GUJARAT

Gujarat is one of the most popular tourist regions in the country offering scenic beauty from Great Rann of Kutch to the hills of Saputara. Gujarat is the one and only place to view pure Asiatic lions in the world. Many structures in the state are built in this fashion. It is also the birthplace of Mahatma Gandhi and Sardar Vallabhbhai Patel, iconic figures of India's independence movement. There are a wide variety of historic forts, palaces, mosques, temples, and places of historical importance in India's struggle for independence. Many of these palaces and forts have been converted into heritage hotels to keep tourists close to the vibrant history of Gujarat.

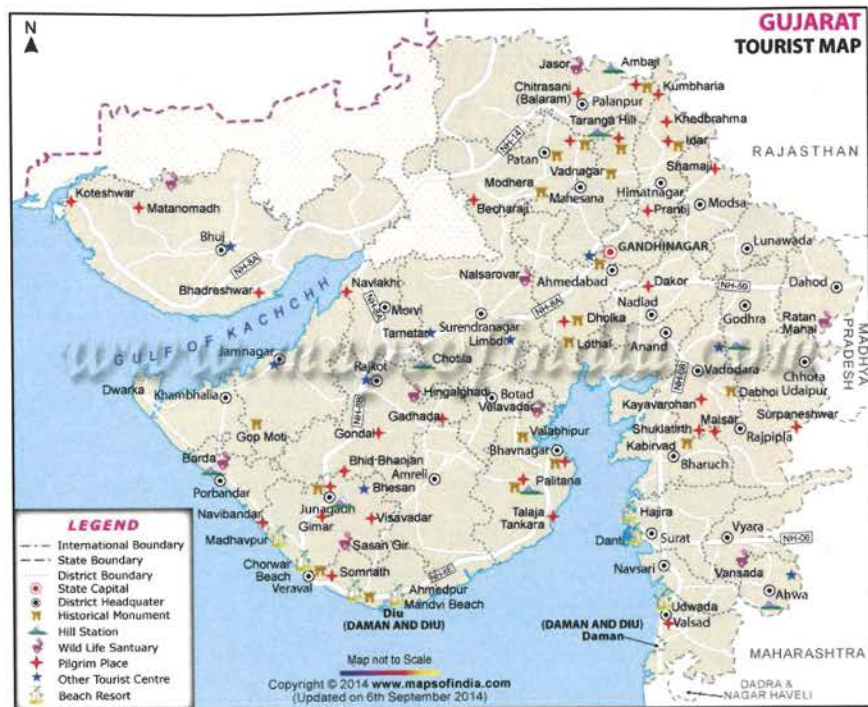
FIGURE 21 : TOURIST FOOTFALL (IN LAKHS)



Source: Tourist Flow Information System (TFIS, 2014-15) by GITCO

Given the immense opportunity and diversity of tourism attractions in the state the government has identified this as an important sunrise sector and economic growth driver. One of the key elements in the success of tourism is the ease of mobility and access to various tourism attractions. Railways offer one such important medium of connectivity including the potential to develop infrastructure connecting various attractions across a tourism circuit.

FIGURE 22 : TOURISM MAP OF GUJARAT



Source: Maps of India

Statue of Unity, conceptualized to be the tallest Iconic Structure in the World, with a height of 182 Meters, is under advanced stage of planning. The estimated project cost for the project is USD 416.67 million. The project envisaged development of Hotel, Convention Centre, Museum/ Exhibition Hall, Laser, Light and Sound Show, Memorial Garden, Visitor Centre Building Estimated Project Cost and Ferry Services around the iconic structure.

3. TRANSPORT INFRASTRUCTURE IN GUJARAT

3.1. CURRENT INFRASTRUCTURE

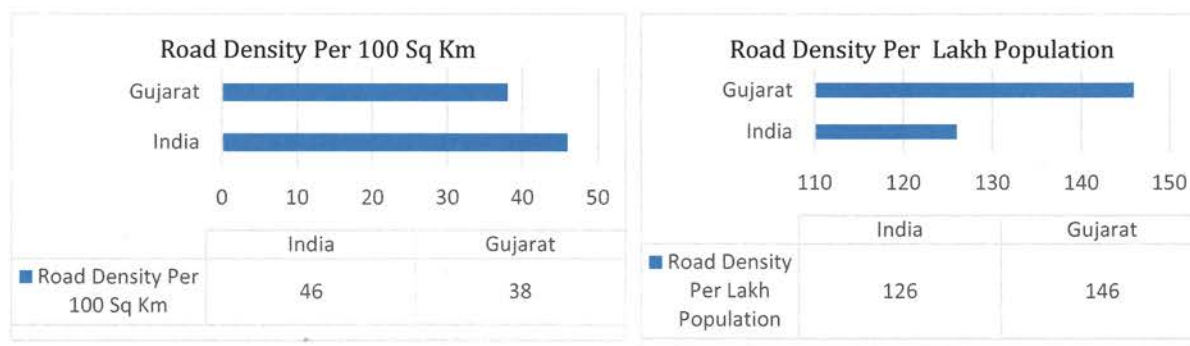
Gujarat located at the western coast, has easy access to the west, Middle East and African markets. The port sector is developing at a commendable pace in the state. The state has 49 ports, including one major port of Kandla and 48 minor ports. The only chemical port of the country is located at Dahej, near Bharuch. Each port location in Gujarat has a lot of opportunities to offer. These ports in Gujarat handle more than millions tonnes of cargo.

Gujarat has the highest number of airports in India. The state has 19 airports including international airports at Ahmedabad and Vadodara. The hub and spoke policy has been adopted in the aviation sector. Gujarat has a well laid out road network exceeding 74000 kms. The existing road network in the state of Gujarat is rated as one of the best in the country. There has been a tremendous increase in the share of road transportation. Most of the roads are surfaced road and the growth in surfaced road length has been significant.

3.1.1. ROAD INFRASTRUCTURE

The state of Gujarat has one of the most extensive and traffic intensive road network in the country. The total road length in Gujarat currently stands at about 79500 km. This can broadly be divided into a core and a non-core network. The core network comprises of the National Highways and around 6000 kms of State Highways, while the balance constitutes the Non-core State Highways, Major District Roads, Other District Roads and Village Roads.

FIGURE 23 : ROAD DENSITY PER 100 KM & LAKH POPULATION



Source: www.gidb.org

The national highway network of Gujarat has benefited from the Golden Quadrilateral and North South East West axis of the National Highway Development Program is passing through the State. Further, the pioneering PPP Roads, expressways, six laning projects (under advanced

phases of NHDP), prudent use of external funding and a relatively better maintenance regime has led to a relatively better quality national highway network in the state compared to many other parts of the country. The State has implemented several network improvement initiatives such as the World Bank funded roads, Pragati Path, Kisan Path and Vikas Path road development programs. Such programs have led to substantial improvement of several key stretches of State Highways, offering fairly sound ridership experiences.

Gujarat is the first state in India to have a law governing Build Own and Transfer (BOT) transaction and such other arrangements along with private participation in infrastructure projects. Roads in the transport sector account for nearly 17.05% of the total planned investments amounting to Rs.39110 crores for the period up to 2020 of "Blue Print for Infrastructure in Gujarat – Vision 2020" prepared by GIDB.

FIGURE 24 : ROAD MAP OF GUJARAT



Source: Maps of India

FIGURE 25 : ROAD LENGTH & DISTRIBUTION IN KMS.

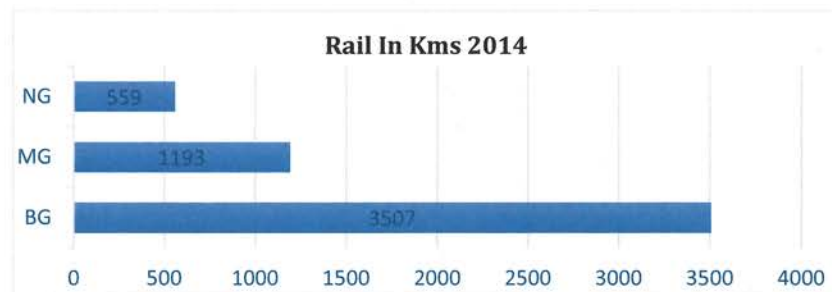


Source: Socio Economic Review of Gujarat State 2015-16

3.1.2. RAIL INFRASTRUCTURE

The total length of railway lines in the State as on 31st March, 2014 was 5258.49 route kms. Comprising 3506.55 kms. of Broad Gauge (BG), 1193.04 kms. of Meter Gauge (MG) and 558.90 kms. of Narrow Gauge (NG) lines covering major cities like Ahmadabad, Surat, Vadodara, and Rajkot.

FIGURE 26 : RAIL LENGTH OF GUJARAT

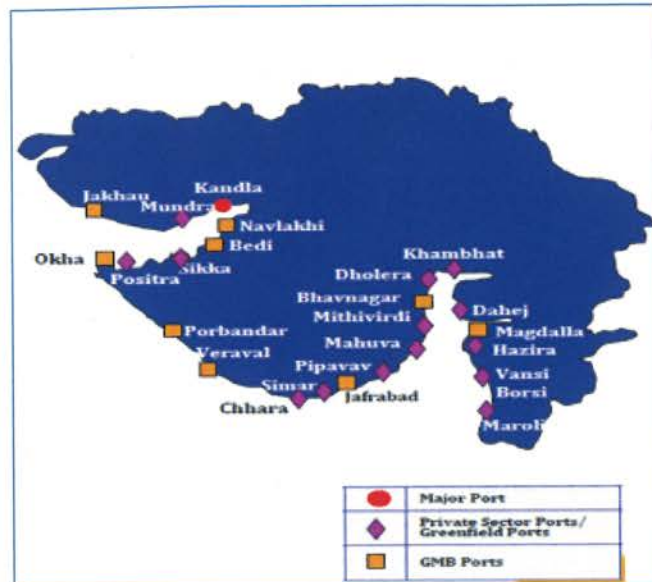


Source: Socio Economic Review of Gujarat State 2015-16

3.1.3. PORT INFRASTRUCTURE

Gujarat is strategically located with India's longest coastline of 1600 km nearest maritime out let to the Middle East, Africa and Europe for India. Dotted with 49 ports which includes 1 major port and 48 non-major ports. It is the 1st state in India to invite Private sector participation in the port sector and also 1st state in India to have a dedicated Chemical Terminal- Dahej, It is a home to the world's largest ship recycling yard- Alang and Only state with a cradle to graveyard ecosystem for ships-Ship building to Ship Recycling.

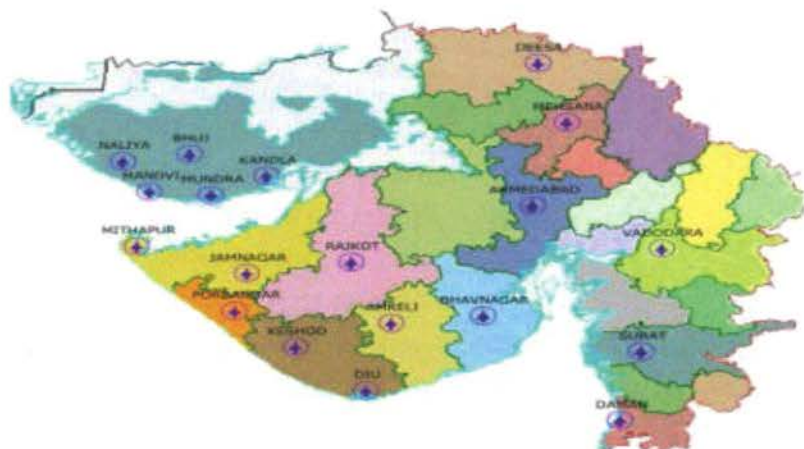
FIGURE 27 : PORTS OF GUJARAT



3.1.4. AVIATION INFRASTRUCTURE

There are 19 airports in Gujarat State, wherein the Dholera green-field airport is to be constructed. Of these airports, nine (in Ahmedabad, Vadodara, Bhavnagar, Rajkot, Deesa, Surat, Kandla, Porbandar, and Keshod) are managed by the Airports Authority of India (AAI); however, the two airports in Deesa and Porbandar are not operational. In addition, the Indian Air Force (IAF) manages Bhuj, Nalia, Jamnagar airports, and the Gujarat State government manages Mehsana, Amreli, and Mandvi airports. A private company manages Mithapur (Tata), Mundra (Adani), Diu, and Daman airports.

FIGURE 28 : AIRPORTS OF GUJARAT



Source: Director of Civil Aviation, Government of Gujarat

3.2. UPCOMING INFRASTRUCTURE

3.2.1. DMIC - DEDICATED FREIGHT CORRIDOR (DFC)

Delhi Mumbai Industrial Corridor (DMIC) Project is a flagship programme of the Government of India with the aim of creating futuristic Industrial Cities by leveraging the "High Speed - High Capacity" connectivity backbone provided by Western Dedicated Freight Corridor (DFC). The Multi-modal High Axle Load Dedicated Freight Corridor (DFC) between Delhi and Mumbai, will cover an overall length of 1483 km and passing through the six States - U.P, NCR of Delhi, Haryana, Rajasthan, Gujarat and Maharashtra, with end terminals at Dadri in the National Capital Region of Delhi and Jawaharlal Nehru Port near Mumbai

DMIC aims at creating a high impact development area spanning a distance of 150 kms on either side of the corridor. This will provide the necessary momentum to push industrial growth in the region. It is expected that the industrial output would triple in nine years, whereas regional employment and exports would double in seven years in the DMIC region the alignment of the proposed.

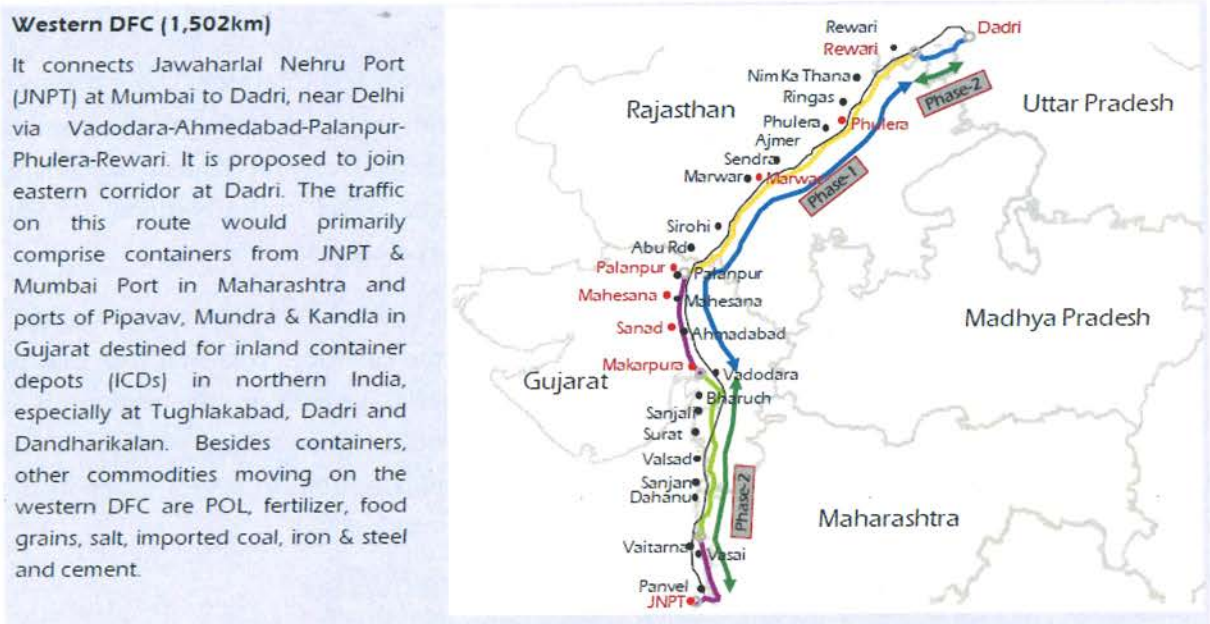
FIGURE 29 : DMIC CORRIDOR THROUGH GUJARAT



Source: dholerasir.com

DFC passes through Palanpur, Mahesana, Ahmedabad, Vadodara, Bharuch and Valsad in Gujarat. About 62% of areas of the state is covered within the influence area of DMIC.

FIGURE 30 : DFC CORRIDOR THROUGH GUJARAT



Large scale infrastructure projects are planned in close collaboration with Japan, at an approximated investment of USD 90 billion. More than 60% of the total investments are likely to be in Gujarat, which is estimated to generate approximately 0.8 million jobs.

TABLE 2 : PROPOSED INVESTMENT IN DMIC IN GUJARAT

| Sector | Proposed Investment (in USD Million) |
|----------------------------------------|--------------------------------------|
| Dholera SIR | 18.09 |
| Industrial Nodes and SEZs in DMIC Area | 5.158 |
| Road Connectivity | 16.66 |
| Rail Connectivity | 0.88 |
| Greenfield International Airport | 0.50 |
| Logistics Hub | 0.80 |
| Power | 4.66 |
| Urban Infrastructure including Metro | 3.44 |
| Hospitality & Recreation | 0.837 |
| Total | USD 51 |

Source: Vibrant Gujarat 2017

3.2.2. SPECIAL INVESTMENT REGIONS

The Government of Gujarat, became the first State Government in India to enact a legal framework for the Special Investment Region (SIR) -The Gujarat Special Investment Region Act -2009. The SIR Act, inter alia, enables the State Government to establish, develop, operate and regulate the Special Investment Regions. A Special Investment Region (SIR) will have an area of more than 100 sq. Kms and an Industrial Area will have an area of more than 50 sq. Kms. The Government of Gujarat has identified 13 SIRs in the state, out of which 7 has already notified the status of SIR.

FIGURE 31 : SPECIAL INVESTMENT REGIONS IN GUJARAT

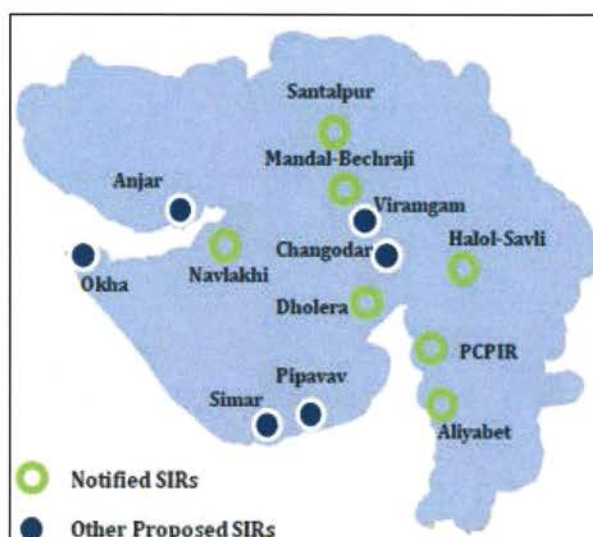


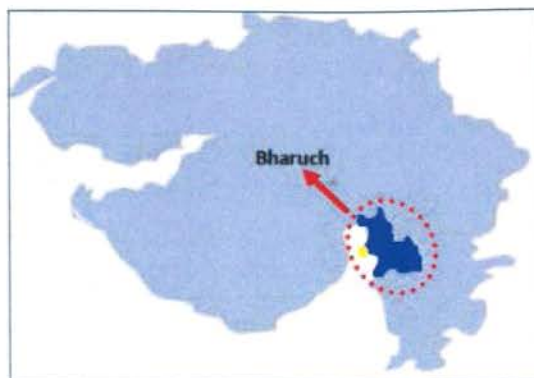
TABLE 3 : SIR DETAILS

| SIR | Area (Sq. km) |
|-------------------|---------------|
| Dholera | 920 |
| PCPIR | 453 |
| Halol - Savli | 123 |
| Santalpur | 186 |
| Navlakhi | 182 |
| Aliyabet | 169 |
| Mandal - Bechraji | 102 |
| Pipavav | 147 |
| Changodar | 319 |
| Anjar | 237 |
| Okhla | 206 |
| Simar | 83 |
| Viramgam | 01 |

Source: Vibrant Gujarat 2017

3.2.3. PETROLEUM, CHEMICAL AND PETROCHEMICALS SPECIAL INVESTMENT REGION (PCPIR)

Petroleum, Chemicals and Petrochemicals Special Investment Region (PCPIR) is a specifically delineated Investment Region planned for the establishment of production facilities for petroleum, chemicals and petrochemicals. The Gujarat Petroleum, Chemicals and Petrochemicals Special Investment Region (GPCPSIR) was notified in June, 2009 by GoG under the Gujarat SIR Act, 2009. GPCPSIR encompasses an area of around 45,298.59 Ha, spread over 44 villages of Taluka Vagra and Bharuch of Bharuch district in South Gujarat.

FIGURE 32 : LOCATION OF PCPIR**TABLE 4 : SIR DETAILS**

| | |
|------------------------------------------------------|--------------------------|
| Area | 453 Sq. km. |
| Focus Sector | Chemical & Petrochemical |
| Investment Already made & Committed in Manufacturing | INR 1414.43 billion |
| Infrastructure Development Investment | INR 109.94 billion |

Source: Vibrant Gujarat 2017

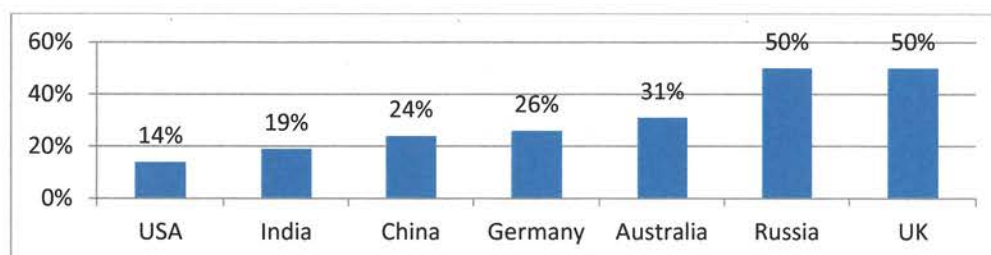
4. SPV STRATEGY OF RAILWAY DEVELOPMENT

4.1. ISSUES CONFRONTING RAILWAYS

Indian Railways has suffered from the absence of a comprehensive framework for capacity expansion over the last 60 years. Consequently, only incremental changes have taken place through gauge conversion, doubling of lines, some modernization of signaling, etc.; along with the continuous addition of new lines on uneconomic routes. Presently, the network of IR is plagued by infrastructure and carrying capacity constraints and most of the routes on the high density network (HDN) have already reached saturation in line capacity utilization.

The expenditure on the railways as a percentage of total transport sector expenditure has declined considerably over the last two decades.

FIGURE 33 : RAIL SPENDING (% OF RAIL ON ROAD SPENDING), 2013



Source: OECD, CEIC, Economic Survey

Moreover, while IR has been suffering from severe capacity constraints and remains underinvested, the road sector has witnessed a surge in investments (both public and private). The launch of the ambitious National Highways Development Project (NHDP) brought about a phenomenal improvement in the national highways.

As a result of the severe capacity constraints and distortions in relative allocation of resources, IR has seen a fall in the share of both passengers and goods transported over the last 60 years. The non-optimal intermodal distribution is estimated to cause a loss of about 4.5 per cent of GDP to the nation's economy. It is essential that an attempt is made to reverse this declining trend in railway's share or, at a minimum, to arrest it.

4.2. NEED FOR JOINT VENTURE BETWEEN STATE OF GUJARAT & INDIAN RAILWAYS

If the state of Gujarat wants to achieve consistent economic growth of 7-10 per cent per annum over the next 20 years, there is a pressing need for unprecedented capacity expansion of the railways for both freight and passenger traffic in a manner that has not taken place since independence.

If the state's GDP grows at an average of 8 per cent per annum over the 20-year period and the elasticity of total freight traffic-to-GDP is estimated at 1.2, the transport growth rate would come to about 9.7 per cent per annum.

An efficient railway transport system, along with expansion of the network, will bring in collateral benefits to the economy through industrial growth resulting from an efficient transport infrastructure and the enhanced demand for steel, wagons, engines, coaches, telecom, signaling, etc.

Consistent with the Prime Minister's vision of co-operative federalism, in the Railway Budget 2015-16, Shri Suresh Prabhu, Hon'ble Railway Minister proposed to set up joint ventures with the States. This partnership will enable the states to work closely with Railways to improve the connectivity. Their economies and citizens will benefit dramatically from an improved railway system. The voice of the locals will reverberate through the State Governments in the planning and execution of railway projects. They will also be able to raise financing through special purpose vehicles that railways will create with them. The partnership shall be a vehicle of inclusive growth, connecting regions, communities, ports and centers of industry, commerce, tourism and pilgrimage across the state of Gujarat. The reach and access of its services will be continuously expanded and improved.

4.3. STRATEGIC GOALS OF THE SPV

4.3.1. EXPANSION OF RAILWAY NETWORK

Gujarat's economic growth rate also presents a potential for higher demand for transportation; rapid urbanization and the on-going structural transformation of the Gujarat economy would give rise to increased demand for travel. Expansion of railway network to remote and backward areas serves as an engine for growth and brings overall socio-economic development in the state. Extensive use of information technology for ticketing, reservation and overall improved convenience of passengers in recent years also presents an opportunity for the growth in passenger travel. The strategy for the Joint Venture will include

- ✓ Improving the network to remote and backward areas.
- ✓ Augmentation of supply (more trains and longer trains) to ensure full satisfaction of demand.
- ✓ Shift of focus to long-distance and inter-city transport and suburban corridors involving dense passenger movements.

4.3.2. LAST MILE CONNECTIVITY

There is a responsibility of the state governments to improve connectivity to industry clusters as well as significant ports (major and non-major), based on their current and projected traffic volumes. However, it has to incentivize customers to invest in such facilities. Major freight generating sectors in Gujarat such as power, steel and cement industries and consequently coal, both domestically mined and imported, are poised for a massive expansion. Feeder routes that will carry coal and iron ore from mines to the trunk routes are critical to ensure that power generation and steel production keep up with the economy's requirements. A large part of the movement would involve linkages to new mines and ports (both major & minor). The railway network needs to grow very fast in these segments and increase its share, provided network and terminal capacity are built up expeditiously and its service offerings satisfy the increasingly cost-conscious customer. The strategy for the Joint Venture will include

- ✓ Development of last mile port and industry connectivity on PPP in a time-bound manner.
- ✓ Provide connectivity to industries to the Western Dedicated Freight Corridor (DFCs) which likely to be operational shortly.
- ✓ Development of a few selected corridors for heavy-haul operations.

4.3.3. TRANSPORT OF INDUSTRIAL FREIGHT

Gujarat is a national leader in 15 manufacturing sectors. Gujarat's SME sector has grown at an astounding pace. Fifteen percent of the total operational MSMEs in the country are from Gujarat. Gujarat contributes to nearly 25% in the states export. There is also need for the railways to support high potential industrial exports in the state like automobiles, fast-growing consumer durables and information technology (CDIT), fast moving consumer goods (FMCG), hazardous chemicals, bulk cement, fly ash, and containerized cargo. The railways need to attract and aggregate traffic of smaller parcel sizes (less than train-loads) in the non-bulk segment, and a substantial part of it, have a lead of over 500 km. In this regard an organized intermodal transport system which will combine the advantages of rail with that of road is needed. The strategy for the Joint Venture will include

- ✓ Setting up multimodal transport of non-bulk commodities (e.g. parcels) under the PPP mode, combining the efficiency and advantages of rail and road.
- ✓ Development of 3 to 5 logistics parks as the main network hubs viz. Surat, Rajkot, Jamnagar and Vadodara etc. Setting up rail-based multi-modal logistics parks to attract increasing volumes of miscellaneous cargo to rail.

-
- ✓ Expand partnership with private sector to facilitate development of private freight terminals, operation of container, automobile and special freight trains and third-party leasing of wagons.
 - ✓ Build dedicated parcel terminals with mechanized handling facilities, specifically targeted at agricultural produce, automobiles, other industrial products and general parcels.
 - ✓ Running of automobile, hazardous material trains, movement of bulk cement, etc. by private train operators.
 - ✓ Upgrade track for 25-tonne axle load.

4.3.4. TOURISM SITES LINKAGE

Gujarat has been bestowed with huge tourism potential and varied and quality handicrafts, but due to inadequate linkages to potential buyers and customers the market potential has not yet been properly tapped. Tourist arrivals in the state are growing at a CAGR of 13% and the tourist arrival to Gujarat in 2015-16 stood at approximately 23 million. This number is expected to triple in the next ten years. Railways should expand its networks to the tourism sites and customer base could become a game-changer for the tourism in the State. The strategy for the Joint Venture will include.

- ✓ Development of connectivity to unserved and upcoming tourism sites.
- ✓ Running of tourism special luxury trains in PPP mode.
- ✓ Providing stalls in PPP mode at various railway Stations to showcase the handicraft products from the State.

4.3.5. OTHER STRATEGIC REQUIREMENTS

Train services are, by and large, reliable and popular in Gujarat. However, these do not compare with best-in-class passenger railway systems elsewhere in the world in terms of speed, reliability and comforts. The railway stations should maximize the comfort for commuters and create space for premium retail in station premises. Major passenger stations in the state catering to more than one lakh passengers a day must be upgraded. This would require segregation of incoming and outgoing passengers, seamless connectivity with the surrounding city, ample parking space, comfortable concourse areas and platforms, etc.

There are also activities that are amenable and eminently suited to commercialization and yet suffer from a loss of focus being confined to a small part of the railway's operation at present. The Joint Venture should benefit from the corporatization of such activities as project/technical consultancy, construction, container transportation, telecom services, etc. The strategy for the Joint Venture will include

- ✓ Redevelopment of stations in PPP model for smooth flow and comfortable experience of passengers as also to ensure clean and hygienic environment.
- ✓ Conversion of uneconomic short distance passenger trains to EMUs/DMUs or Rail bus.
- ✓ Find sources for sundry earnings from ancillary businesses sources like project/technical consultancy, construction, container transportation, advertising and commercial utilization of surplus land.

4.4. SPECIAL PURPOSE VEHICLE (SPV)

FORMATION: BACKGROUND & RATIONAL

A Special Purpose Vehicle (SPV) is usually an entity created with a single and well-defined purpose. It is a structure for association of eligible persons or entities to collaborate for a common objective and is mainly formed to raise funds from the market by collateralizing future receivables (typical contractual structure of SPV in a project finance transaction is shown below). A Legal structure for the SPV can be in the form of a company, trust (with or without a company as a trustee), a statutory corporation, a society, firm, etc. It is an independent legal entity from the persons or entities that come together for its incorporation and contribute equity by subscribing to shares of the SPV.

Non-recourse lending is common in project finance and essentially implies securitization of cash flows and assets of the project SPV same. Non-recourse lending for project finance is likely to use a limited liability special purpose vehicle for the project.

FIGURE 34 : TYPICAL CONTRACTUAL STRUCTURE OF SPV IN PROJECT FINANCE



Typical Contractual Structure of SPV in Project Finance

Advantage of SPVs:

1. **Legal protection:** In line with the fundamental legal concept of a limited liability company, the liability of those investing in the SPV's equity capital (i.e. the project's promoter/sponsor) is restricted to the amount of such equity investment in the company.

2. Isolation of Financial Risk: Losses incurred by SPV are not shown in the balance sheet of the promoter/sponsor, so it helps to maintain the healthy picture of the promoter/sponsor in the eyes of its stakeholders. This SPV Holdco structure also ring-fences each business from the risks of the other, by preventing the business performance of one business from affecting the performance and valuation of another.

3. Lower Funding Cost: The promoter/sponsor may be subject to risks that are not acceptable to lenders. SPVs offer higher finance flexibility being a stand-alone entity and it will be possible to secure a higher credit rating depending upon the cash flow of the project and will be able to secure lower funding cost

4. Asset Ownership: The SPV owns the asset and all the permits and this allows for ease of transfer between parties. An SPV allows the ownership of a single asset often by multiple parties and permits selling of SPV as a self-contained package rather than attempting to assign over numerous permits.

5. Flexibility of becoming listed: In the project time line, it is possible for the SPV that is incorporated initially as private company to get listed on a stock exchange through an initial public offering (IPO)) or Infrastructure Investment Trusts (InvIT).

4.5. INTRODUCTION G-RIDE

Railways have an important responsibility to provide linkages to the upcoming centers of growth and in Rail Budget 2016, importance was given on Creation of Joint Ventures with State Governments for undertaking rail based projects. Considering the fact the state government has given the green signal in forming a new company, named 'Gujarat Rail Infrastructure Development Ltd (G-RIDE)' to develop rail infrastructure in the state. The state government's stake will be 51% while that of Indian Railways will be 49%. This company will work on projects to improve connectivity and correct missing links in the state.

The state government will take care that it gets project permission from the authorities and also performs land acquisition. The JV Company will co-ordinate with the Railway ministry through an SPV and implement works for the concerned zonal railways and Railway PSU projects. It has been decided that the contract of the specific SPV could be for 30 years under Railways, and land would be under the ownership of the project SPV. The proposed joint venture's initially paid up capital will be Rs. 100 crore, which is based on the cost of projects to be undertaken. Authorized share capital and paid up share capital of this JV firm, can be hiked from time to time.

5. VISION AND MISSION OF G-RIDE

5.1. G-RIDE'S VISION OF A CONNECTED GUJARAT

TO DEVELOP BEST-IN-CLASS RAILWAY INFRASTRUCTURE FOR INCLUSION OF UNSERVED AREAS IN GUJARAT THROUGH COOPERATIVE FEDERALISM

5.2. G-RIDE'S MISSION STATEMENT

1. To act as the institutional platform of the Government of Gujarat and the Indian Railways for COLLABORATION, CONSULTATION AND FASTER DECISION MAKING in delivering RAILWAY INFRASTRUCTURE DEVELOPMENT; in line with the priorities of local communities and other stakeholders in the State of Gujarat
2. To ACCELERATE implementation of CRUCIAL RAILWAY INFRASTRUCTURE DEVELOPMENT projects for the state and enable faster delivery of vital last mile railway connectivity
3. To complement and LEVERAGE PUBLIC SECTOR FUNDING through a sound FINANCIAL STRATEGY and attract investment from the private sector and other stakeholders.
4. To promote and encourage high standards of SAFETY & QUALITY in the services offered and make G-RIDE SELF-SUSTAINABLE.

5.3. STRATEGIC OBJECTIVES OF THE COMPANY

1. To realize the vision for "Cooperative Federalism" that caters more efficiently to local aspirations.
2. To enable an anchor role to the Government of Gujarat in the Planning and Implementation of Railway Infrastructure
3. Speed up the Development of Railway Projects on state's priority and deliver the top 6 priority railway infrastructure projects of the State by 2025
4. To act as a nodal agency to plan and complement development of railway infrastructure integrated with the transportation and logistics development plan of the State of Gujarat.
5. To connect the identified unserved regions in the state by 2030 with the objective of bringing people closer to each other and offering all citizens equitable access to convenience, facilities and opportunity.
6. Generate greater financial resources through participation of the State, other stakeholders, including the private sector in project specific SPVs
7. Promote and encourage innovation and best practices in these railways infrastructure development including in conceptualization, design, construction and maintenance

-
8. To deliver technical expertise for railway infrastructure development through the commissioning of DPRs and other studies as also through in-house expertise and external experts.
 9. To adopt best practices for the protection of natural resources and efficient use of energy across its construction and operations & maintenance.
 10. To deliver railway infrastructure the complements the states objectives of encouraging trade, tourism, economy and overall growth in the state.

5.4. FUNCTIONS OF THE COMPANY

1. **PLANNING** : Identification and prioritization of railway projects
 - a. Delivery of crucial last mile connectivity and complement efforts for building an efficient logistics ecosystem which is essential for accelerated economic growth in the state
 - b. To build capacity to cater to growth in demand, and increase volume of cargo traffic and passenger traffic that will complementing economic growth.
 - c. To propose and upgrade other necessary railways infrastructure including Railway Stations and other such supporting infrastructure.
2. **PROJECT PREPARATION** : To deliver Techno-Commercial expertise in railways at the State level by:
 - a. Acting as the nodal agency with oversight for propagating railway infrastructure as an integral element of transportation, logistics and connectivity in the state of Gujarat.
 - b. Commissioning necessary technical evaluation, feasibility assessment, detailed engineering and construction management of critical rail projects in the State of Gujarat.
 - c. Assignment of critical Railway Development Activities, requiring new skills and techniques.
 - d. Building in-house capabilities to guide the integrated development of railway infrastructure as also maintain oversight.
3. **PROJECT DEVELOPMENT**: Facilitate Commissioning of railway infrastructure projects including :
 - a. Last mile connectivity
 - i. Greenfield connectivity - connectivity to ports, industrial regions, unserved areas, tourist attractions, strategic locations and others.
 - ii. Gauge up gradation, capacity enhancement and line extension projects.
 - b. Station Redevelopment projects

-
- c. Multi-modal logistics hubs
 - d. Innovative railway transportation solutions such as Rail-Bus.

4. FINANCIAL STRATEGY : Channelize public funding

- a. To encourage market based financing and participation of private sector, Public Sector Undertakings (PSUs) and State level PSUs in the rail sector
- b. To be able to raise financing through project specific SPVs that would be created with the private sector, PSU's and SPU's.
- c. To extend financial support in the form of equity (minimum 26%)

5. INSTITUTIONAL AND REGULATORY COORDINATION :

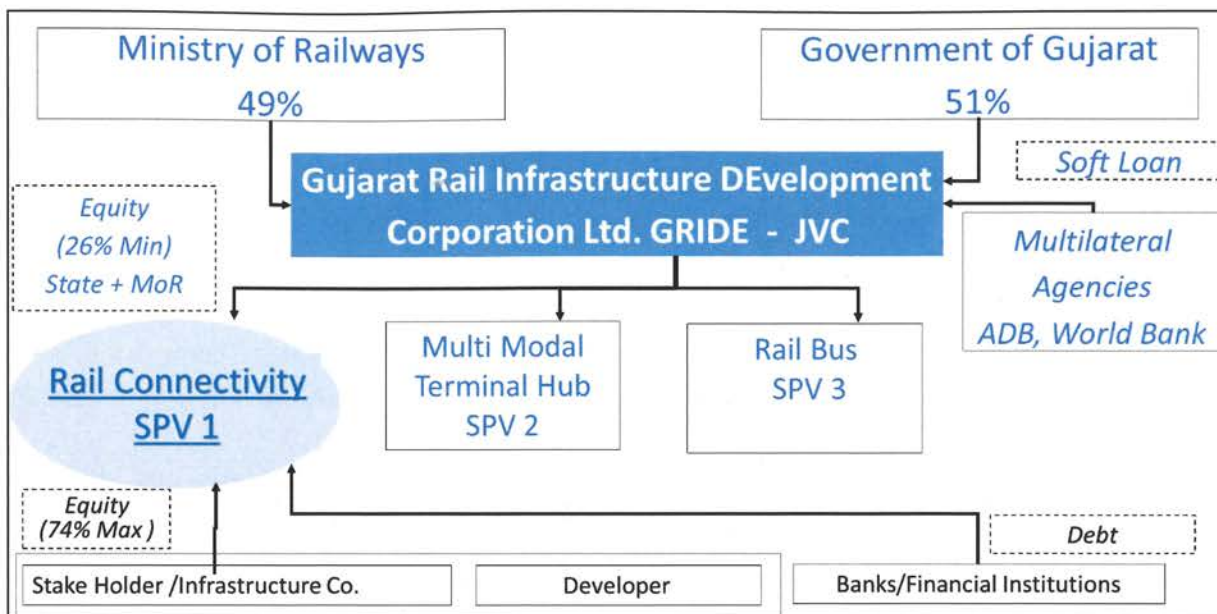
- a. Represent interests of railway projects with the Government of Gujarat and Ministry of Railways for coordinated action, approvals and joint resolutions of bottlenecks

6. FUNCTIONAL STRUCTURE OF SPV

6.1. MODEL FOR STRUCTURING G-RIDE AS SPV:

- ✓ The proposed rail connectivity infrastructure projects envisaged in Gujarat are anticipated to involve a significant quantum of investment and at the same time have a long gestation.
- ✓ The rail connectivity projects and development of the region/location being connected itself are mutually dependent on each other and hence would require public sector oversight and intervention for facilitating development and funding especially in the early stages.
- ✓ There are challenges in attracting a private sector developer at an early stage, while at the same time these projects being entirely public funded result in significant public resources being tied up.
- ✓ To overcome the above challenges, the approach adopted for G-RIDE (Holding SPV) formation is to pool in public resources of various arms and agencies of the State and Union Government as also to structure projects (Independent SPVs) with the relevant partners/stakeholders in a manner that they are more bankable.
- ✓ Independent SPVs (Subsidiaries) shall be created for each rail connectivity project. G-RIDE (Holding SPV) will have constituents common to all rail connectivity projects, with a minimum 26% stake in each of these independent SPVs.
- ✓ The Independent SPVs (Subsidiaries) will have equity participation from partners specific to a particular connectivity project (such as port developer, contractors, industrial hubs or industries seeking connectivity etc.)
- ✓ The umbrella SPV structure helps in leveraging funding from the public and private sectors. Funds can be raised by G-RIDE from multilateral agencies in terms of soft loan. The Independent SPVs (Subsidiaries) can in turn raise debt from banks and financial institutions.

FIGURE 35 : SPV STRUCTURE OF G-RIDE



6.2. BOARD OF DIRECTORS - G-RIDE

6.2.1. CONSTITUTION, APPOINTMENT AND NOMINATION

- (a) There will be a maximum of 12 Directors to the Board. The number of Directors of each Party will be in proportion to its investments in equity share capital and subordinated debt.
- (b) The Board will consist of a maximum of 12 (Twelve) Directors. The Board will be constituted as follows:
 - a. One Chairman of the Board;
 - b. One Managing Director (a whole-time Director of the JVC) who will be selected by a committee comprising of the representatives of MOR and GOG in equal numbers or by mutual consent of MOR & GOG;
 - c. Two whole time directors with each of GOG and MOR having the right to appoint one whole time director;
 - d. Six non-whole time directors: Two non-whole time directors being nominated by each of GOG and MOR; and Two independent directors drawn from private or public sector or educational institutions who will be experts in their respective fields.

6.2.2. CHAIRMAN

The Company shall have a non-executive Chairman, who shall be a nominee of Government of Gujarat. The term of Chairman shall be co-terminus with that of his term as the Director of the Company.

6.2.2.1. BROAD PRINCIPLES OF FUNCTIONING

- (a) It is agreed between the MOR and GOG that in view of the limited availability of the resources (including the funds), the JVC will only undertake the implementation of such railway projects which are considered economically feasible and financially Viable by the Board and/or projects with viability gap funding. The feasibility of a railway project will be determined by the Board, after undertaking an analysis and pre-feasibility/ feasibility study of the potential projects.
- (b) Once a project has been sanctioned, a concession agreement will be signed between the MOR and the Project SPV. The concession period will be up to 30 (thirty) years (beginning from the date of execution of the respective concession agreement for the project)
- (c) The land acquisition will be undertaken by the GOG on a timely basis to ensure that the Viability of the project is not adversely affected. However, other options may also be considered by the Board and the Project SPV for the acquisition of land (as required for the implementation of the project).
- (d) The implementation (including operations and maintenance) of the projects will be undertaken by concerned Zonal Railways or any other

agency as decided by the Project SPV in consultation with MOR. The cost of such implementation (including operations and maintenance) of the project will be chargeable by MOR to the Project SPV. Further the MOR will ensure that the Indian Railways provides last mile connectivity to the projects (which have a close interface with the existing network of Indian Railways) and the costs for such last mile connectivity will be borne by Project SPVs, through an appropriate mechanism as mutually agreed between the Parties and the Project SPV.

- (e) The ownership of the land acquired for the project will normally vest with the Project SPV. Alternatively, in case, land is acquired through the Railways Act, the land may vest with MOR. In case of projects for which Viability may be a concern apart from equity contribution, GOG will endeavor to provide the land at no cost to the Project SPV, so that the project may be implemented by the Project SPV without any delays.
- (f) At the end of the term of the concession agreement (i.e. of 30 years), or at termination of the Agreement, MOR will have the option to acquire the assets of the relevant project (excluding the land), at a nominal price of Rs. 1 (Rupee One only). The land would be transferred by the relevant Project SPV to MOR at the original acquisition cost of such parcel of land, as incurred by the Project SPV, if any. However, in the event the MOR does not exercise the option of taking over the assets of a project, such assets (including the land) will continue to vest with the Project SPV under the (then) existing terms and conditions of the concession agreement.
- (g) Apart from the equity contribution by the JVC, the Project SPVs may undertake to arrange financial support and resources from stakeholders of the projects other than the Parties and the JVC. In this regard, the Project SPVs may raise funds in the form of debt from banks/multi-lateral agencies/ financial institutions on a non-recourse/recourse basis.
- (h) The entire debt for a project is to be serviced by the Project SPV during the concession period (in terms of the concession agreement), primarily out of internal earnings generated by it, including through apportioned earnings transferred to the Project SPV by the Railways based on the principles specified in the Indian Railways Financial Adjustment (IRFA) Rules.
- (i) It is clarified that in the event of a Project SPV making financial losses, the losses will be borne by the shareholders of such Project SPV in proportion of their (then) shareholding. In the event MOR exercises the

option of acquiring the assets from the Project SPV, then MOR, by itself, will not be liable to bear the accumulated losses.

- (j) In the event any state governments other than the GOG is interested in participating in a project, the Project SPV may be formed with equity investment by the JVC, as well as direct equity investment from such other interested state governments. Shareholding of such Project SPV will be mutually agreed between the JVC and other state governments, and the inter-se rights in such Project SPV will be governed by the respective shareholders' agreement.

6.2.3. ROLE OF SUBSIDIARIES OF G-RIDE

Subject to Applicable Law and consent of the Parties, the JVC may, from time to time, incorporate project specific subsidiaries ("Project SPVs"), if necessary, to undertake viable railway projects identified by the Parties in consultation with each other, or the Board. The Project SPVs will be incorporated as limited liability Company under the Act.

The initial equity in the Project SPVs will be contributed by the JVC. Accordingly, the MOR and GOG will infuse equity in Project SPVs only through the JVC (and not directly), and hence, the Project SPVs will remain a subsidiary of the JVC unless otherwise mutually agreed between MOR.

6.3. OVERVIEW OF THE CONCESSION AGREEMENT

The Projects are planned to be setup in dedicated SPVs which are also expected to have equity partners from the private sector (rail customers and/or financial investors). However, G-RIDE will maintain a minimum 26% equity shareholding in all the SPVs.

These SPVs will undertake the Projects under long term Concession Agreements with the Ministry of Railways. Following is an overview of the terms of the Concession Agreement.

| | |
|-------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Concession Period | 30 years from the date of Project COD. The concession period of 30 years will be reduced or extended symmetrically depending upon traffic exceeding/ going below a Projected Net Tonne Kilometers (NTKM) threshold. |
| Rights of Concessioneing Authority (MoR) | <ul style="list-style-type: none"><input type="checkbox"/> MoR shall provide right of way, leave and licence rights in respect of the land owned by MoR for the purpose of connecting the Rail System to (nearest existing Station or existing rail head).<input type="checkbox"/> MoR shall undertake interconnection of the Rail System with the rail network of Indian Railways.<input type="checkbox"/> MoR shall pay the User Fee to the Concessionaire.<input type="checkbox"/> MoR shall provide a timely supply of sufficient number of rakes, wagons, locomotives and other rolling stock for the efficient movement of trains |

| | |
|----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Rights of Concessionaire | <p>on the Rail System depending on demand, handling capacity and network capacity.</p> <ul style="list-style-type: none"> <input type="checkbox"/> Concessionaire shall, at its own cost and expense, procure finance for cost of implementation of the project (including operations and maintenance). The implementation (including operations and maintenance) of the projects will be undertaken by concerned Zonal Railways or any other agency as decided by the Project SPV in consultation with MOR. The cost of such implementation (including operations and maintenance) of the project will be chargeable by MOR to the Project SPV. <input type="checkbox"/> Concessionaire shall make reasonable efforts to facilitate the acquisition of land required. <input type="checkbox"/> Concessionaire shall make, or cause to be made, necessary applications to the relevant Government Instrumentalities with such particulars and details as may be required for obtaining Applicable Permits. |
| Transfer of Project Assets | <ul style="list-style-type: none"> <input type="checkbox"/> At the end of the term of the concession agreement (i.e. of 30 years), or at termination of the Agreement, MOR will have the option to acquire the assets of the relevant project (excluding the land), at a nominal price of Rs. 1 (Rupee One only). The land would be transferred by the relevant Project SPV to MOR at the original acquisition cost of such parcel of land, as incurred by the Project SPV, if any. |
| Concessions Authority Event of Default | <ul style="list-style-type: none"> <input type="checkbox"/> MOR commits a material default in complying with any of the provisions of this Agreement and such default has a Material Adverse Effect on the Concessionaire; <input type="checkbox"/> MOR has failed to make any payment to the Concessionaire within the period specified in this Agreement. |
| User Fees | <ul style="list-style-type: none"> <input type="checkbox"/> MoR shall pay full apportionment of revenue as user fee after deducting the cost of Reserved Services. The apportioned earning for the rail system will be calculated based on proportionate distance but after setting aside the terminal charges as applicable at the time of signing of the agreement. |

7. PARTICIPATIVE MODELS IN RAIL CONNECTIVITY & CAPACITY AUGMENTATION PROJECTS

7.1. INTRODUCTION

Indian Railways are operating in the core sector of the economy. To strengthen, modernize and expand the IR network, the investment requirement is huge. Ministry of Railways wishes to attract private capital for accelerated construction of fixed rail infrastructure. For this purpose, it has formulated participative investment models for its existing shelf of projects and also for new projects.

7.2. ADVANTAGES TO THE STATE GOVERNMENTS

- Ensure timely development of rail infrastructure critical to the economic development of the State.
- Reduces congestion on the roads.
- Investment in rail is cost effective compared to roads.
- It is environment-friendly.

7.3. OBJECTIVES

- Supplementing Government investment in rail infrastructure projects by private capital flows.
- Involving the States in creation/development of rail infrastructure for the common public good.
- Timely creation of rail transport capacity to avoid supply-demand mismatch.
- Ensuring availability of transport needs consistent with the expected GDP growth of 9%.

7.4. MODELS AND POLICY FRAMEWORK

i. NON-GOVERNMENT RAILWAY MODEL

APPLICABILITY

This model shall be applicable to first and last mile connectivity projects at either end of the rail transportation chain providing connectivity to ports, large mines, logistics parks or other similar industries/ cluster of industries, which are handling goods traffic for multiple consignors or consignees. It is applicable for transportation of any kind of goods traffic. These railways will be operated on "common carrier" principle for public transportation of goods. The railway connectivity will be developed on private and it will be a Non- Government Railway project.

LEGAL/POLICY FRAMEWORK

It will be a Non- Government Railway under Railway's Act 1989. The Railway will become a member of the Indian Railway Conference Association. Under extant governmental policy, the train operation will be undertaken by the Zonal Railway serving the Non- Government Railway in a seamless manner. A Proposal for such a Railway system will emanate from the beneficiaries of the first/ last mile connectivity.

PROJECT DEVELOPMENT AND PROJECT STRUCTURING

Project development and project structuring will be done by Project Developer to establish project cost, land requirement and other project component requirements. The project report will be examined by IR from the stand- point of its meeting of operational requirement for the traffic being projected for the railway system.

PROJECT DEVELOPER, FUNDING AND LAND ACQUISITION

- It envisages financial participation of the project proponent in the development and creation of rail infrastructure for providing first/last mile connectivity under an agreement with MOR (Ministry of Railways) either on its own or as a joint venture with infrastructure financing and development institutions.
- Funds will be fully mobilized by the project proponent etc. without any participation by the Railways.
- Land for the line will be acquired by the Project Developer to provide connectivity with the main line railway system. Railway land for providing connectivity may also be made available on lease/license as per extant policy. However, in such case commercial utilization of the railway land for purposes other than for the project will not be permissible.

CONSTRUCTION

Project construction will be done by Private Railway either on its own through a private agency or through Railways as special deposit work. Certification will be done by IR as per extant rules/policy.

MAINTENANCE

- Maintenance of the project line and project assets will be done by the Non- Government Railway as per IR standards under supervision/certification by the Zonal Railways on payment of supervision charges. Alternatively, Non- Government Railway may choose to entrust the maintenance to IR by entering into an O& M agreement.

-
- Renewal of project asset, technological up-gradation and capacity addition from time to time shall be undertaken by the project developer at its own cost as per IR standards.

OPERATIONS AND REVENUE COLLECTION

There will be seamless operation between IR network and the non-government railway system by IR with IR's rolling stock and locomotives. Railways will recover the cost of operation from non-government Railways (See Revenue Model).

Commercial activities related to freight handling at the terminal will be done through Goods Clerk posted by IR whose cost shall be borne by IR. Freight for both outward and inward traffic will be collected by IR.

REVENUE MODEL

- IR will pay user fee for the usage of infrastructure.
- User fee will be calculated on the basis of following:
 - Private line's apportioned share of 95% freight computed on the basis of Inter Railway Financial Adjustment Rules as provided in Paras 868 and 869 of Indian Railways Finance Code Volume-I Net of cost of operation and other fees/charges.
- Normal IR tariff/ freight rates shall apply on the project line. Freight revenue will be collected by IR
- The Non-government Railway shall pay the fixed cost i.e. the cost of essential operational and commercial staff to operate the line such as station staff, gatekeepers and maintenance supervisors etc. to IR. Variable Cost of operation shall be computed in terms of cost of rolling –stock usage, fuel/energy, and crew etc. including allocable overheads. The variable cost and other charges such as demurrage on wagons at terminals operated by the Non-Government Railway, where applicable, shall also be recovered by IR at the time of making net payment to the Nongovernment Railway.

SIDINGS AND NEW LINE CONNECTIVITY

IR will have full rights to provide new rail connectivity taking off from the project line or provide sidings from the project line. However, the cost of the new connectivity's including modifications to stations/yards shall be borne by new entrants and interests of original customers of the Non-Government Railway for freight movement shall be protected.

CONCESSION PERIOD

As the project line is on private land and the assets are fully private infrastructure, it will be transferred to IR in case of violations of specified terms of agreement at terms set out in the Agreement or by mutual consent at such terms as may be mutually agreed.

ii. JOINT VENTURE MODEL

APPLICABILITY

It is generally applicable for bankable New line and Gauge Conversion projects either sanctioned or proposed to be sanctioned having clearly identifiable stake holders either as user of the line or utilities such as ports, mines, exporters, plants and the State Governments. Bankability of the projects, if required, can be enhanced through innovative financial structuring such as sub-ordinate debt, grants etc.

PROJECT DEVELOPMENT AND PROJECT STRUCTURING, LAND ACQUISITION

- Project development will be done by Indian Railways or its PSU through consulting firms to establish project cost, land requirement, project design and other project component requirements, and project bankability.
- IR will do financial structuring of the project to make it bankable including identification of risks and mitigation measures.
- Land acquisition will be done either by Indian Railways at the JV's cost or by the JV itself as mutually decided. Ownership of the land will vest with the Railways. Land will be given to the JV on annual token lease of one rupee for the entire concession period. Cost of acquisition of land will be treated as a long-term non-interest-bearing advance and will be refunded to the JV on expiry/termination of concession. For such cases, the land acquisition cost will be certified by an independent agency.
- Railway land, as available, and MG/NG assets in case of Gauge Conversion projects, required for the project will be made available on lease/license at a token rental/fee of Re 1.00 per annum.

SELECTION OF EQUITY PARTNERS, FUNDING, REVENUE MODEL

- It envisages participation of the stakeholders and beneficiaries besides national level infrastructure funding institutions in the development and creation of rail infrastructure through appropriate concession.
- Financial participation will be through equity participation in the JV. The JV will be a joint venture with Railways as a partner with IR or its PSU holding a minimum of 26% equity shares. Other partners will be selected from the stakeholders such as users of the line like ports, mines etc. Selection of partners will be done through a transparent Expression of Interest process, with clearly laid down technical qualifications based on parameters like net worth, minimum threshold of equity participation etc. However participation by state governments and PSU's and other government entities will be through nomination basis.
- Project will be assigned to the JV by Ministry of Railways on nomination basis.

- Debt will be raised through Project Finance route without any guarantee by the Government of India.
- Revenue from the operation on the project line will be collected by IR through its commercial staff. The Revenue stream of the JV shall be established through revenue apportionment from freight operation for the project line as per Inter-Railway Financial Adjustment as stipulated in IR Finance Code Volume-I. No apportionment of passenger revenues will be made. JV will provide free access to IR passenger trains.
- Normal IR tariff/ freight rates shall be applicable. Inflated tariff to improve bankability could be approved by Railway Board in specific cases.
- Commercial utilization of railway land, commercial publicity rights as permissible under the law and public policy.

CONSTRUCTION

Project construction will be done by the JV. The JV must ensure transparency in project procurement in line with the extant guidelines of Government for public procurement. The JV may however choose to entrust construction to IR or its agencies by entering into a Construction Agreement. Certification will be done by IR as per the extant rules/policy.

MAINTENANCE

Maintenance of the project line could be done either by the JV or by IR through an O&M agreement. In case the maintenance is undertaken by the JV, supervision/certification shall be done by IR on payment of supervision/certification charges by the JV.

OPERATIONS

- Operations will be done by IR. Recovery of O&M cost
- IR will recover O&M cost or cost of operation as applicable as per the Agreement. The JV shall compensate IR for the fixed cost i.e. the cost of essential operational and maintenance staff and other maintenance expenditure (if maintenance is to be done by IR) or the cost of supervision/certification. The variable cost of operation i.e. the cost of rolling-stock usage, fuel, crew etc. shall be recovered from the apportioned revenue. IR will pay to the JV apportioned revenue net of such cost as applicable, as per a pre-defined formula to be specified in the O&M or Operations agreement.

CONCESSION PERIOD

- Concession period will be normally 30 years including the Construction period. The concession period shall be subject to both upward and downward revision depending on shortfall/excess of traffic materialization vis-a-vis the specified threshold traffic (80% of

the total traffic to be carried during the Concession period expressed in terms of million ton kilometers) on the Target Date (25 years after signing of the Agreement). Threshold traffic shall be determined on the basis of the Feasibility Report. For every shortfall of 4%, the Concession shall be extended by one year and the reverse principle shall apply if actual traffic exceeds the threshold traffic. However, the concession period shall not be less than 25 years and more than 35 years of operation.

- Cost of land acquisition paid by the JV shall not be factored in for the purpose of such equity return. No termination payment shall be admissible in case of natural expiry of the concession period.

RISK MITIGATION

Traffic guarantee and rolling stock availability agreement will be signed wherever such guarantees are considered necessary to mitigate the demand risk. Traffic guarantee shall be in the form of a "take or pay" agreement on the part of the strategic partners (users) for the minimum volume of traffic to be moved. Strategic partners will be required to enter into an agreement with IR on minimum commitment of traffic volumes to be moved on the line. IR shall assure provision of rolling-stock for loading and transportation in respect thereof. In case of failure by either the strategic partners (users) or IR, penalties stipulated in the agreement shall be payable to JV.

GENERAL FEATURES

JV shall operate on "common carrier principle for public transportation of goods and passengers. For rail users, IR would be the interface.

iii. BUILD OPERATE TRANSFER (BOT) MODEL

APPLICABILITY

This model shall be applicable to the sanctioned Railway projects where it is not possible to identify a stakeholder or strategic investor who can take a lead in making investment in the project line. The projects under this model will generally be long rail corridors carrying traffic generated from various streams. These will be sandwiched sanctioned new line and gauge conversion projects or dedicated freight corridors. In the absence of strategic investor, selection of investors will be done through competitive bidding process. The concessionaire so selected will design, build, finance, maintain and transfer the railway line at the end of concession period.

PROJECT DEVELOPMENT

Project development, preparation of DPR, establishing financial viability & bankability will be done by MOR/Zonal Railway by engaging credible

consultants and the project will be sanctioned as a railway project following the applicable procedure of appraisal/approval of PPP projects.

SELECTION OF CONCESSIONAIRE

- The concessionaire will be selected through competitive bidding process. Premium or grant (through viability gap) will be the bidding parameter. Design, Build, Finance, Maintain and Transfer (DBFMT) Concession
- The project will be funded by the concessionaire. The concessionaire will design and build the project within the design & performance parameters specified by MoR. The statutory/mandatory design approvals, wherever required, will have to be taken from CRS or the concerned Zonal Railway.
- However, it will be the responsibility of the concessioning authority/IR/Zonal Railways to get these approvals within a specific timeframe.
- Land acquisition for the project will be done by the Railways at their cost. Land will be owned by the Zonal Railways. It will be given to concessionaire on license on a token license fee of Ref per annum.

REVENUE SHARE

User fee to be paid by IR will be calculated on the basis of following principles:

- i. IR published tariff for the year of RFQ will be used as base tariff along with specified annual escalation percentages based on inflated mileage charges.
- ii. Inter Railway Financial Adjustment formulae shall be used for apportionment of freight realized by IR on the project section.
- iii. The user fee to be paid to concessionaire by IR will be 50% of the apportioned freight as calculated in (ii) above.

Regardless of actual running of trains, trains chargeable on the route as per the routing indicated on the Railway Receipt (RR) shall be considered for apportionment. To insulate the concessionaire from the risk of inflation, appropriate mechanism for year-on-year escalation of base tariff (prevailing tariff levels) shall be built in. In case, freight revisions by IR lag and freight charges do not cover the pay-out to the concessionaire, IR would recover such additional amounts by levying and collecting inflated mileage charges on the project line on the pattern of Konkan Railway.

CONSTRUCTION

Project construction will be done by concessionaire through its own agency under mandatory certification and supervision from Railways.

MAINTENANCE

The concessionaire shall be responsible for maintenance of the project line to make it rail-worthy at all times, including replacement/renewal of assets as per IR standards and specifications. Supervision and certification shall be done by IR on payment of specified charges.

OPERATION

Train operation will be done by Indian Railways.

CONCESSION PERIOD

Concession period will be fixed at 25 years. This shall include the Construction period. The concession period shall be subject to both upward and downward revision depending on shortfall/excess of traffic materialization vis-a-vis the threshold traffic (80% of the total traffic to be carried during the Concession period expressed in terms of million tons kilometer's) on the Target Date (20 years after signing of the Agreement). Threshold traffic shall be determined on the basis of the Feasibility Report. For every shortfall of 4%, the Concession shall be extended by one year and the reverse principle shall apply if actual traffic exceeds the threshold traffic. However, the concession period shall not be less than 20 years and more than 30 years.

iv. CUSTOMER FUNDED MODEL

This model addresses doubling/ multiple line projects where some customers are beneficiaries of the capacity addition and may be interested in funding the project for expeditious completion/commissioning.

PROJECT DEVELOPMENT, FINANCING, CONSTRUCTION, MAINTENANCE AND OPERATION

The project will be sanctioned as a railway project on the basis of an MOU/Agreement entered into between Railways and the Customers wishing to fund the project in full or part. It will be constructed, maintained and operated by Railways. IR shall ensure that the funds advanced by the customers will be treated as deposits and used solely for timely execution of the concerned project by appropriate ring-fencing. The ownership of the line and its operation and maintenance will always remain with Railways. In return, Railways will pay up to 7% of the amount invested through freight rebate on freight volumes every year till the funds provided by the project beneficiary is recovered with interest at a rate equal to the prevailing rate of dividend payable by Railways to General Exchequer at the time of signing of the agreement. The interest shall be payable on the reducing balance.

V. ENGINEERING PROCUREMENT CONSTRUCTION (EPC) CONTRACT MODEL

APPLICABILITY

This model is applicable to sanctioned doubling, third line and fourth line projects where it may not be possible to find funding from any specific user.

PROJECT DEVELOPMENT, FINANCING, CONSTRUCTION, MAINTENANCE AND OPERATION

- Indian Railways will be responsible for project formulation, DPR, Final Location Survey etc. The feasibility report would be prepared by a consulting firm to provide an indicative assessment to the prospective bidders. The prospective bidders will carry out due diligence on the feasibility report.
- Concession period will be fixed in the range of 15-20 years based on the feasibility report.
- Indian Railways shall also be responsible for finalization of Engineering Scale Plans & Signal Interlocking Plans, if any as also technical standards and specifications.
- Project will be appraised, approved and awarded following the procedure laid down by Government for PPP projects.

LAND ACQUISITION

Land acquisition and shifting of structures to the extent required would be done by IR.

NATURE OF DESIGN, BUILD AND TRANSFER CONCESSION AND SELECTION OF THE CONCESSIONAIRE

- The concession would be for financing and construction. Supervision and certification of construction would be carried out by IR under guidelines specified in the agreement.
- Train operations and maintenance will be by IR i.e. IR will manage stations, signals, level crossing gates, if any, running of trains and section control.
- IR shall, based on the requisite papers submitted by the Concessionaire, apply for and obtain CRS sanction.
- Non-interlocking (NI) activities preceding operationalization of the double/multiple line will be undertaken within a stipulated period after Construction Completion Certificate in respect of the civil works is furnished by the Concessionaire. NI will be done by the Concessionaire under the supervision of IR.
- Track-mounted technological tools could be deployed to eliminate possibility of disputes on account of flat-wheels, hot axles, and hanging

parts during the period of defect liability. In addition, an appropriate mechanism would be set up for resolution of technical disputes.

REVENUE MODEL

- The concessionaire would be paid through annuity for limited predetermined period. Annuity will be determined through competitive bidding
- Annuity payments will be budgeted and paid on a committed basis.

7.5. STATE GOVERNMENTS

In case state governments or their agencies evince interest in developing and taking up any railway project in their respective states, they can participate under the schemes described herein. In particular, if the projects can be structured as an JV or a Non-Government Railways as defined in the Railways Act, 1989, it is proposed to permit them to take up such projects under the framework described in an JV or a Non-Government Railways model mentioned above (subject to a limited concession period with the additional flexibility to run passenger services on these lines in compliance with all safety and statutory requirements). Further, they will be permitted to bid out such projects within the boundaries of the Concession Agreement. In other words, they will not create any additional encumbrances on the project assets or additional obligations on Railways. They will be, however, fully responsible to meet their commitments to Ministry of Railways regardless of the outcome of the bidding.

7.6. COMPARISON OF MODELS

TABLE 5 : COMPARISON OF PARTICIPATORY MODELS

| Particulars | Non-Government Railway Private Line Model | Joint Venture Model | Build Operate and Transfer (BOT) Model | Customer Funded Model | BOT Annuity Model | Engineering Procurement Construction (EPC) Contract |
|-------------|------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|
| Framework | The line built by the developer on a private land is primarily a private infrastructure. | The line built by JV with equity participation by the strategic investors along with | Concessionaire will Design, build, finance, construct and maintain the project line for a | Financially viable projects sanctioned by MoR. developed taking advance from customer | In projects where user charges cannot sustain , Annuity Model is used with fix pay for | IR undertaking Construction of projects through the Conventional method (competitive bidding) |

| | | | | | | |
|------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------|
| | | Railway & its PSU | concession period of 25 years | augmentation of Capacity | concession years | |
| Construction Monitoring & Supervision Rail of System | Design, engineer, procure, construct O&M By Developer & Supervision will be done Zonal Railways | The JV has to will construct, O&M rail system and Supervision will be done Zonal Railways | Concessionaire has to undertake construction of rail system within the Specifications and standards of MoR. | Indian Railways will undertake construction of the rail system. | Indian Railways will be responsible for project formulation, and development by Developer | Indian Railways will be responsible for project formulation, and development by Contractor |
| Operation & Commercial | IR will provide seamless operation on private line and IR network | | | | | |
| Financial Closure | Their no timeline for financial closure | Within one year from Agreement/ effective date | Within 180 days from agreement date | Advance received No financial closure | Within 180 days from agreement date | Managed by Contractor |
| User Fees / Revenue Sharing | IR shall pay full apportionment of revenue as user fee after deducting the cost of Reserved Services. | IR shall pay full apportionment of revenue as user fee after deducting the cost of Reserved Services. | MoR shall pay 50% of apportionment of freight revenue as user fee in RFQ. MoR would guarantee 80% of the projected revenue during any year. | IR will pay up to 7% of the amount invested through freight rebate on freight volumes moved on the project section every year till the funds recovered | Payment to concessionaire will be through annuity which is determined through competitive bidding | A simple and rational method for estimating interim payments to the Contractor has been provided in the Agreement |

| | | | | | | |
|-------------------|----------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------|---------------|------------------------------------------------|----------------------------------------------------------------------|
| Concession period | It is Private Infrastructure. No concession Period | Normal concession period is 30 years. Can be ext. up to 35 years | Between 20 years to 30 years. depending on project revenue | IR owned Line | Depending on Annuity model and Type of Project | The contract period is project-specific depends on construction work |
|-------------------|----------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------|---------------|------------------------------------------------|----------------------------------------------------------------------|

8. ECONOMIC PLANNING & FINANCIAL VIABILITY

There is a pressing need for significant capacity expansion in Gujarat Rail Network Development to strengthen the freight and passenger traffic movement to supplement a 7-10% economic growth rate in the state. Towards the foregoing, "Gujarat Rail Infrastructure Development Ltd (GRIDE)" was formed for the development of rail infrastructure as per the socio-economic requirements of a state. The company will invest in various Special Purpose Vehicles (SPVs) which will undertake and accelerate implementation of crucial railway infrastructure development projects for the state of Gujarat and enable faster delivery of vital last mile railway connectivity.

The creation of rail infrastructure involves a significant quantum of investments in CAPEX and has a relatively long gestation period. An optimal financing mix could help in maximizing returns for each investment instrument while reducing the overall transaction and capital cost, thereby ensuring high socio-economic benefits.

The primary function of G-RIDE will be as per the following:

- Fund raising through suitable instruments in both its own books and in the books of SPVs
- Servicing the investors of G-RIDE
- Evaluating and appraising proposed projects for investments and periodic monitoring of investments
- Preparing a shelf of viable railway infrastructure projects and providing advisory/ management services to SPVs
- Exploring joint venture/ development of infrastructure projects, along with various stakeholders
- Provide operational/ financial support to SPVs

8.1. SOURCES OF FINANCE FOR G-RIDE

A. Equity Contribution

G-RIDE has been conceptualized as a 51:49 Joint Venture of Indian Railways and Government of Gujarat with initial paid-up capital of INR 100 Cr., contributed by both the shareholders in their respective shares.

While initial corpus would be utilized in strategic SPVs to work on identified projects for building the required connectivity and plugging the missing links within the state of Gujarat, it is critical to ensure leveraging the existing paid-up capital, manifold so as to enhance the investment capability of G-RIDE.

B. Multiplier Effect

G-RIDE will leverage its equity of INR 100 Cr. by additional INR 200 Cr. (i.e., an investment corpus of INR 300 Cr.) through issuance of suitable instruments like Non-Convertible Debentures (NCDs), Commercial Papers (CPs), Multilateral Funding, Bank Finance, Offshore Bonds etc.

The unique features associated with each instrument are summarized below:

TABLE 6 : UNIQUE FEATURES OF FINANCIAL INSTRUMENT

| S. No. | Instrument | Features |
|--------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. | Non-Convertible Debentures | <ul style="list-style-type: none">• Minimum investment grade credit rating of G-RIDE required• Highly liquid instrument• Can be accessed by mutual funds & other long term investors• Tax saving structure for the issuer |
| 2. | Commercial Papers | <ul style="list-style-type: none">• Short term instrument; can be utilized for bridge financing• Cheaper source of funds• Limited compliance requirement• Large appetite of investors |
| 3. | Multilateral Funding | <ul style="list-style-type: none">• Cheaper & longer term source of fund• High compliance requirement but presence of multilateral institutions enhance confidence of other avenues of funding• High interest of World Bank (IFC), The Department for International Development (DFID), Japan Bank for International Cooperation (JBIC) and Asian Development Bank (ADB) in Indian infrastructure potential |
| 4. | Bank Finance | <ul style="list-style-type: none">• Easier source of funds• Structuring opportunities available as per business model |
| 5. | Offshore Bonds | <ul style="list-style-type: none">• Rupee denominated bonds to offset currency risk for issuers• Higher coupon rate to compensate for currency risk• Lower rates compared to Indian markets |

8.2. INVESTMENT CRITERIA

G-RIDE will use the pre-defined criteria to evaluate and prioritize the proposed pipeline of projects, with a view to maximize the benefits of available resources:

- a) Social and Economic Benefit for all stakeholders
- b) Cost-Effectiveness
- c) Implementation Potential
- d) Financially Viable Projects

In addition to aforementioned criteria, each investment proposal will have to achieve predetermined/reasonable Internal Rate of Return (IRR) and Equity Rate of Return.

Maximizing Rate of Return

G-RIDE will aim to maximize the return on its investment in SPV by (1) exploring joint ventures with direct beneficiaries of the Project; and (2) choosing the right nature of equity contribution

A. Joint Ventures

In order to maximize the potential of available resources, G-RIDE will look to enter into joint ventures with direct beneficiaries of the Project (i.e., various state run entities, boards, PSUs and private companies), subject to G-RIDE holding minimum 26% equity share capital/ voting rights of the SPV.

Joint Ventures will also ensure high efficacy in selection of projects and make it internal to the future development plans of the beneficiaries.

B. Equity

The various ways under which GRIDE can finance its strategic projects are as follows:

Common Equity Shares – Investment by way of common equity shares locks the investment for a longer period of time but investors directly benefit from increase in value. Equity shares don't require an immediate return on their investments in the form of interest payments etc. Therefore, projects where earnings do not accrue within a short time-frame, may have higher investment in the form of common equity shares.

Preference Shares – Investment by way of Preference Shares will enable G-RIDE to seek repayment of its investment once the project stabilizes and generates sufficient returns post servicing of project debt. Since preference shares have lower rights than debt, it is considered to be a part of promoter contribution by debt investors. Subject to profitability of SPV, G-RIDE can earn regular dividend income from Preference Shares

Sub-Debt – G-RIDE will fund the cost over-run of projects with unsecured sub-debt which provide the following advantages:

- Post commissioning of the project, unsecured debt can be easily repaid when compared to equity share capital/ unsecured debt
- Project lenders are comfortable as servicing of sub-debt is inferior to their debt
- G-RIDE can accrue fixed interest on sub-debt which can be paid once the SPV has sufficient cash flows

8.3. REVENUE MODEL

G-RIDE will strive to earn regular income by way of the following:

A. Dividend/Interest:

All projects to be undertaken by G-RIDE will be expected to earn rate of return on infused equity. The entire free cash flows (subject to any maintenance reserves) shall be utilized to pay interest/dividend income by SPV. Given the nature of projects and single stream of income of SPVs, the interest/dividend income from a SPV will gradually start flowing-in like annuity income.

B. Management/Advisory Fees:

Since entire operational/technical/human expertise will be housed in G-RIDE, each SPV would be paying an ad valorem management/advisory fees (as a fixed percentage of revenue) to G-RIDE. While G-RIDE will carve out/ plan the operational/ construction activities of each SPV, all expenditures (related to such activities) will be made directly by SPV.

8.4. MONETIZATION OF ASSETS

In addition to aforementioned revenue model, G-RIDE will strive to monetize the value of its stake in SPVs, subject to a minimum of 26%, by exploring various monetization options. Successful monetization of its stake in SPVs will enable G-RIDE to implement additional projects in future, without require additional equity from Indian Railways and Government of Gujarat.

Certain monetization options available for G-RIDE are listed as below:

A. Stake-Sale:

In case the SPV has a successful profit track record and a high future potential, G-RIDE may consider diluting its shareholding to 26% to the existing joint venture partner (if any), direct beneficiaries, private equity players, pension funds etc. Sustained track record will invite patience capital from international pension funds which look for sustained profitability with minimal income fluctuations.

Stake-sale will further unlock the equity value of SPVs and enable G-RIDE to make higher returns on its investment in a most tax efficient manner.

B. InvIT

Given the annuity-like nature of projects, G-RIDE may explore monetizing its investments through Infrastructure Investment Trusts (InvITs). InvITs

are trusts that manage income-generating operating infrastructure assets, typically offering investors regular yield and a liquid method of investing in infrastructure projects.

InvIT's units will attract interest from mutual funds and insurance companies which are likely to have large appetite for InvITs.

C. Securitization/Refinancing:

In case of SPVs earning revenues higher than projections, G-RIDE may explore refinancing the project debt with elongated tenor and top-up amount which may be utilized to repay any unsecured debt of G-RIDE and thereby implement more projects either on the books of SPV or other entities below SPV.

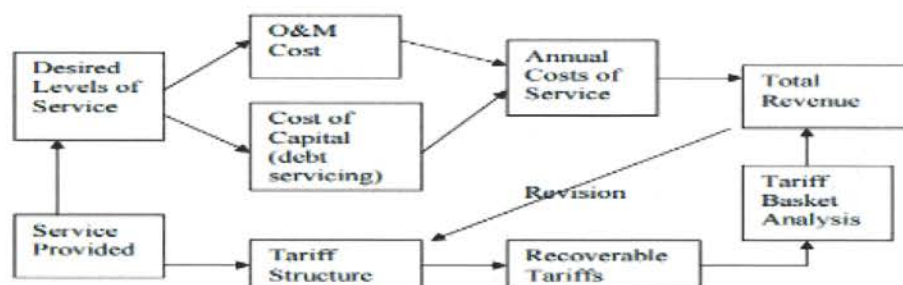
9. INNOVATIVE REVENUE STREAMS / VIABILITY

9.1. USER CHARGE MECHANISMS

The primary rationale for the levy of user charges to adequate levels is to provide financial viability and effective recovery of all costs associated with project. User charge enables allocative efficiency, i.e., by fully recovering the operational costs of infrastructure service, the government or government agency does not consume resources meant for other services or sectors. In essence, the rationale for the levy of user charges is not only to generate revenues but also to promote economic efficiency. The basis of user charge levy is recovery of cost, particularly that component involving the operation and maintenance of the service.

A proper user charge system is important in order to ensure the financial viability of the infrastructure services, efficient investment allocation and distribution systems, equity, and minimum life-line rates. To achieve this, it is important to roll out a tariff setting process, which is shown in the following diagram. The steps involved are described hereunder.

FIGURE 36: USER CHARGE MECHANISMS- TARIFF SETTING PROCESS



Source: Centre for Good Governance Working Paper

Several explicit user charges on roads (toll), aviation (airport-related charges) and shipping services (port-related charges) are collected either from transport service providers or directly from traveler/transporter.

FIGURE 37 : IMPORTANT USER CHARGES IN TRANSPORT SECTOR IN INDIA

| NAME of CHARGE | LEVYING/COLLECTION AUTHORITY | IMPORTANT COMPONENTS | MODE |
|-----------------------------|----------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| Toll on National highways | National Highway Authority of India, Private Operators (Public Private Partnership Projects) | Toll charges on National Highways, Fees for use of permanent bridges, bypass or tunnel | Roads |
| User Charges in major ports | Major Ports (Port Trusts) | Birth Hire Pilotage & Towage Wharfage Charges Demurrage Charges Anchorage Salvage & Drivers Fees Dry Docking Water Supply to Vessels License fees for space | Water |
| User Charges in Airport | Airport Authority of India, Private Developers | Route navigation facility charges Landing & Parking Charges Terminal navigational landing charges | Air |

Unlike port and airport services, there is no explicit user charge levied on usage of rail infrastructure by Indian Railways. However, private rail container operators do pay user charges to the railways. Freight and passenger tariff rates in rail transport do not explicitly mention any user charge levied on usage of railway infrastructure. However, tariff rates, in principle, may implicitly internalize the cost of depreciation of infrastructure.

In order to ensure efficient use of, and non-discriminatory access to, the rail infrastructure, the businesses must establish an appropriate set of charges for infrastructure use.

Access charge regimes should be independent of any train operator, that they promote efficient use of the infrastructure, and that they do not discriminate among operators wishing to make comparable use of the

infrastructure. The economic principles behind an appropriate access regime are well established. Access charges should reflect the marginal cost ("directly related cost") that each user imposes on the infrastructure provider. To these marginal costs should be added the external costs (pollution, accidents, congestion, etc.) that each user generates. This is social marginal cost pricing and, if implemented correctly, will result in the most efficient use of the rail infrastructure. This approach is also conditioned on the assumption that Governments will fill the gap between marginal cost and the financial cost of the infrastructure business.

Charge regimes should be related to the complexity and intensity of the use of the rail network. The user charges access regime could be best constructed from a mix of approaches:

- Full cost based charges (with costs recovered as a two part tariff) for suburban and noncompeting intercity passenger operators running on exclusive rights of way. It makes sense to recover full costs from these services where they are the dominant user of the system, generating most of the costs, which is almost always the case around major cities, and generally the case across the whole network in many member countries. Where passenger trains are a marginal user on freight dominated systems it may be appropriate to charge them only marginal costs. In the case of passenger services supported from public budgets under public service obligations, charging these trains the full costs they impose on the network makes the costs entailed more transparent for the public authorities that decide on the level of services that should be provided. This should help reconcile the demands for services from one part of government (for example transport local authorities) with the resources available from public budgets for rail infrastructure.
- Simple marginal cost based charges, plus a mark-up where necessary, for situations where intercity passenger trains will compete on the same tracks. Fixed charges need to be avoided as they almost always present a barrier to small operators seeking to enter the market.

Such a mixed approach, with simple marginal costs, charges for freight, with a markup where required for higher cost recovery, will permit the best balance among competition and financial stability objectives to be achieved.

Development of the model of "Simple Marginal Cost" or "Marginal Cost Plus access charges" for international freight (possibly domestic freight as well), need not be uniform in level, but must be consistent in structure and should be based on a set of simple factors of use (outside of capacity bottlenecks and peak hours). Charges per gross tonne-km (or per wagon-

km, which is simpler but less accurately reflects gross weight) should be employed to reflect maintenance and renewal costs for track. Where freight capacity is not constrained, such a single factor, simple charge may be sufficient. Where capacity for freight is constrained (and the marginal costs of freight traffic are significant) charges per train-km may also be useful. It should be accepted however that where rail freight is the dominant use of the network.

TABLE 7 : EXAMPLES OF USER CHARGES IN RAILWAYS OF EUROPEAN COUNTRIES

| Country | Current structure of charges |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Belgium | Only kind of charge levied is a variable charge per train km, and that this is applied to all traffic (freight and passenger) in the same way. |
| Czech Republic | <ul style="list-style-type: none"> • A variable charge per train-km - applied at different rates to both passenger and freight trains and accounting for approximately 50% of charging revenue. • A variable charge per gross ton-km - applied at different rates to both passenger and freight trains and accounting for approximately 50% of charging revenue. |
| Denmark | <ul style="list-style-type: none"> • A variable charge per train-km - applied to all traffic in the same way and accounting for approximately 20% of charging revenue. • Capacity charges at bottlenecks - applied differently to both passenger and freight trains and accounting for approximately 10% of charging revenue. • Oresund and Great Belt crossing charges - applied differently to both passenger and freight trains and accounting for approximately 70% of charging revenue. • Domestic freight trains currently receive an environmental grant as a refund of access charges, but this is controversial and under review |
| Finland | Only kind of charge levied is a variable charge per gross tonne km, and that this is applied to both passenger and freight trains |
| France | <p>A fixed access charge (independent of traffic intensity) - applied to all traffic in the same way and accounting for approximately 4% of charging revenue.</p> <ul style="list-style-type: none"> • A train path reservation fee (per path kilometer reserved) - applied differently to both passenger and freight trains and accounting for approximately 55% of charging revenue. • A charge for reserving stops at passenger stations (per stop reserved) - applied to passenger trains only and accounting for |

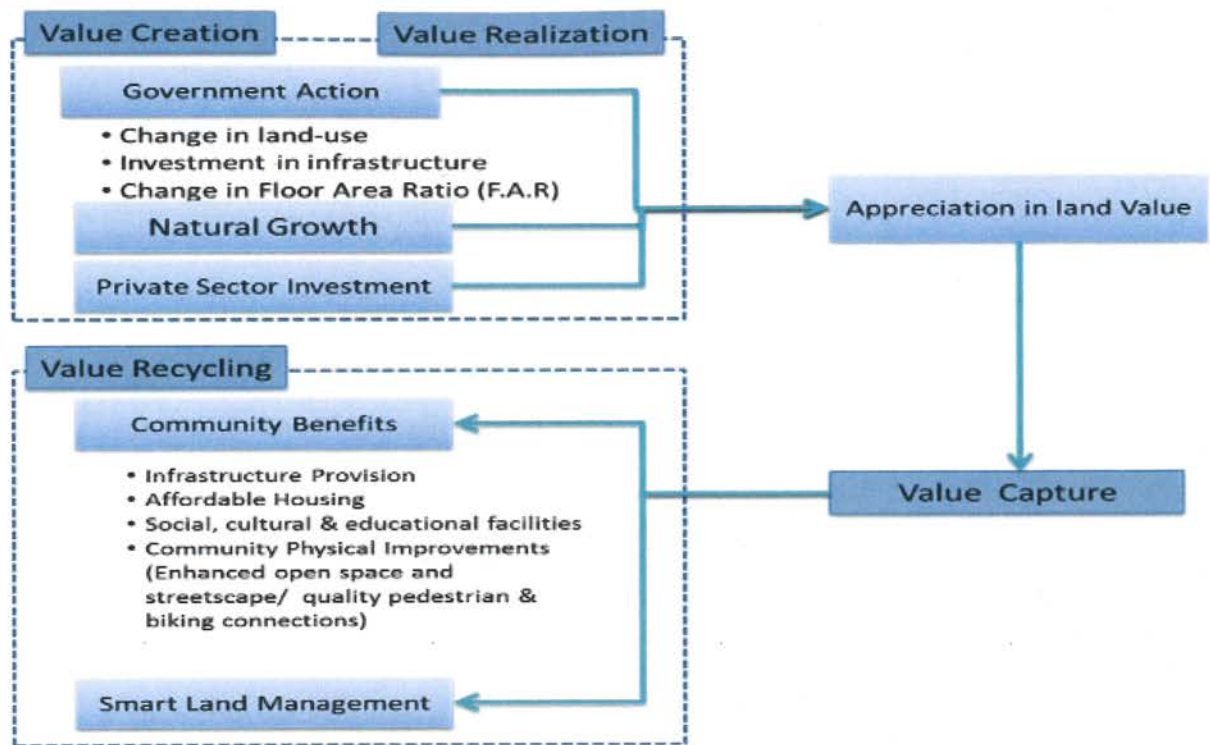
| Country | Current structure of charges |
|---------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | <p>approximately 16% of charging revenue.</p> <ul style="list-style-type: none"> • A charge for "additional services (transmission of electrical current, use of marshalling yards and use of intermodal terminals) – applied differently to both passenger and freight trains and accounting for approx. 11% of charging revenue". • A variable charge per train-km – applied differently to both passenger and freight trains and accounting for approximately 14% of charging revenue. |
| Germany | <ul style="list-style-type: none"> • Variable charge per train-km (amounting to approximately 98% of all revenues). • Variable charge per net TKM for freight traffic (amounting to approximately 1% of revenues). • An axle load component for freight traffic (amounting to approximately 1% of revenues). • A "tilting" component for passenger traffic (amounting to approximately 1% of revenues). • A Train path reservation fee (for "on demand" paths). |

9.2. LAND MONETIZATION / DEVELOPMENT RIGHTS

Land must be treated as a resource and land use planning is required to be converted into resource planning rather than being taken merely as a zoning exercise. Land based financing is now becoming an important source of infrastructure financing in developing Countries Land based financing like monetization can generate revenue upfront reducing dependence on debt.

Land Monetization / Development Rights offers a tool to effectively leverage underutilized assets such as land and floor space for achieving broader goals of inclusive development. It can also ensure profitability for the private sector in PPP projects

FIGURE 38: LAND MONETIZATION MECHANISMS



9.3. ADVERTISING

Advertising add to the supplemental revenue by selling advertising space on Infrastructure or in high visibility Government owned facilities. In this way SPV will leverage its existing infrastructure such as train stations, land and tracks besides advertising to generate additional revenue and improve the viability of the projects.

10. PROJECTS OF GUJARAT

10.1. POTENTIAL & POSSIBILITIES

TABLE 8 : FOLLOWING ARE THE POTENTIAL PROJECTS WHICH CAN BE TAKEN UNDER G-RIDE.

| Sr. | Projects | Approx. Cost Estimate |
|-----|---------------------------------------------------------------------|-----------------------------------------------------------------------|
| 1 | VAYOR TO KOTESHWAR NEW LINE | Rs. 430 Cr. |
| 2 | BROAD GAUGE RAIL LINKAGE TO OLD BEDI PORT | Rs. 110.35 Cr. |
| 3 | DOUBLING OF RAJKOT - KANALUS SECTION | NA |
| 4 | TARANGA HILL -ABU ROAD VIA AMBAJI | Cost in Gujarat: Rs. 1167.34 Cr. Cost in Rajasthan: Rs. 437.21 Cr. |
| 5 | KALOL -KATOSAN -CHANASMA-RANUJ LINE FROM METRE GAUGE TO BROAD GAUGE | 877 Cr. |
| 6 | SANAND TO BAREJADI - NEW LINE | NA |
| 7 | REGIONAL RAIL SYSTEM PROJECT FOR AHMEDABAD | Rs. 2036 Cr. |
| 8 | NEW BG LINE BETWEEN NADIAD & DHOLKA | Rs.500 Cr. |
| 9 | STATUE OF UNITY CONNECTIVITY TO SARDAR SAROVAR DAM AND STATUE | Rs.625 Cr. |
| 10 | SURAT -KOSAD - NEW SANJALI - NEW LINE | Rs.650 Cr. |
| 11 | NARGOL PORT LAST MILE CONNECTIVITY | Rs. 182 Cr. (Phase 1) & Rs 76 Cr (Phase 2) |
| 12 | CHHARA-KODINAR BG RAIL LINE | Rs. 326.40 Cr |

10.2. PRIORITY PROJECTS SELECTED BY G-RIDE BOARD

Following six projects were prioritized and considered for further study by the board members of G-RIDE.

FIGURE 39: PRIORITY PROJECTS FOR FURTHER STUDY



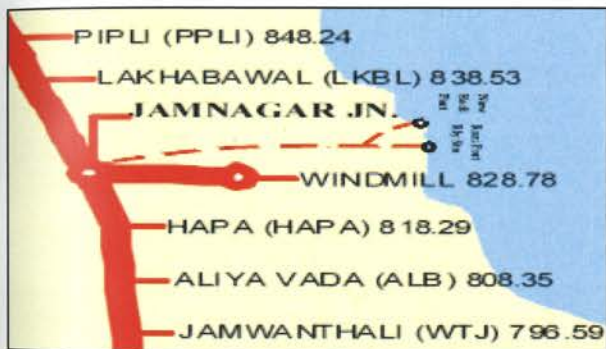
1. Bedi Port Last Mile Connectivity

| Brief Project Description | <ul style="list-style-type: none"> • <u>Type of Project</u> : New Line : Broad Gauge (BG) • <u>District</u> : Jamnagar (Pop : 21.5 Lakhs) • <u>Project Background</u>: <ul style="list-style-type: none"> ○ Bedi Group of Ports comprises of Old Bedi Port, New Bedi Port and Rozi Pier. Collectively the contributed 39.56% for the financial year 2014-15 of the cargo being handled at GMB ports. ○ The Cargo being handled at the Bedi group of ports are bulk commodities like imports of coal and export of bauxite etc. ○ Considering the quantum and nature of cargo, it has been under consideration to provide BG rail link to these ports in phased manner. ○ Proposed project will benefit all concerned- the Railways, the Port as well as Users. ○ Three serving points namely Old Bedi Port (3.03 Kms), New Bedi Port (6.4 kms) and Rozi Port (4.29) approx. from windmill station will be served. ○ Project has been divided into two phases. Phase 1. Windmill station to Old Bedi Port and Phase 2. will be rail connectivity to Rozi and New Bedi Port ○ Gujarat Maritime Board (GMB) has assigned the task to M/s RITES to undertake ○ Due to Technical parameters the cost of Phase 1 was increased from Rs. 26 Cr. to 40.35 Cr excluding the cost of land. • <u>Project Length</u>: <table border="1" data-bbox="399 1019 1364 1355"> <thead> <tr> <th>Phase</th><th>Length in (KMs)</th></tr> </thead> <tbody> <tr> <td>1. Windmill station to Old Bedi Port</td><td>3.03</td></tr> <tr> <td>2. Rail Connectivity to New Bedi Port and Rozi Port Common Alignment : 4.86 Km Common Point to New Bedi Port : 2.17 Km Common Point to Rozi Port : 4.29 Km</td><td>11.32</td></tr> <tr> <td>Total</td><td>14.35</td></tr> </tbody> </table> | Phase | Length in (KMs) | 1. Windmill station to Old Bedi Port | 3.03 | 2. Rail Connectivity to New Bedi Port and Rozi Port Common Alignment : 4.86 Km Common Point to New Bedi Port : 2.17 Km Common Point to Rozi Port : 4.29 Km | 11.32 | Total | 14.35 |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-----------------|--------------------------------------|------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|-------|-------|
| Phase | Length in (KMs) | | | | | | | | |
| 1. Windmill station to Old Bedi Port | 3.03 | | | | | | | | |
| 2. Rail Connectivity to New Bedi Port and Rozi Port Common Alignment : 4.86 Km Common Point to New Bedi Port : 2.17 Km Common Point to Rozi Port : 4.29 Km | 11.32 | | | | | | | | |
| Total | 14.35 | | | | | | | | |
| Mode of Award of Project | <ul style="list-style-type: none"> • To be finalized post detail study that is being commissioned | | | | | | | | |
| Project inception date | <ul style="list-style-type: none"> • To be ascertained basis detailed study to be commissioned. | | | | | | | | |
| Estimated project completion date | approx. 3 Months | | | | | | | | |
| Project Life / Concession Period | <ul style="list-style-type: none"> • To be ascertained basis detailed study to be commissioned. | | | | | | | | |
| Stage of preparation | <ul style="list-style-type: none"> • Gujarat Maritime Board (GMB) has assigned the task to M/s RITES, Gurgaon to undertake the DPR • DPR for Phase I is under finalization at present and will be completed within month | | | | | | | | |

| | | | |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|-----------------------|
| | <ul style="list-style-type: none"> PFR for Phase II has been prepared, and DPR will be prepared once the Phase I is completed / operational | | |
| Cost estimations | Phase | Approx. Estimate (Cr) | Cost Land Requirement |
| | 1. Windmill station to Old Bedi Port | 40.35 | 6 ha |
| | 2Rail Connectivity to New Bedi Port and Rozi Port | 70 | 20 ha |
| | Total | 110.35 | 26 ha |
| | *The Project Cost excludes Land Cost. Cost is being determined at present. | | |
| Viability Assessment | <ul style="list-style-type: none"> DPR for Phase I is under finalization at present and will be completed within month PFR for Phase II has been prepared, and DPR will be prepared once the Phase I is completed / operational | | |
| Further project preparation needed | <ul style="list-style-type: none"> Detailed DPR is to be prepared. | | |
| Request to Lenders / Investors | <ul style="list-style-type: none"> To be finalized post detail study that is being commissioned | | |

*Source: GIDB; Stakeholder Consultation

FIGURE 40: BEDI PORT MAPS

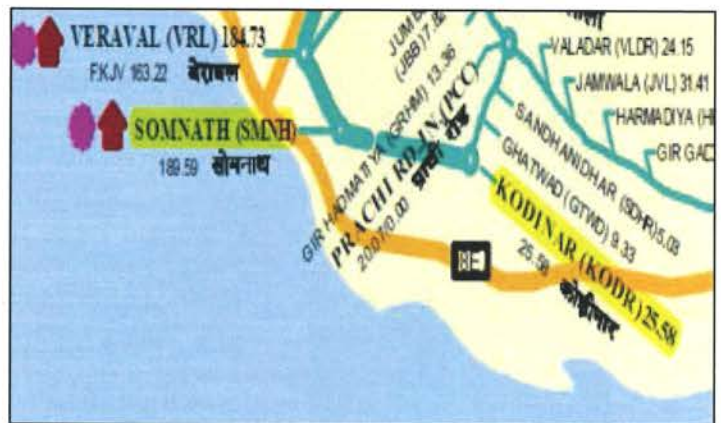


2. Chhara Port Last Mile Connectivity

| | |
|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Brief Project Description | <ul style="list-style-type: none"> • <u>Type of Project</u> : New Line : Broad Gauge (BG) • <u>District</u> : Junagadh (Pop : 27.5 Lakhs) • <u>Project Background</u>: <ul style="list-style-type: none"> ○ M/s Shapoorji Pallonji Company Limited is developing a port at Chhara under the BOOT Model of Government of Gujarat and Gujarat Maritime Board. ○ Chhara Port will be developed with one coal berth of 8 MMTPA capacity in initial phase. ○ The company has proposed a new Broad Gauge rail line connecting this upcoming port to the proposed railway station at Kodinar. (About 19 km) ○ This project is of providing last mile connectivity to Chhara Port linking to Gondal and Rajkot. ○ Somanath -Kodinar (36.91 km) rail line has been approved and sanctioned by Railways. • <u>Project Length</u>: Broad Gauge Rail Line of Approx. 19 Kms |
| sMode of Award of Project | <ul style="list-style-type: none"> • To be finalized post detail study that is being commissioned |
| Project inception date | <ul style="list-style-type: none"> • To be ascertained basis detailed study to be commissioned. |
| Estimated project completion date | approx. 2 years |
| Project Life / Concession Period | <ul style="list-style-type: none"> • To be ascertained basis detailed study to be commissioned. |
| Stage of preparation | <ul style="list-style-type: none"> • Techno-Economical Feasibility Report is prepared by Simar Port Limited. • DPR is yet to be prepared. |
| Cost estimations | <ul style="list-style-type: none"> • Chhara-Kodinar- BG Rail Line Approx. 19 Kms is Rs. 326Cr. *The Project Cost is excludes Land Cost. Post Identification of land pockets, Land cost will be finalized once. |
| Viability Assessment | <ul style="list-style-type: none"> • Techno-Economical Feasibility Report is prepared by Simar Port Limited (subsidiary company of Shapoorji Pallonji Co Limited – developer of Chhara / Simar Port). • As per TEFR Financial IRR for the project works to 12.7%. |
| Further project preparation needed | <ul style="list-style-type: none"> • Detailed DPR is to be prepared. |
| Request to Lenders / Investors | <ul style="list-style-type: none"> • To be finalized post detail study that is being commissioned |

*Source: GIDB; Stakeholder Consultation

FIGURE 41: CHHARA PORT MAPS



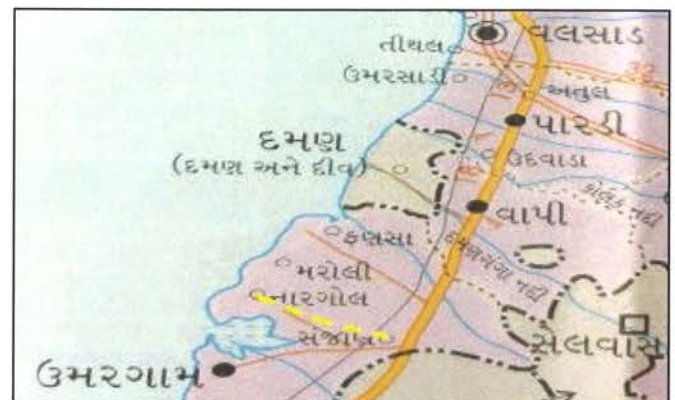
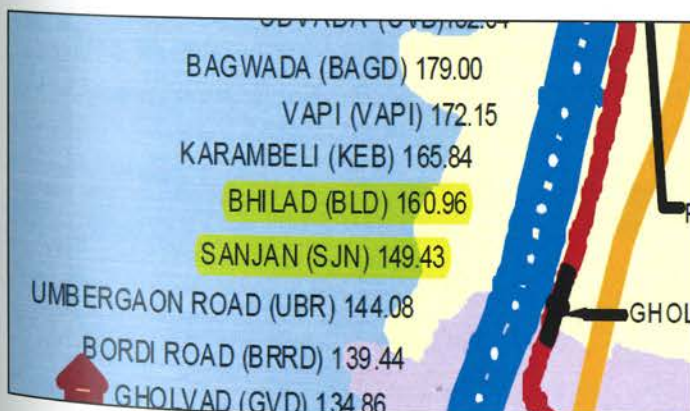
3. Nargol Port Last Mile Connectivity

| | |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Brief Project Description | <ul style="list-style-type: none"> • <u>Type of Project</u> : New Line : Broad Gauge (BG) • <u>District</u> : Valsad (Pop : 17.06 Lakhs) • <u>Project Background</u>: <ul style="list-style-type: none"> ○ Nargol Port is being developed as a multi-purpose port that can handle solid, liquid and container cargo; which is being developed by the joint venture partnership between India's transport logistics company, Cargo Motors, and Amarillis, the international arm of Israel Ports Company (IPC). ○ The consortium plans to invest Rs 4,000 crore in developing a container terminal port at Nargol ○ Nargol Port is located at about 120 km south of Surat and 140 km north of Mumbai. It is 10 km from the upcoming Delhi-Mumbai Industrial Corridor (DMIC). ○ The proposed port is estimated to have an initial cargo handling capacity of 1.2 million Twenty-foot equivalent of container cargo (TEU). ○ To provide last mile connectivity with the port, a rail line is proposed from a mid-section cabin between Sanjan and Bhilad Station (Phase 1) and further connectivity ○ Container traffic (both Inward and Outward) of Nargol Port through DFC will move towards New Crossing Station to different destinations in Gujarat, Rajasthan, Delhi/NCR, Haryana and Punjab • <u>Project Length</u>: Broad Gauge Rail Line of Approx. 19.79 Kms • The broad gauge line is divided into 2 phases, of which the initial phase is approx. 14 Kms in length connecting between Sanjan and Bhilad Station on Western Railway (WR), and will be implemented by M/s. Nargol Rail Links Private Limited (NRLPL). Phase 2 is the connectivity to DFC, linking to a New Crossing station proposed to be located on the Western Corridor of DFC between New Gholvad & Pardi stations. <ul style="list-style-type: none"> ○ Phase 1 – 13.56 Kms (connectivity to WR) ○ Phase 2 – 6.23 Kms (Connectivity to DFC) |
| Mode of Award of Project | <ul style="list-style-type: none"> • To be finalized post detail study that is being commissioned |
| Project inception date | <ul style="list-style-type: none"> • To be ascertained basis detailed study to be commissioned. |
| Estimated project completion date | approx. 30 months |
| Project Life / Concession Period | <ul style="list-style-type: none"> • To be ascertained basis detailed study to be commissioned. |
| Stage of preparation | <ul style="list-style-type: none"> • Nargol Port Rail Links Pvt. Ltd (Company from Cargo Motors Pvt. Ltd – Developer of Rail Connectivity) appointed M.R. Techno fin Consultants Pvt. Ltd. who have Prepared a DPR in Feb 2015 (Phase 1) and Oct 2016 (Phase 2) |
| Cost estimations | <ul style="list-style-type: none"> • Estimated cost of construction: Rs. 182 Crores for Phase 1 and further Rs. 76 Crores for Phase 2 • The Project Cost excludes Land Cost. Approx. Land Cost Is: Phase 1- 280Cr & Phase 2-65Cr |

| | | | | |
|------------------------------------|----------------------------------------------------------------------------------------------------------------|-------------------------------------|----------------|-------------------|
| Viability Assessment | <ul style="list-style-type: none"> The Financial Returns are as follows: | IRR-Realistic | With Land Cost | Without Land Cost |
| | | Projected IRR | 7.5% | 15.79% |
| | | Equity IRR | 7.61% | 20.84% |
| | | IRR/ FIRR by GMB internal Financing | | |
| Further project preparation needed | <ul style="list-style-type: none"> DPR is to be prepared. | | | |
| Request to Lenders / Investors | <ul style="list-style-type: none"> To be finalized post detail study that is being commissioned | | | |

*Source: GIDB; Stakeholder Consultation

FIGURE 42: NARGOAL PORT MAPS



4. Kalol -Katosan -Chanasma-Ranuj Line Gauge Conversion From Metre Gauge To Broad Gauge

Brief Project Description

- **Type of Project :** Line Conversion –Meter Gauge to Broad Gauge
- **District :** District : Gandhinagar (Pop : 13.91 Lakh), Mehsana (Pop : 20.35 Lakh), Patan (Pop : 13.43 Lakh)
- **Project Background:**
 - Mandal-Becharaji Special Investment Region (MBSIR) located about 90 km from Ahmedabad near Becharaji town in Mehsana District.
 - MBSIR is spread over 102 Sq. Km. area over 8 villages in Detroj, Mandal and Becharaji Taluka.
 - The MBSIR has been conceptualized as an Auto Ancillary Hub. Maruti-Suzuki, Honda Motors and their ancillary companies have already initiated work on production plant. Dedicated rubber and glass units for Maruti Suzuki Industries Limited are also considering setting up under service industries (Hansol).
 - Other sectors identified in the SIR are Light Engineering including metal & alloy products, Electronics system design and manufacturing (ESDM), agro and food processing, apart from wind and solar power equipment manufacturing industries.
 - A broad gauge railway line connecting Viramgam with Mehsana already passes through the SIR at Detroj.
 - Also a meter gauge line connecting Katosan to Ranuj passes through Becharaji.
 - Immediate demand anticipated for connectivity from Katosan to Becharaji; from upcoming plant of Maruti Suzuki
 - As the MBSIR develops and growth of industry in the surrounding there would be increased demand for other phases of the project encompassing Kalol to Ranuj.
- **Project Length:** The gauge conversion project connecting Kalol-Katosan-Becharaji-Chanasama-Ranuj is divided in 4 phases. As per Task force discussion this phase 1 provides connectivity to upcoming Maruti Suzuki plant and other Auto hub in the region

| Phase | Length in (KMs) |
|-------------------------|-----------------|
| 1.Beharaji - Katosan | 25 |
| 2.Becharaji - Chanasama | 27 |
| 3.Chanasma - Ranuj | 13 |
| 4.Kalol - Katosan | 37 |
| Total | 102 |

Approx. Distance considered from Google maps

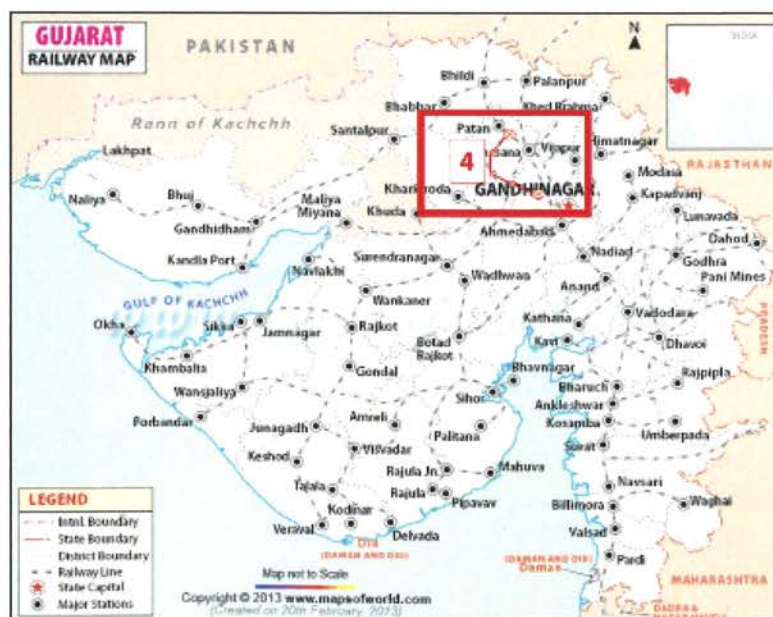
Mode of Award of Project

- To be finalized post detail study that is being commissioned

*Source: GIDB; Stakeholder Consultation

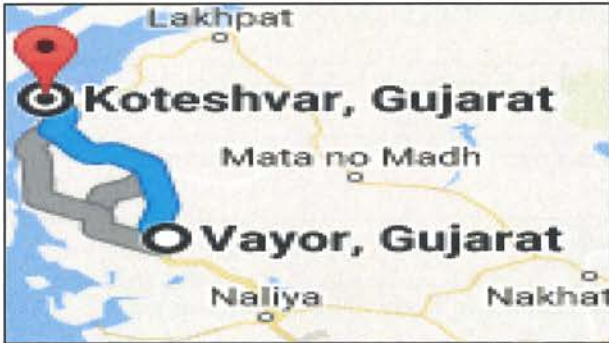
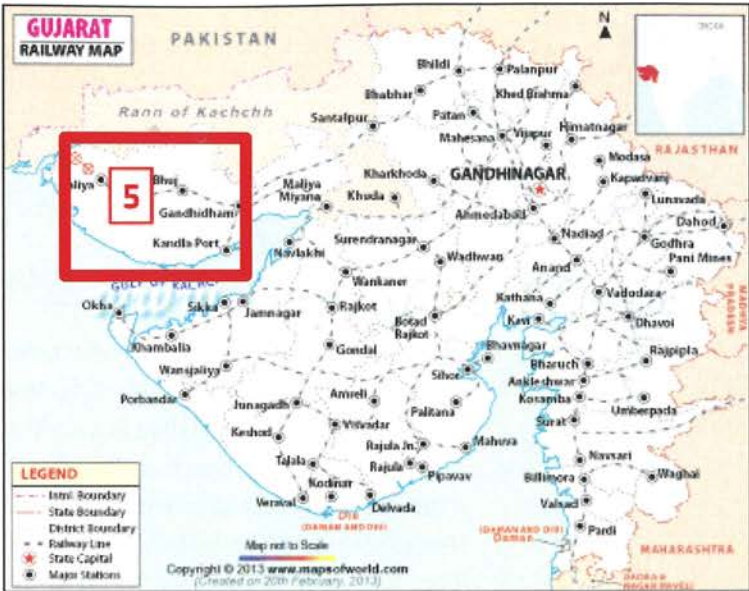
| Project inception date | <ul style="list-style-type: none"> To be ascertained basis detailed study to be commissioned. | | | | | | | | | | | | |
|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|----------------------|----------------------|-----|-------------------------|-----|---------------------|-----|-------------------|-----|-------|-----|
| Estimated project completion date | <ul style="list-style-type: none"> To be ascertained basis detailed study to be commissioned. | | | | | | | | | | | | |
| Project Life / Concession Period | <ul style="list-style-type: none"> Modality not yet decided. | | | | | | | | | | | | |
| Stage of preparation | <ul style="list-style-type: none"> Initial viability estimation- Not Done. | | | | | | | | | | | | |
| Cost estimations | <p><u>Project Cost*</u>:</p> <table border="1"> <thead> <tr> <th>Phase</th><th>Approx. Cost in Cr.#</th></tr> </thead> <tbody> <tr> <td>1.Beharaji - Katosan</td><td>215</td></tr> <tr> <td>2.Becharaji - Chanasama</td><td>232</td></tr> <tr> <td>3.Chanasama - Ranuj</td><td>112</td></tr> <tr> <td>4.Kalol – Katosan</td><td>318</td></tr> <tr> <td>Total</td><td>877</td></tr> </tbody> </table> <p># Thumb rule assumptions for Gauge Conversion is Rs. 8Cr / Per Km and For Electrification is Rs. 0.60 Cr. / Per Km. Total Cost consider for projects is Rs.8.60Cr/ Per Km</p> | Phase | Approx. Cost in Cr.# | 1.Beharaji - Katosan | 215 | 2.Becharaji - Chanasama | 232 | 3.Chanasama - Ranuj | 112 | 4.Kalol – Katosan | 318 | Total | 877 |
| Phase | Approx. Cost in Cr.# | | | | | | | | | | | | |
| 1.Beharaji - Katosan | 215 | | | | | | | | | | | | |
| 2.Becharaji - Chanasama | 232 | | | | | | | | | | | | |
| 3.Chanasama - Ranuj | 112 | | | | | | | | | | | | |
| 4.Kalol – Katosan | 318 | | | | | | | | | | | | |
| Total | 877 | | | | | | | | | | | | |
| Viability Assessment | <ul style="list-style-type: none"> Initial viability estimation- Not Done | | | | | | | | | | | | |
| Further project preparation needed | <ul style="list-style-type: none"> DPR to be commissioned for phase1 for detail assessment of the project.--- | | | | | | | | | | | | |
| Request to Lenders / Investors | <ul style="list-style-type: none"> To be finalized post detail study that is being commissioned | | | | | | | | | | | | |

FIGURE 43: KALOL -KATOSAN -CHANASMA-RANUJ LINE MAPS



5. Vayor to Koteswar New Line

| | |
|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Brief Project Description | <ul style="list-style-type: none"> • <u>Type of Project</u> : New Line : Broad Gauge (BG) • <u>District</u> : Kutch (Population : 20.92 lakhs) • <u>Project Background</u>: <ul style="list-style-type: none"> ○ Koteswar is a small villages near the mouth of Kori Creek, in the west of Kutch district. It is 25kms away from the International Border. ○ The region is limestone rich and experiences lot of mining activity. ○ Nearest Railway Station is Naliya. An extension of the Bhuj-Naliya line to Vayor has already been sanctioned. The line conversion of Bhuj – Naliya is also sanctioned. ○ The Federation of Kutch Industries Association (FOKIA) has expressed interest in partnering for the extension of the line from Vayor to Koteswar. ○ The line will significantly help the mining industry in providing railway connectivity to the ores. • <u>Project Length</u>: Broad Gauge Rail Line of Approx. 43 Kms |
| Mode of Award of Project | <ul style="list-style-type: none"> • To be finalized post detail study that is being commissioned |
| Project inception date | <ul style="list-style-type: none"> • To be ascertained basis detailed study to be commissioned. |
| Estimated project completion date | <ul style="list-style-type: none"> • To be ascertained basis detailed study to be commissioned. |
| Project Life / Concession Period | <ul style="list-style-type: none"> • To be ascertained basis detailed study to be commissioned. |
| Stage of preparation | <ul style="list-style-type: none"> • GIDB has floated Tender for Selection of Consultant for Pre-Feasibility Study of Vayor to Koteswar Rail Connectivity Project in Gujarat on 17/01/2017 to the empanelled consultants for Railway Sector with GIDB. • BARSYL and RITES submitted the Bids for the Project and same is under technical assessment. |
| Cost estimations | <ul style="list-style-type: none"> • BG Rail Line Approx. 43 Kms is Rs. 430Cr. |
| Viability Assessment | <ul style="list-style-type: none"> • PFR Yet to Prepared |
| Further project preparation needed | <ul style="list-style-type: none"> • G-RIDE may commission detailed study for this Project. |
| Request to Lenders / Investors | <ul style="list-style-type: none"> • To be finalized post detail study that is being commissioned |

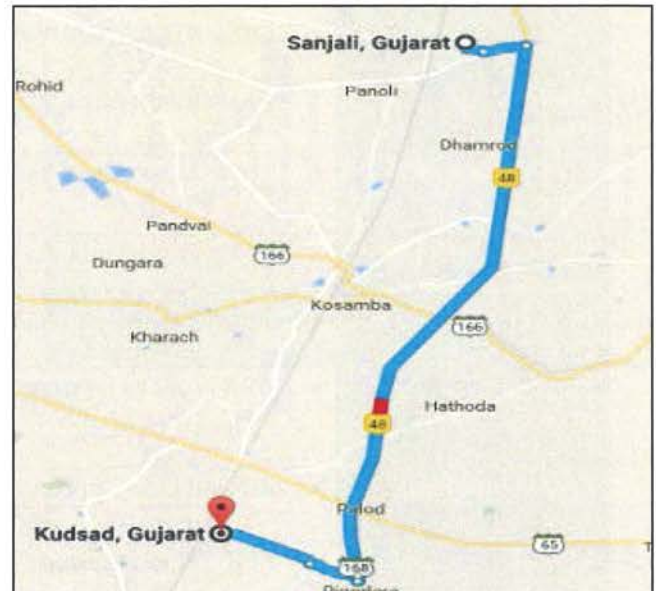
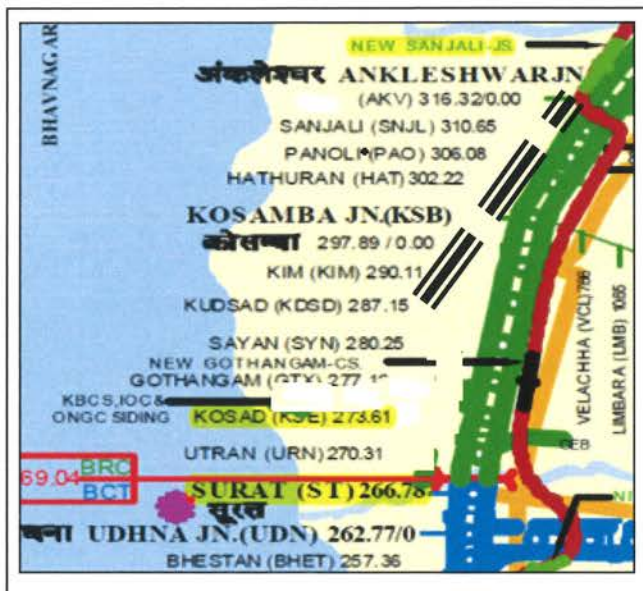


6. Kudsad - New Sanjali (DFC Station) - New Line

| | |
|-------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Brief Project Description | <ul style="list-style-type: none"> • <u>Type of Project</u> : New Line : Broad Gauge (BG) • <u>District</u> : Surat (Population : 60.81 lakhs) & Bharuch (Population : 15.51 lakhs) • <u>Project Background</u>: <ul style="list-style-type: none"> ○ A new line connecting Hazira to Kudsad is under consideration by Indian Railways and DPR for the same has been approved. This line will cater to traffic both inward & outward handled by HIPL (Adani Group) port & Essar port ○ It will also cater to traffic generated by Essar Steel plant, KBCS, IOC, and ONGC & Industries around Surat. ○ To facilitate easy movement on DFC lines, it is required to be connected at New Sanjali on Western side of W.Rly. line to avoid surface xing. Approximate distance is 30 kms. ○ This project will help in avoiding surface crossing over Western Railway network for getting connected to DFC, thus reducing congestion. ○ As per task force discussion, this project may be considered under G-RIDE • <u>Project Length</u>: Broad Gauge Rail Line of Approx. 30 Kms |
| Mode of Award of Project | <ul style="list-style-type: none"> • To be finalized post detail study that is being commissioned |
| Project inception date | <ul style="list-style-type: none"> • To be ascertained basis detailed study to be commissioned. |
| Estimated project completion date | <ul style="list-style-type: none"> • To be ascertained basis detailed study to be commissioned. |
| Project Life / Concession Period | <ul style="list-style-type: none"> • To be ascertained basis detailed study to be commissioned. |
| Stage of preparation | <ul style="list-style-type: none"> • DPR is yet to be prepared. |
| Cost estimations | <ul style="list-style-type: none"> • BG Rail Line Approx. 30 Kms is Rs. 300Cr. |
| Viability Assessment | <ul style="list-style-type: none"> • PFR Yet to Prepared |
| Further project preparation needed | <ul style="list-style-type: none"> • G-RIDE may commission detailed study for this Project. |
| Request to Lenders / Investors | <ul style="list-style-type: none"> • To be finalized post detail study that is being commissioned |

*Data Provided by GIDB & Western Railway

FIGURE 45: KUDSAD - NEW SANJALI (DFC STATION) LINE



11. ANNEXURE: PUBLIC PRIVATE PARTNERSHIP APPROACH

Public Private Partnership is an institutional innovation mechanism to draw on the strengths of both the Public and the Private Sectors. Besides innovation and efficiencies, it is effective way to attract private capital investment (to either complement or supplement public resources which can be deployed for other needs).

A professional approach conceptualization and financial analysis of these projects is crucial to ensure that the private investor can secure a "reasonable return" on investment which delivering quality public services, amenities at a reasonable cost. The design of contractual arrangements in these PPPs is critical to ensure effective allocation of risk to the partner equipped to mitigate it. Both of these will be essential to attract private investment.

TABLE 9 : CONTRACTUAL ARRANGEMENTS IN PPP

| | Service Contract | Management Contracts | Lease Contract | Concessions | BOT |
|--------------------------------------------------------|---------------------|---------------------------------------------------|----------------------------|--------------------------------|-------------------------------------------------------------|
| Asset Ownership | Public | Public | Public | Public/ Private | Public/Private |
| Duration | 1-3 years | 2-5 years | 10-15 years | 25-30 years | Varies |
| O&M Responsibility | Public | Private | Private | Private | Private |
| Capital Investment | Public | Public | Public | Private | Private |
| Commercial Risk | Public | Public | Shared | Private | Private |
| Overall Level of Risk Assumed by Private Sector | Minimal | Minimal/moderate | Moderate | High | High |
| Compensation Terms | Unit prices | Fixed fee, preferably with performance incentives | Portion of tariff revenues | All or part of tariff revenues | Mostly fixed, part variable related to production parameter |

| | | | | | |
|--------------------------------|------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| Competition | Intense and ongoing | One time only; contracts not usually renewed | Initial contract only; subsequent contracts usually negotiated | Initial contract only; subsequent contracts usually negotiated | One time only; often negotiated without direct competition |
| Special Features | Useful as part of strategy for improving efficiency of public company; Promotes local private sector development | Interim solution during preparation for more intense private participation | Improves operational and commercial efficiency; Develops local staff | Improves operational and commercial efficiency; Mobilizes investment finance; Develops local staff | Mobilizes investment finance; Develops local staff |
| Problems and Challenges | Requires ability to administer multiple contracts and strong enforcement of contract laws | Management may not have adequate control over key elements, such as budgetary resources, staff policy, etc. | Potential conflicts between public body which is responsible for investments and the private operator | How to compensate investments and ensure good maintenance during last 5-10 years of contract | Does not necessarily improve efficiency of ongoing operations; May require guarantee |

Source: ADB PPP Hand Book

In the case of rail connectivity projects these are anticipated as an independent project specific SPV which with equity participation from G-RIDE and the private investor with appropriate revenue sharing model.

11.1. PPP MODEL FOR RAILWAYS

Until the creation of CONCOR in 1988, Indian Railways (IR) carried out all the activities itself through its zonal railways, production units and workshops. There was hardly any activity that was either outsourced or delegated to a public company. But IR is now gradually setting aside more

and more activities for the private sector under two models: leasing/service agreement and licensing. However in addition to licensing mentioned above there are other variants of BOT either already being used or likely to be used soon by IR. These project structures and types of project are treated in detail below.

i. LEASE/SERVICE AGREEMENT

This form of PPP is the lowest degree of privatisation, with existing railway assets given to the private sector only for managing. There are several loss making business areas and services in which IR is at present losing billions of rupees. The catering service was one of them and was taken over by IRCTC as described earlier.

The UK and Germany have improved the uneconomic branch lines (UBLs) and hill railways (HRs) are other services that were running at a loss, through community partnership and service agreements.

The underlying principle in this model is making IR a customer who will purchase the socially desirable services from the independent operators of such services and pay for it under a service agreement. The independent operator would have an incentive for improving its performance by reducing costs, increasing ridership, competing with road transport in offering better services and partnering with private people especially of local origin in this endeavor. The lines, along with dedicated rolling stock, would be given on lease to these public sector companies with a graded reduction in subsidy from Ministry of Railway (MOR) during the license period. Such operators may be called Leased Passenger Service Operators (LPSOs).

Because IR has proved very inefficient at piecemeal business, it has stopped dealing with individual wagonloads and instead focuses on the bulk freight train business. A similar strategy is required in the case of parcel services, advertising, and retiring rooms, as the returns from these services are not in proportion to their potential. These services could be leased to the private sector along with railway assets against a competitive annual fee. Piecemeal leasing of parcel vans in some important mail express trains has already been tried on Indian Railways. The underlying principle is that the private sector is better at aggregating piecemeal bookings and arranging 'first mile' and 'last mile' services. IR could then concentrate on carrying the parcels, which poses no problem as these will be carried by mail/express trains, exactly as at present.

ii. LICENSING

Licensing is the form of PPP with the highest degree of privatisation in which the government opens up a business segment to the private sector and regulates it through licensing only, leaving the private sector free to make its project investment decisions. Services such as container operation and tourist train operation offer great opportunities but involve either piecemeal traffic or business tie ups with several other market players. They also require customized rolling stock which cannot be used elsewhere on IR. Such services are best suited for licensing to the private sector. IR has opened up container operation to the private sector; in the first round of licensing 14 private operators including CONCOR have been awarded licenses to operate container services. This policy should be taken further by building in suitable guarantees and long term commitments on transit time and access charges from IR in order to enable the private operators to provide value added container services and bring in private investment in container handling facilities and logistics like inland container depots and container freight stations. Tourist train operation through non railway operators is not new to IR – the Palace on Wheels has been running for years now in partnership with the Rajasthan Tourism Corporation. Such operators may be called private container operators (PCOs) and tourist train operators (TTOs) respectively. A logical extension of the leasing policy of parcel vans in mail/express trains could be to provide licenses for running parcel train services between a pair of cities, with the frequency determined by market demand. Private operators also could be encouraged to own rolling stock and offer full trains for scheduled running by IR on the same lines as container operations. Such operators may be called private parcel operators (PPOs).

iii. BOOT/BOO

Projects that can best be developed by the private sector, and for which the private sector is fully capable, should be executed through Build Own Operate Transfer (BOOT) and Build Own Operate (BOO) models. They are suitable for multi modal railway transport projects (freight terminal, multi modal logistics park, inland container depot, freight village, warehouse etc.) and railway freight ancillary projects (siding, terminal facility, loading unloading facility etc.). These are most attractive for private investors as they have maximum utility for private industry. These projects are fully financed by the private sector and IR will offer the concession. Private firms with a licensee for container service and parcel services may also take up such projects. The only distinction between these two models is with regard to the railway land: if the asset is constructed on railway land it has to be transferred to IR at the end of the concession period in the BOOT

model. The private concessionaires managing railway terminals may be called private terminal operators (PTOs).

iv. BOT

This is the basic Build Operate Transfer model, BOT is that PPP model where the government has no equity partnership in the project company. This model is suitable for railway projects that are essentially developed by the government to exploit the existing assets and raise capital resources for modernisation and capacity addition to the existing infrastructure. Under this category comes the modernisation of metro city railway stations. These stations have enormous real estate development potential and can be developed into world class stations with the necessary passenger amenities and services. Areas around the stations and the air space above platforms could be commercially developed while the development and maintenance of operational and passenger areas is provided to IR free of cost. The concessionaire's source of revenue would be by managing and marketing passenger facilities at the station and renting commercial space. Concessions for such projects could be structured on either maximum revenue share for a fixed concession period or minimum concession period for a fixed revenue share, or a combination of both. New Delhi railway station is the first station being developed on this model and the concession is likely to be granted by the middle of 2008.

v. BOT (SPV)

The BOT model in which a concession is given to a special purpose vehicle (SPV) such as Konkan Railway Corporation Ltd (KRCL) or Pipavav Railway Corporation Ltd (PRCL) is different from the BOT model in two respects: it does not involve any competitive bidding and there is a majority or equal partnership of the IR in the project company resulting in a lower degree of privatisation than the BOT model. Hence it is treated separately under the category of BOT (SPV), to distinguish it from the BOT concession given to a private entity. This model is suited for two types of railway projects:

1. Projects for which strategic private investors can be found and which are financially viable without any grant or subsidy from the government, and whose project development could be done either by the railways or by the private sector. Port linking projects, private sidings for a manufacturing unit (steel factories, refineries etc.) and link lines to mines fall under this category. These are attractive for the private investors whose strategic interest such projects serve.
2. Projects which are essentially required by the government for its long term capacity augmentation but where the government does not have

the funds to finance it alone; for which private partners can be found from the beginning; which are not financially viable enough to be financed by the market and whose development has to be done by the IR. Suburban rail projects, dedicated rail corridor projects etc. fall into this category. These projects could be started without any private partnership in the SPV, with the private sector being roped in once the project line becomes operational and starts offering a return.

vi. BOT (JV)

The BOT model in which the government has a minority equity partnership is treated separately here as BOT (JV). In this model, a shell company is generally created by the government for executing a development project, with a majority of its equity share being offered to a private entity through a competitive bidding process. This model falls between BOT and BOT (SPV) in terms of the extent of private sector participation. Concessions for developing the new Bangalore International Airport and restructuring and modernization of Delhi and Mumbai Airports have been awarded through this PPP model. Indian Railways could implement two types of projects through this model:

1. Those rail projects which have a high economic rate of return for the country and society but a very low or negative financial rate of return, for which the government does not have adequate funds, and which could be privatized partly or fully once the project is commissioned to recover the government fund. The equity share of the government could be specified in advance, an upfront grant could also be fixed in advance and the bid could be called on the basis of viability gap demanded by each bidder (which could be a consortium of companies). In a variant of this model, instead of offering an upfront government grant, the bidders would be offered a guarantee for a minimum ridership over a fixed number of initial operational years and the bid could be called on the basis of the viability gap demanded by the bidders.
2. Projects mentioned under BOT could also be executed through this model. In such cases the management of the world class stations (except train running and ticketing) will be under the joint venture company, in which the government will be a minority equity partner with around 26%. Such BOT or BOT (JV) station operators may be called private station operators (PSOs).

vii. BOT (LPVP)

Capacity augmentation projects like doubling, gauge conversion, railway electrification, and major bridge construction were being tried on the earlier BOLT scheme on IR in which a fixed annual annuity was paid to the concessionaire during the concession period. The concessionaire was essentially a construction company who had the responsibility of arranging finance too. The private sector did not share the traffic risk. BOT (LPVP - Least Present Value of Payment) is a far superior model that makes possible the sharing of traffic risk by the concessionaire for such projects.

The maintenance system on such newly constructed assets would be same as is currently in practice on the network. Maintenance of new assets cannot be separated as once constructed the assets become part of the existing network. An SPV like RVNL, that is executing a large number of scattered projects in a particular corridor, could use the BOT (LPVP) model. This model envisages annuity payment linked to traffic growth on the line. LPVP may be fixed in agreement with the zonal railway, keeping the duration of payment flexible depending upon the traffic generated on the project line. Payment will be linked to a shadow tolling based on the running of trains. Hence the risk of traffic could be partly shared between the zonal railway and the concessionaire. As soon as the present value of all the payment credited by the zonal railway becomes equal to this LPVP, the contract will be closed and the line will wholly belong to the zonal railways. Risk sharing by the SPV would be in the form of fixing the discount rate judiciously, slightly below the interest rate of the debt. With this the debt would be secured with earning in the long run, and financial institutions would not have any problem financing the projects. In this project model, the private sector has a smaller role to play than in the BOT (SPV) model because the SPV or project company is meant for many smaller rail projects and not much private sector advantage could be achieved except project financing and its associated benefits.

viii. BOT (ANNUITY)

In the BOT (Annuity) project model, the private sector has the responsibility of designing, financing, constructing and maintaining the railway infrastructure during the concession period in return for a fixed annuity to be paid by the government. This is suitable for new railway line construction projects more than 500 km in length. In this model the concessionaire can adopt a design that optimizes the maintenance expenses to get a minimum life cycle cost. This model is advantageous when the IR would like to take advantage of the latest design and maintenance practices with a smaller staff, thereby lowering the recurring

cost and raising the standard. The Annuity PPP model has been successfully used in National Highways projects in India. This form of partnership would be most suited in the dedicated freight corridor project being executed by an SPV, the Dedicated Freight Corridor Corporation of India Ltd (DFCCIL). It has been mandated by GOI to carry out construction of railway infrastructure through a mix of engineering and procurement contracts (EPC) and PPP packages. The BOT (Annuity) model will work only if the contract packages are made for 400-600 kms length each, so that the private sector is encouraged to bring in the latest construction and maintenance practices. Rights to the concessionaire for developing terminal facilities like multi modal logistics parks along the railway line would bring down the annuity charges to be paid by the DFCCIL. One full corridor from origin to destination should be implemented with a series of such BOT (Annuity) concessions in order to ensure early returns. From the point of view of degree of privatisation, this model falls between BOT (SPV) and BOT (JV). Such operators may be called private annuity infrastructure operators (PAIOs).

TABLE 10 : ACTIVITY CUM PROJECT LEVEL PARTNERSHIP FRAMEWORK IN PPP MODELS

| 1 Lease/ Service Agreement | 2 BOT (LPVP) | 3 BOT (SPV) | 4 BOT (Annuity) | 5 BOT (JV) | 6 BOT | 7 BOOT/B OO | 8 License |
|-------------------------------------|-------------------------------|-------------------|-----------------------|-------------------------|---------------------------------------|--------------------------------------|--------------------------------------|
| Catering, | Capacity Augmentat ion, | Port | New Railway | Metro Railway, | Modern ization of Stations | Multi Modal Logistics Park, | Container Operation, |
| Yatri Niwas Hotels, | Doubling, | Links, | | Station Up gradation | | | |
| Advertising, | Electrificati on | Suburban | | | New Passeng er Termin al, | Freight Terminals | Passenger (Tourist) Operation, |
| Rest Rooms, | | Railway, | | | | | |
| Parcel Vans, | | | | | Land Develo pment | Budget Hotels, | |
| UBLs | | | | | | Food Plaza | |

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