08 CHAPTER

Industry and Infrastructure

"Supporting iconic, growth-oriented industries, combined with tax policies that encourage small business growth and investment, represents a potent combination and is the basis of our entire administration".

-Larry Hogan

"We need to stop thinking about infrastructure as an economic stimulant and start thinking about it as a strategy. Economic stimulants produce Bridges to Nowhere. Strategic investment in infrastructure produces a foundation for long-term growth".

-Roger McNamee

Promoting inclusive employment-intensive industry, and building resilient infrastructure are vital factors for economic growth and development. The Government is taking several sector- specific measures in this direction. Apart from structural reforms like Goods and Services Tax, Insolvency and Bankruptcy Code and measures to facilitate Ease of Doing Business, the Government has initiated sector specific reforms in Steel, Apparel, Leather and Power sectors to address specific challenges associated with each of these sectors. Various reforms undertaken by the Government over the last 3 years, have been recognised by international rating agencies such as Moody's Investor Service and up-gradation in the ranking of Ease of Doing Business of the World Bank Report 2018. Several key measures and achievements in the industry and infrastructure sector have been discussed in this Chapter. There has been considerable progress in Roads, Railways, Metro Rail, Shipping, Civil Aviation, Power and Logistics Infrastructure Sectors that is expected to step up the growth momentum in the short term. A separate section on Policy Intervention in the Road Sector discusses issues such as stalled projects & NPAs in road sector; initiatives for enhanced construction of National Highways (NHs) and conversion of State Highways (SHs) into NHs; and the need for a comprehensive policy on developing more District Roads.

INDUSTRY

8.1 Several industry specific reform initiatives taken by the Government since 2014 have significantly improved the overall business environment in the country. The reform process has been comprehensive in scope covering Centre and the State Governments. As a result, India has leapt 30 ranks over its previous rank of 130 in the World Bank's latest Doing Business Report 2018. Credit rating company Moody's Investors Service has also raised India's rating from the lowest investment grade of Baa3 to Baa2 (Details in Box 1).

8.2 This has been made possible due to a host of measures undertaken by the Government including implementation of the Goods and Services Tax, Insolvency and Bankruptcy Code, introduction of inflation targeting regime and announcement of bank recapitalization. Other measures to facilitate ease of doing business

Table 1 : Growth of Sectoral Gross Value Added (per cent)

	Share in GVA*	2015-16	2016-17	2017-18	
				Q1	Q2
Mining & quarrying	3.0	10.5	1.8	-0.7	5.5
Manufacturing	18.1	10.8	7.9	1.2	7.0
Electricity, gas, water supply & other utility services	2.2	5.0	7.2	7.0	7.6
Construction	8.0	5.0	1.7	2.0	2.6
Industry	**31.2**	**8.8**	**5.6**	**1.6**	**5.8**

Source: **Central Statistics Office**
Note: * Share in GVA as in 2016-17 (at constant prices)

include initiation and simplification of online application for Industrial License and Industrial Entrepreneur Memorandum, integration of twenty services with the eBiz portal which functions as a single window portal for obtaining clearances from various Government agencies, limiting the number of documents required for export and import to three by DGFT.

8.3 As per the latest Quarterly Estimates of Gross Domestic Product, overall industrial sector growth was significantly higher at 5.8 per cent in Q2 as compared to 1.6 per cent in Q1 of 2017-18. This was mainly due to the robust growth of 7.0 per cent in manufacturing sector in Q2 of 2017-18, as seen in Table 1. As per the first advance estimate of national income 2017-18, overall industrial sector growth is at 4.4 per cent with manufacturing growth at 4.6 per cent.

Index of Industrial Production (IIP)

8.4 The Index of Industrial Production (IIP) is another measure of industrial performance, released by Central Statistics Office (CSO). CSO revised the base year of IIP in May, 2017 from 2004-05 to 2011-12. The latest series with base year 2011-12 is more representative of the current structure of the industrial sector. Table 2 indicates the Sectoral and Use-based growth rates for the last two years and the current fiscal year.

8.5 IIP registered a 25 month high growth of 8.4 per cent with manufacturing growing at 10.2 per cent in November 2017. Higher growth in capital

Table 2 : Index of Industrial Production (IIP) Growth Rates (per cent)

	Weight	2015-16	2016-17	2017-18 (April-November)
General Index	**100**	**3.3**	**4.6**	**3.2**
Sectoral Classification				
Mining	14.4	4.3	5.3	3.0
Manufacturing	77.6	2.8	4.4	3.1
Electricity	8.0	5.7	5.8	5.2
Use Based Classification				
Primary goods	34.0	5	4.9	3.4
Capital goods	8.2	3	3.2	2.1
Intermediate goods	17.2	1.5	3.3	0.9
Infrastructure/ construction goods	12.3	2.8	3.9	3.8
Consumer durables	12.8	3.4	2.9	-1.4
Consumer non-durables	15.3	2.6	7.9	9.4

Source: **Central Statistics Office**

Table 3: Growth in the production of Eight Core Industries (per cent)

Sector	Weight	2015-16	2016-17	April-November 2017-18
Coal	10.3	4.8	3.2	1.5
Crude Oil	9.0	-1.4	-2.5	-0.2
Natural Gas	6.9	-4.7	-1.0	4.4
Refinery Products	28.0	4.9	4.9	3.6
Fertilizers	2.6	7	0.2	-1.1
Steel	17.9	-1.3	10.7	7.2
Cement	5.4	4.6	-1.2	0.6
Electricity	19.9	5.7	5.8	4.9
Overall Index	**100**	**3.0**	**4.8**	**3.9**

Source: **Department of Industrial Policy and Promotion**

goods, infrastructure/construction and consumer non-durable have had a significant impact. During April-November 2017, the growth was 3.2 per cent. The major industry groups that have contributed positively to growth during this period are coke and refined petroleum products; pharmaceuticals, medicinal chemicals and botanical products; basic metals; computer, electronic and optical products; and motor vehicles, traillers & semi-trailers. The industry groups that have contributed negatively are tobacco products; wearing apparel; rubber and plastic products; other non-metalic mineral products and electrical equipment.

8.6 As per the Use-based classification of IIP, in 2017-18 (April-November), Consumer non-durables have shown consistency and have registered a growth of 9.4 per cent. Growth of the Index of Primary Goods has witnessed a comparatively lower rate at 3.4 per cent during this period mainly due to suboptimal performance of Mining Sector and Petrol/Motor spirit industry. Infrastructure/Construction goods in 2017-18 (April-November) recorded a growth of 3.8 per cent as compared to 5.0 per cent in same period last year on account of sub-par performance of the cement sector. The performance of Capital goods has not been upto expectations mainly due to the impact of destocking after announcement of GST in the first quarter of 2017-18.

Eight Core Industries

8.7 The Index of Eight Core Industries measures the performance of eight core industries i.e. Coal, Crude Oil, Natural Gas, Petroleum Refinery Products, Fertilizers, Steel, Cement and Electricity. In line with the base year change in IIP, Department of Industrial Policy and Promotion, revised the base year of Index of Eight Core Industries from 2004-05 to 2011-12. The industries included in the eight core industries comprise about 40 per cent weight in the IIP.

8.8 The details of growth in the production of eight core industries are given below in Table 3. In 2016-17, the eight core industries grew by 4.8 per cent as compared to 3 per cent in 2015-16. The production of Coal, Refinery Products, Fertilizers, Steel and Electricity registered positive growth, with Steel registering a robust growth of 10.7 per cent (this can be attributed to the positive measures taken by the Government such as imposition of Minimum Import Price (MIP), anti-dumping duty etc. on Steel imports in February 2016). On the other hand, Crude Oil, Natural Gas and Cement production registered negative growth. During the current financial year, for the period, April-November, 2017-18, the index has

Table 4 : Growth of Sales, Profits & Capacity Utilisation for the Corporate Sector (per cent)

	2016-17				2017-18	
	Q1	Q2	Q3	Q4	Q1	Q2
Sales	-1.0	3.7	4.9	10.2	8.9	9.5
Profits	28.8	27.5	57.5	22.2	-33.6	-4.0
Capacity Utilisation	71.7	72.0	71.0	74.6	71.2	---

Source: **Reserve Bank of India**

Note :Sales and profits of over 1700 manufacturing companies & Capacity Utilisation based on a sample of 805 manufacturing companies

registered growth of 3.9 per cent. The production of Coal, Natural Gas, Refinery Products, Steel, Cement and Electricity have registered positive growth during this period.

Corporate Sector Performance

8.9 Growth in Sales (Y-o-Y) of over 1700 non-government non-financial (NGNF) listed manufacturing companies in first two quarters of 2017-18 was 8.9 per cent in Q1 and 9.5 per cent in Q2 of 2017-18 (Table 4). This has been on account of improved performance of industries like Iron & Steel and Motor Vehicles & other Transport Equipment within the manufacturing sector. Performance in terms of profits was high and sustained in 2016-17. During Q1 & Q2 of 2017-18 there was negative growth in profits mainly on account of postponement of production related to implementation of GST. Capacity utilisation in Q1 for 2017-18 has declined to 71.2 per cent as compared to 74.6 per cent in Q4 of 2016-17.

8.10 Nominal credit growth (y-o-y) to industry turned positive to 1per cent in November 2017 for the first time after witnessing negative growth since October 2016. Lower credit supply can be attributed to impaired balance sheets of public sector banks due to higher Non Performing Assets but it could also reflect weak demand for credit. The Government has recently announced bank recapitalisation to the tune of ₹2.11 lakh crore. The move is aimed at easing the balance sheets of the public sector banks, conditional on cleaning up their balance sheets, thereby helping banks to accelerate the pace of credit disbursement.

8.11 Demand for funds by Indian firms, in the wake of the credit slowdown, has been somewhat met by alternative sources such as corporate bonds and commercial paper as can be seen in Table 5.

Table 5 : Flow of Credit and Alternative Sources of Finance to Industry

(Rs. Billion)

	2014-15	2015-16	2016-17	2017-18 (Apr - Dec.)
Non Food Credit	5464	7024	3882	2427
Growth (per cent)	---	*28.6*	*-44.7*	*257.2*
Alternative Sources				
Corporate Bonds	1364	1513	2159	981
Commercial Paper	558	517	1002	900
External Commercial Borrowing/FCCBs	14	-388	-509	-79.0
Total Alternative Sources	1936	1642	2652	1801.7
Growth (per cent)	---	*-15.2*	*61.5*	*-1.5*

Source: **Reserve Bank of India Annual Report 2016-17, Table II.6**

Foreign Direct Investment

8.12 Foreign Direct Investment (FDI) has been an important source of financing for the economy. FDI policy reforms announced in 2016 brought most of the sectors under automatic approval route, except a small negative list. Total FDI inflow grew by 8 per cent i.e. US$ 60.08 billion in 2016-17 in comparison to US$ 55.56 billion of the previous year. It is the highest ever for a particular financial year. In 2017-18, till September, the inflow of total FDI was to the quantum of US$ 33.75 billion.

8.13 In terms of share in FDI Equity inflows, Mauritius, Singapore and Japan have been top three countries in India contributing 36.17 per cent, 20.03 per cent and 10.83 per cent of the total FDI Equity Inflows during 2016-17. In terms of the Sectors receiving FDI Equity inflows, Services (Finance, Banking, Insurance etc.), Telecommunications and Computer Software & Hardware have been the top three sectors with a share of 19.97 per cent, 12.80 per cent and 8.40 per cent respectively.

Key initiatives taken by the Government to boost industrial performance

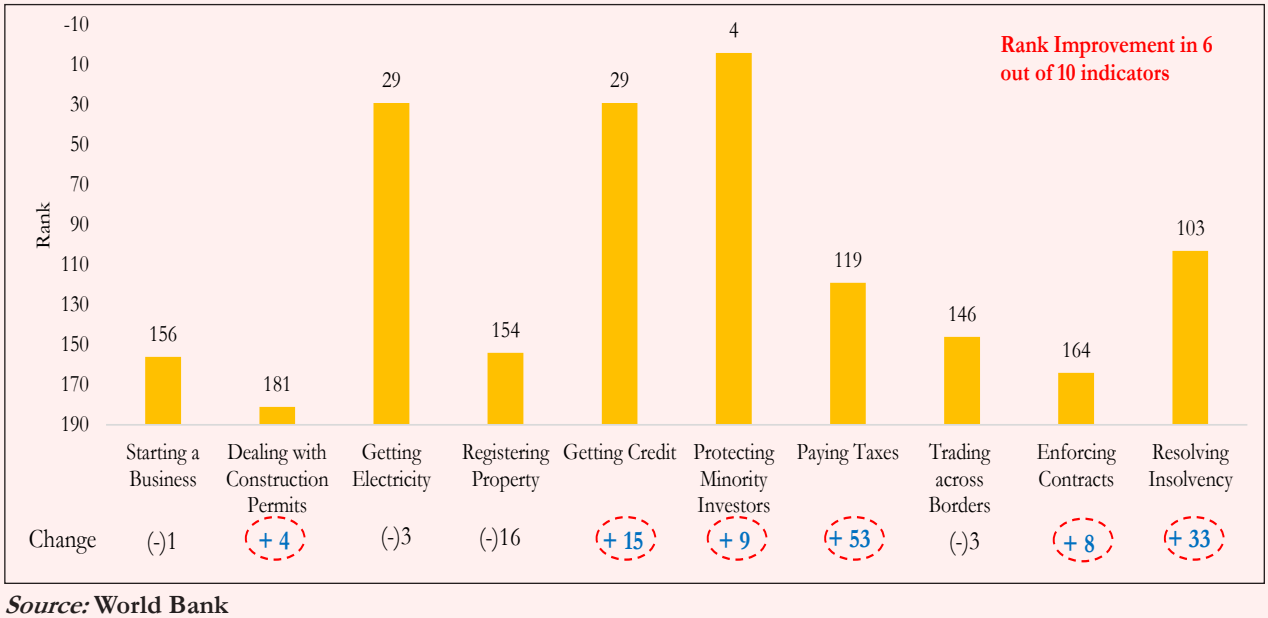
8.14 The Government has undertaken a number of economic and institutional reforms, which have led to significant up-gradation in the ranking of Ease of Doing Business of the World Bank Report 2018. (Box 8.1)

Box 8.1 Ease of Doing Business

The year 2017-18 has been remarkable for India's global image as a promising investment destination. In recognition of the reforms carried out by the Government, Moody's Investor Service upgraded India's sovereign credit rating to Baa2 from the lowest investment grade of Baa3 after a period of 13 years.

India ranked 100 among 190 countries assessed by the Doing Business Team in the Ease of Doing Business Report, 2018 with an improvement of 30 ranks over its rank of 130 in the Ease of Doing Business Report 2017. India saw an improvement in six out of ten indicators namely – Dealing with construction permits, getting credit, protecting minority investors, paying taxes, enforcing contracts and resolving insolvency (Figure 1).

Figure 1. Ranking on Doing Business Topics



Source: **World Bank**

These improvements in rankings have been a result of various reform measures undertaken by the Government including Structural and deep-seated reforms such as Goods and Services Tax (GST) and Insolvency and Bankruptcy Code (IBC); reforms aimed at strengthening India's institutions – Demonetization, mechanism for inflation targeting via the Monetary Policy; progress in Aadhaar enrollment and use in targeted delivery of benefits; and announcement of the Government's decision for recapitalization of public sector banks.

Improved ratings had an immediate positive impact on economic indicators. The immediate impact was seen in terms of the Daily Sensex rising roughly 700 points in a span of few days (Figure 2). The immediate impact was also visible in terms of the rupee appreciation reflecting better investment sentiment and expectations (Figure 3). The rating upgrade is also expected to reduce the cost of borrowing for the Indian Government.

Figure 2. Sensex (Daily)

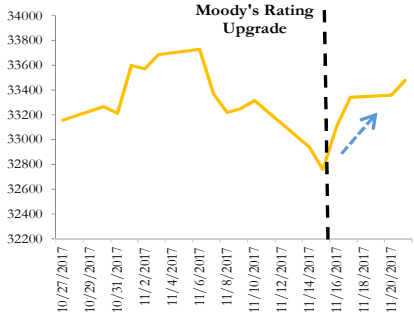
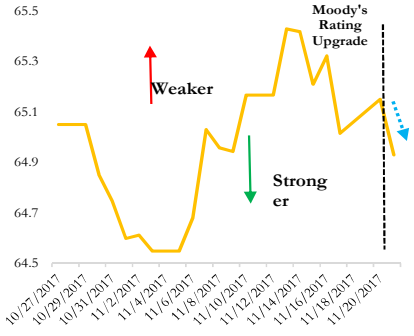


Figure 3. Currency (Daily)



Source **: Bombay Stock Exchange & Reserve Bank of India**

However, there are several reforms and simplifications already complete but still to be acknowledged by the Ease of Doing Business Team (EoDB). Some of them include:

Construction Permits - Municipal Corporation in Mumbai and Delhi have reduced the number of procedures to 8. Likewise, the time frame for approvals during the construction cycle of a building has brought down to 60 days. *Resolving Insolvency* - Reorganization of procedure for corporate debtors through insolvency eco-system, namely, National Company Law Tribunal (NCLT), National Company Law Appellate Tribunal (NCLAT), Insolvency Professionals (IP), Insolvency Professional Agency (IPA), Insolvency Professional Entity (IPE), and Insolvency and Bankruptcy Board of India has been carried out. *Trading Across Border*– Various steps have been undertaken to simplify trade. Noteworthy among these include online message exchange system for import clearances of agricultural commodities; limiting the number of documents for import and export to 3; establishment of Import Data Processing and Management System (IDPMS) for data processing for payment of imports and effective monitoring; and reduction in the "Gate in" time period for export containers from 5 days to 4 days. *Enforcing Contracts*- Various reforms have been undertaken to improve the enforcement of contracts. Maharashtra and Delhi High Court have established Commercial Division benches and Commercial Appellate Division benches. *Getting Credit* - The amended SARFAESI Act 2002 provides priority to secured creditors to be paid first over all other debts and all revenues, taxes, cesses and other rates payable to the Central Government or State Government or local authority. *Paying Taxes* – The Government has introduced project 'RAPID- revenue, accountability, probity, information and digitalization' for administrating the tax reforms to make tax compliances more taxpayer-friendly, transparent with the aim of widening the tax base.

Make In India

8.15 The 'Make in India' programme was launched on 25th September 2014 which aims at making India a global hub for manufacturing, research & innovation and integral part of the global supply chain. The Government has identified ten 'Champions sectors' that have potential to become global champion, drive double digit growth in manufacturing and generate significant employment opportunities. The sectors have been identified for renewed focus under the Make in India version 2.0 including Capital goods, Auto and Auto Components, Defence & Aerospace, Biotechnology, Pharmaceuticals and Medical Devices, Chemicals, Electronic System Design & Manufacturing (ESDM), Leather & Footwear, Textiles & Apparels, Food Processing, Gems & Jewellery, New & Renewable Energy, Construction, Shipping and Railways.

Intellectual Property Rights (IPR) Policy

8.16 In May, 2016, Government for the first time adopted a comprehensive National Intellectual

Property Rights (IPR) policy to lay future roadmap for intellectual property. This aims to improve Indian intellectual property ecosystem, hopes to create an innovation movement in the country and aspires towards "Creative India; Innovative India". Subsequent to the approval of this policy and creation of Cell for Intellectual Property Rights Promotion and Management **(**CIPAM), there has been a substantial improvement in the IPR and Patent handling matters. In April - October 2017, 45449 patents and 15627 copyrights were filed while 9847 patents and 3541 copyrights were granted.

Start-up India

8.17 In order to promote innovation and entrepreneurship among enterprising youth of our country, the Hon'ble Prime Minister of India had announced the "Startup India, Standup India" initiative on Independence Day (15th August 2015). The initiative aims to create an ecosystem that is conducive to growth of Startups. An Action Plan for Startup India comprising 19 action points was unveiled on 16th January, 2016. Government has acknowledged the need to reduce the regulatory burden on Startups and have allowed them to self-certify compliance under 3 labour laws and 6 environment laws.

8.18 The initiative allows Startups to focus on their core business and keep compliance cost low. Startup India hub has been developed as a single point of contact for the entire Startup ecosystem and enables knowledge exchange along with access to funding. In order to provide support, a Fund of Funds for Startups (FFS) with a corpus of ₹10,000 crores has been created and is being managed by SIDBI. Several steps have also been taken to promote Industry-Academia Partnership and Incubation. With an aim to foster and facilitate Bio-entrepreneurship, Bio-clusters, Bio-Incubators, Technology Transfer Offices (TTOs) and Bio-Connect, offices are being established in research institutes and universities across India. Seed Fund and Equity Funding support is also provided to bio-tech Startups under the initiative.

SECTOR WISE ISSUES AND INITIATIVES

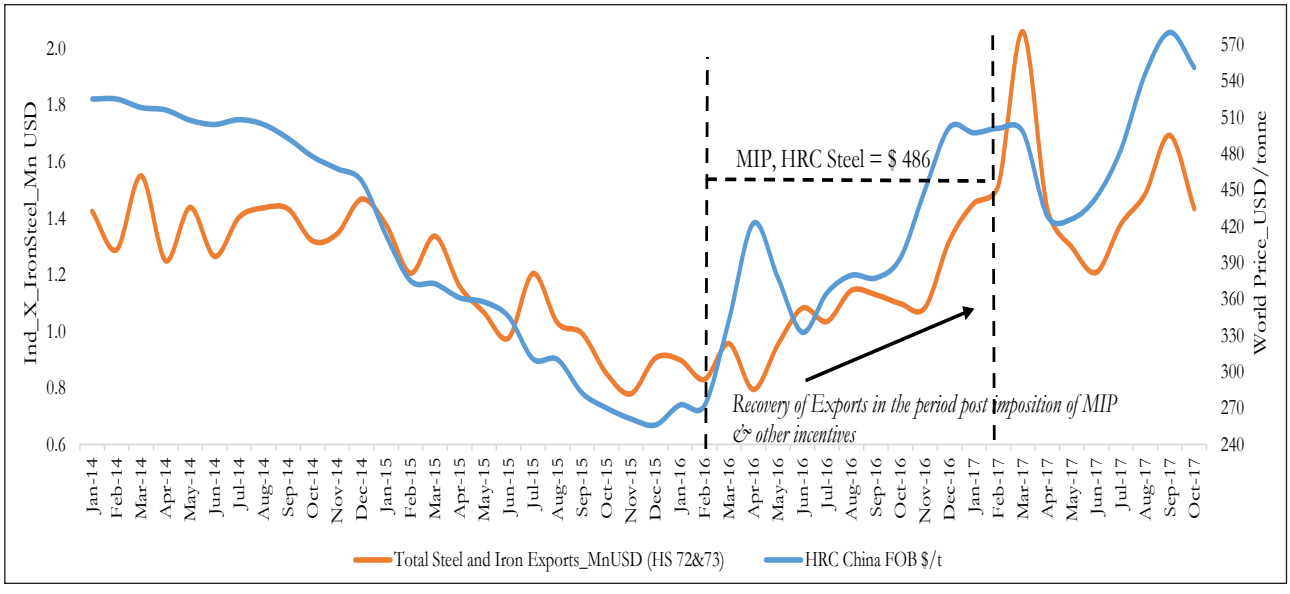
Steel sector

8.19 In the backdrop of a slowing world economy and over capacity in production of steel, India witnessed rising imports of cheap steel from countries like China, South Korea and Ukraine into Indian markets at low prices since early 2014-15. This dumping of cheaper steel imports adversely affected domestic producers. In order to address this, apart from raising customs duty and imposition of anti-dumping duty, Minimum Import Price (MIP) on a number of items was introduced in February 2016 with a sunset clause of one year. These measures helped the domestic producers and exports recovered since February 2016 until March 2017. Subsequently exports started declining again (as may be seen in Figure 1). The Government notified anti-dumping duties and Countervailing Duties on various steel products in February 2017 as follows:

1. Anti-dumping duties were imposed on import of seamless tubes, pipes and hollow profiles of iron, alloy or non-alloy steel originating and exported from China. The Government also imposed Anti-Dumping duty on HR Coils, HR Plates, CR Products, Wire Rod and Color Coated steel.

2. The Government levied Countervailing duty on imports of cold rolled flat products of stainless steel of all grades/series from China, Korea, European Union, South Africa, Taiwan, Thailand and USA.

Figure 1 : World Prices, Minimum Import Price and Exports of Steel



Sources: **Joint Plant Committee, Ministry of Steel & Ministry of Commerce and Industry**

8.20 At the same time, significant cutback in China's production capacity of Steel has led to rising international prices of steel, especially post June 2017. The government has rolled out a New Steel Policy in May 2017. Further, a policy on preference to domestically manufactured select iron & steel products has been enforced also since May 2017. Global trends of steel prices (post June 2017) along with measures undertaken by the Government led to rise in exports of steel for the period April – December 2017 by 52.9 per cent while imports have risen by only 10.9 per cent (Table 6).

Table 6 : Steel Production,Imports, Exports and Consumption (April – Dec 2017)

Finished Steel	Quantity (Million Tonnes)*	YoY per cent
Sale	79.3	5.6
Import	6.1	10.9
Export	7.6	52.9
Consumption	64.9	5.2

Sources : **Joint Plant Committee, Ministry of Steel & Ministry of Commerce and Industry**

***Provisional**

MSME Sector

8.21 The share of MSME Sector in the country's Gross Value Added (GVA) is approximately 32 per cent. MSMEs in India play a crucial role in providing large scale employment opportunities at comparatively lower capital cost than large industries and also in industrialization of rural & backward areas. As per the National Sample Survey (NSS) 73rd round, for the period 2015-16, there are 633.8 lakh unincorporated non-agriculture MSMEs in the country engaged in different economic activities providing employment to 11.10 crore workers.

8.22 The MSME sector faces a major problem in terms of getting adequate credit for expansion of business activities. Latest data on credit disbursed by banks shows that out of a total outstanding credit of ₹26041 billion as in November 2017, 82.6 per cent of the amount was lent to large enterprises. The MSME received only 17.4 per cent of the total credit outstanding. Growth of credit to Micro and Small enterprises increased by 4.6 per cent, while credit to Medium enterprises decreased by 8.3 per cent (Table 7).

Table 7 : Credit Outstanding to Industry (₹ Billion)

	End Nov'16	End Nov'17	Rate of Growth (per cent)
Industry	**25,793**	**26,041**	**1.0**
Of which			
Micro and Small	3,435	3,592	4.6
Medium	1,033	947	-8.3
Large	2,1325	21,502	0.8

Source: **Reserve Bank of India**

The major schemes implemented for the development of MSME sector are as follows:

i. Prime Minister's Employment Generation Programme (PMEGP) is aimed at generating self-employment opportunities through establishment of micro-enterprises in the non-farm sector by helping traditional artisans and unemployed youth.

ii. Credit Guarantee Scheme for Micro and Small Enterprises covers collateral free credit facility (term loan and/or working capital) extended by eligible lending institutions including Non-Banking Financial Company (NBFC) to new and existing micro and small enterprises up to ₹ 200 lakh per borrowing unit.

iii. Credit Linked Capital Subsidy Scheme (CLCSS) aims at facilitating technology upgradation of the MSME sector.

iv. The Government has also initiated the Pradhan Mantri Mudra Yojana for development and refinancing activities relating to micro industrial units. The purpose of Micro Units Development and Refinance Agency (MUDRA) is to provide funding to the non-corporate small business sector. The Government has also set up the MUDRA Bank. Loans extended under the Pradhan Mantri Mudra Yojana (PMMY) during 2016-17 have crossed the target of ₹1.8 lakh crore. Of this amount, ₹1.23 lakh crore was lent by banks while non-banking institutions lent about ₹57,000 crore. In December 2017 total number of borrowers were 10.1 crore, out of which 7.6 crore were women.

Textiles and Apparels

8.23 The Textiles and Apparels sector has tremendous potential for growth in exports and employment, particularly, women's employment. The sector witnesses a historic opportunity with China losing market share in clothing exports due to rising labour costs. However, India has not been able to leverage this opportunity due to India's competitors i.e. Bangladesh, Vietnam, Ethiopia having duty free access to markets of EU and USA; high domestic taxes on manmade fabrics vis a vis cotton fabrics; stringent labour laws; and high logistics cost. (as also discussed in Economic Survey 2016-17 Vol1, Chapter 7)

8.24 To address some of these constraints, the Cabinet announced a ₹6000 crore package for the apparel sector on 22nd June 2016. Major components of the package included enhanced subsidy under Amended Technology Upgradation Fund Scheme for concessional import of machinery from 15 per cent to 25per cent (conditional on firms generating requisite employment); implementation of Rebate of State Levies on Export(RoSL) for state levies which were not refunded through duty drawback earlier; Government to bear 12 per cent of the employers' contribution of the full EPFS for new workers; increasing overtime caps in line with ILO norms; and introduction of fixed term employment.

8.25 The scheme was implemented since November 2016. In March 2017, the first installment of ₹400 crores was released, while in May 2017 the second installment of ₹1554 crore was released from Ministry of Textiles to Central Board of Excise and Customs (CBEC) for duty drawbacks.

8.26 The Government has in December 2017 approved the scheme for Capacity Building in Textile Sector (SCBTS). The scheme will be applicable from 2017-2018 to 2019-2020 with an outlay of ₹1,300 crore. It shall have the National Skill Qualification Framework (NSQF) compliant training courses, with funding as per the common norms notified by Ministry of Skill Development and Entrepreneurship (MSDE).

8.27 Using difference - in - difference technique the impact of the package on promotion of exports has been examined, as discussed in Economic Survey 2017-18, Vol1, Chapter 1. It was noted that since its implementation in June 2016, the package did have a positive impact on the exports of Ready Made Garments (RMG) of Manmade fibres while it did not have a statistically significant impact on the RMG of other natural fibres, except wool. The impact of the package increased over time and did not show any signs of attenuation.

Leather sector

8.28 Like the clothing sector, leather sector is also highly labour intensive sector (as discussed in Economic Survey 2016-17, Vol 1, Chapter 7). Going by global market trend, it is a favourable time to promote the footwear industry. However, challenges persist. The global demand for footwear is moving towards non leather footwear, while Indian tax policies favour leather footwear production. India also faces high customs tariffs in a number of developed country markets of leather goods and non-leather footwear. The issues in labour and employment have been recently addressed.

8.29 A scheme for promotion of employment in the leather & footwear sector has been approved similar to that of the textile sector, with an outlay of ₹2600 crore over three financial years 2017-18 to 2019-2020. The scheme would lead to development of infrastructure for the leather sector, address environment concerns specific to the sector, facilitate additional investments, employment generation and increase in production. Enhanced tax incentive would attract large scale investments in the sector. Reforms in labour laws, in view of seasonal nature of the sector, will support economies of scale. The special package has the potential to generate 3.24 lakhs new jobs in 3 years and assist in formalization of 2 lakh jobs, as cumulative impact in Footwear, Leather & Accessories Sector. The scheme proposes to provide assistance for Placement Linked Skill Development Training to unemployed persons; incentives for investment for new plant and machinery; modernization of existing plant and machinery; support for up-gradation/installation of Common Effluent Treatment Plants (CETPs); brand promotion; and providing employer's contribution to Employees Provident Fund etc.

Gems and Jewellery

8.30 India is one of the largest exporters of gems and jewellery. The industry is found to play a vital role in the contribution to total foreign reserves of the country. It is one of the fastest growing sectors and is export oriented and labour intensive. As per the 68th round of NSSO, the sector employed 20.8 lakh persons in 2011-12. Exports of the sector have risen from 0.7 per cent in 2014-15 to 12.8 per cent in 2016-17.

8.31 The import duty on goldsmith tools is 30.15 per cent. Duty drawback rate on gold jewellery is 246.5 per gram of gold content in the jewellery.

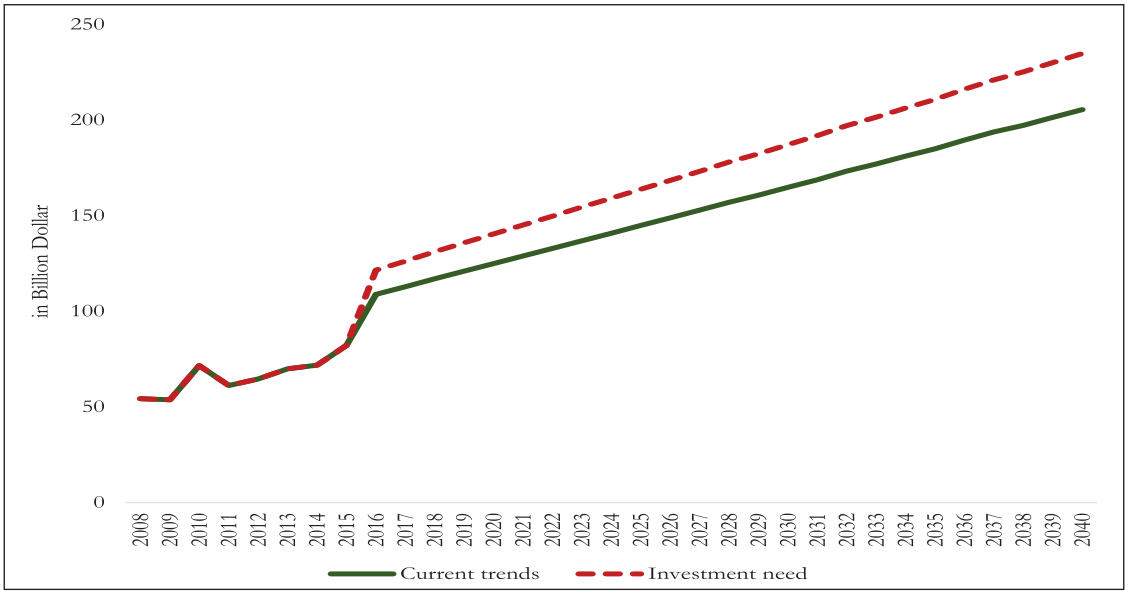
8.32 In view of the tremendous scope in gems and jewellery sector, following programs may be taken up for promoting employment in this sector:

- Public Private Partnership models could be explored for training in jewellery designing. The jewellery training institutes may be affiliated with the Gems and Jewellery Sector Skill Council.
- Setting up infrastructure such as refineries, hallmarking centres etc., to promote jewellery manufacturing in rural areas.
- Creation of multiple jewellery parks (accommodating manufacturers, shared services, testing, banking, logistic support etc.) so as to promote production in a more organized environment.

INFRASTRUCTURE SECTOR

8.33 In order to ensure high and sustainable growth, there has been a substantial step up of investment in infrastructure mostly on transportation, energy, communication, housing & sanitation and urban infrastructure sector. Enhanced investment on infrastructure sector will certainly help in creating jobs both directly and indirectly. As pointed out in Economic Survey, 2016-17 (Volume II, Chapter 8), India is far ahead of many emerging economies in terms of providing qualitative transportation

Figure 2 : Infrastructure Investment Forecast



Source : **Global Infrastructure Outlook, G20**

related infrastructure. However, the Global Infrastructure Outlook reflects that rising income levels and economic prosperity is likely to further drive demand for infrastructure investment in India over the next 25 years. Around US$ 4.5 trillion worth of investments is required by India till 2040 to develop infrastructure to improve economic growth and community wellbeing. The current trend shows that India can meet around US$ 3.9 trillion infrastructure investment out of US$ 4.5 trillion. The cumulative figure for India's infrastructure investment gap would be around US$ 526 Billion by 2040.

8.34 Figure 2 shows year on year requirement of infrastructure investment forecasted by Global Infrastructure outlook and current investment trend in India. The Global infrastructure outlook shows that the gap between required infrastructure investment and current trend of investment is expected to be widened over the year.

8.35 There was massive under-investment in infrastructure sector until the recent past when the focus shifted to invest more on infrastructure. The reasons behind the shortfall in investment were: collapse of Public Private Partnership (PPP) especially in power and telecom projects; stressed balance sheet of private companies; issues related to land & forest clearances. The need of the hour is to fill the infrastructure investment gap by financing from private investment, institutions dedicated for infrastructure financing like National Infrastructure Investment Bank (NIIB) and also global institutions like Asian Infrastructure Investment Bank (AIIB), New Development Bank (erstwhile BRICS Bank) which is focusing more on sustainable development projects and infrastructure projects.

Policy Intervention in the Road Sector

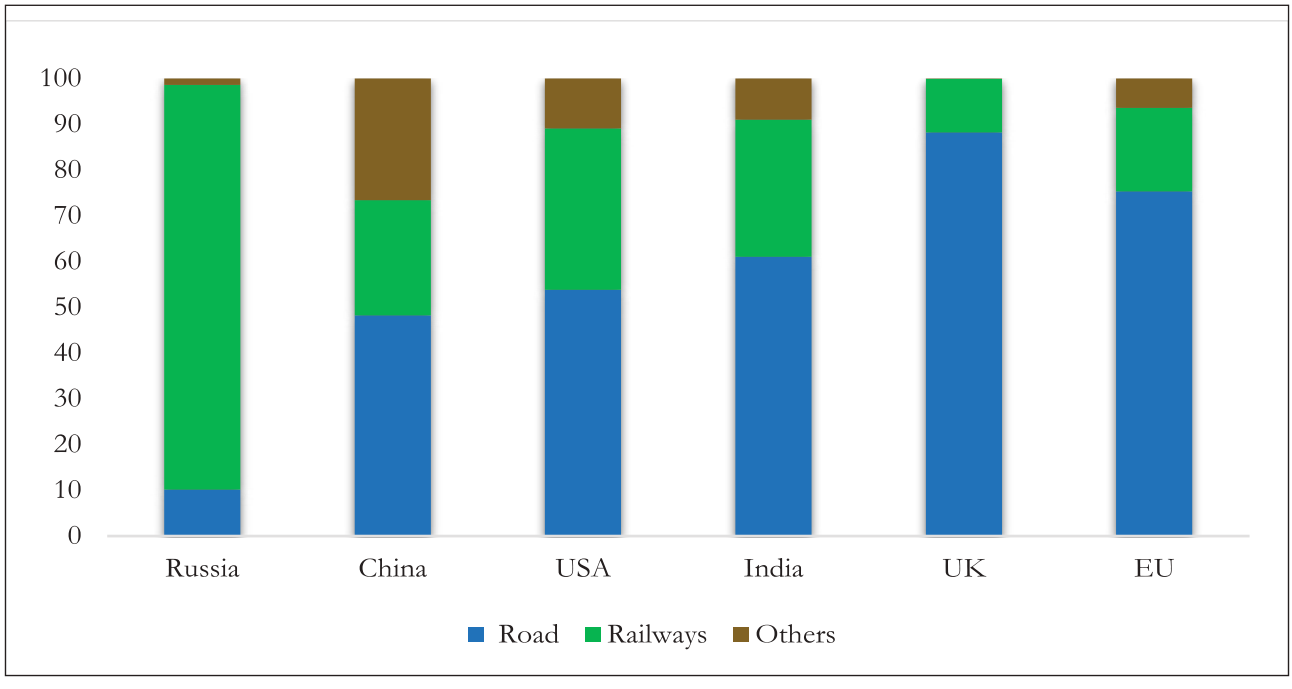
8.36 Road transport is the dominant mode of transport in India, both in terms of traffic share and in terms of contribution to the national economy. Apart from facilitating the movement of goods and passengers, road transport plays a key role in promoting equitable socio-economic development across regions of the country. Easy accessibility, flexibility of operation, door-to-door service and reliability have earned road transport a greater significance in both passenger and freight traffic vis-à-vis other modes of transport. India has one of the largest road networks of over 56.17 lakh km comprising National Highways, Expressways, State Highways, Major District Roads, Other District Roads and Village Roads. Table 8 shows the length distribution as on September, 2017:

Table 8 : Length of National & State Highways and Other Roads

Road Network	Length (km)
National Highways/Express Way	1,15,530
State Highways*	1,76,166
Other Roads*	53,26,166
Total	56,17,812

Source: **Ministry of Road Transport and Highways**
Note : *As on 2015-16

Figure 3 : Modal Share of Road in Inland Freight Transport (per cent)



Source: **World Road Statistics, International Road Federation**

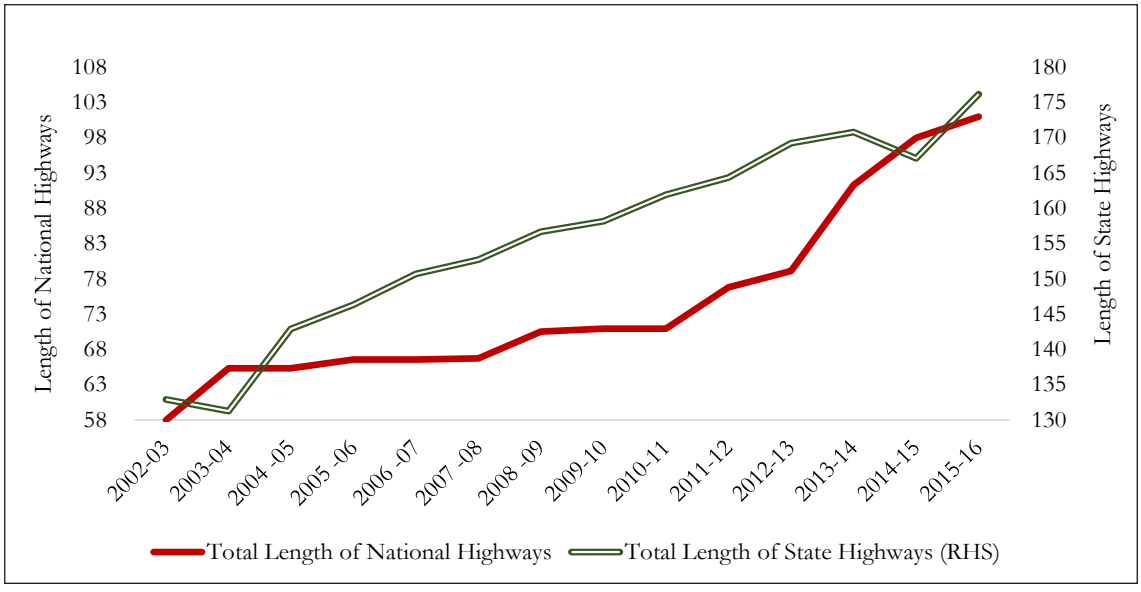
8.37 In case of inland freight transport, road share is more than railways and other modes of transportation in India, as compared to Russia, China and USA (Figure 3).

8.38 In 2001 total road length was 33,73,520 km with total number of 55 million vehicles on the roads. In 2016, total road length increased to 56,17,812 km while the total number of motor vehicles grew by four times to 229 million. The composition of vehicle shows that the share of two wheelers and passenger cars, jeep & taxis has increased on Indian roads while the share of public transport like buses and also goods vehicles contracted over the period.

Conversion of State Highways to National Highways

8.39 National Highways (NHs) /Express Ways in India accounted for 2.06 per cent of the total road length. For the last few years the construction of NHs has been accelerated rapidly. (Figure 4)

Figure 4 : Length of National Highways and State Highways (in thousand km)



Source: **Ministry of Road Transport & Highways**

Table 9 : Details of State Roads Converted to National Highways

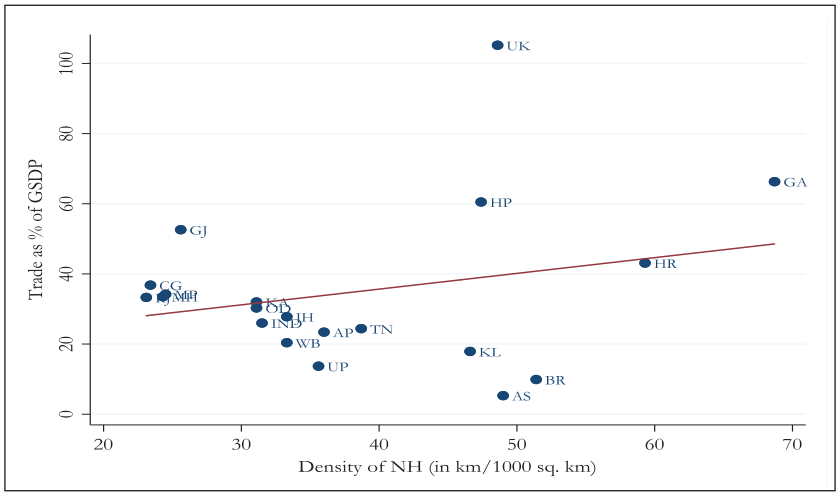
S1. No.	State/Union Territory	Length (in km)
1.	Andhra Pradesh	676
2.	Assam	9
3.	Bihar	160
4.	Haryana	395
5.	Himachal Pradesh	176
6.	Jammu &Kashmir	8
7.	Karnataka	70
8.	Madhya Pradesh	9
9.	Maharashtra	387
10.	Odisha	193
11.	Punjab	530
12.	Rajasthan	20
13.	Sikkim	154
14.	Tripura	228
15.	Telangana	119
16.	West Bengal	46

Source: **Ministry of Road Transport & Highways**

8.40 The Government received proposals for declaration of more than 64000 km of State roads as National Highways (NHs) from various State Governments, against which the Ministry has declared about 10000 km of Roads/routes as new National Highways. So far 3180 km of State Highways have been converted to NHs. The State wise conversion of State roads into National Highways is given in Table 9.

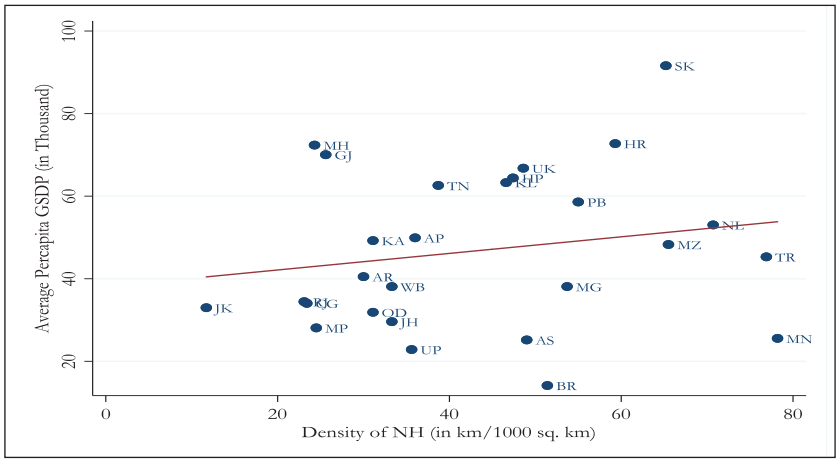
8.41 India's road density at 1.66 km/sq.km of area was higher than that of Japan (0.91 km/ sq km),

Figure 5 : Relationship of Density of NHs and Trade as per cent of GSDP



Source: **Ministry of Road Transport & Highways**

Figure 6 : Relationship between density of NHs and per capita GSDP



Source: **Ministry of Road Transport & Highways**

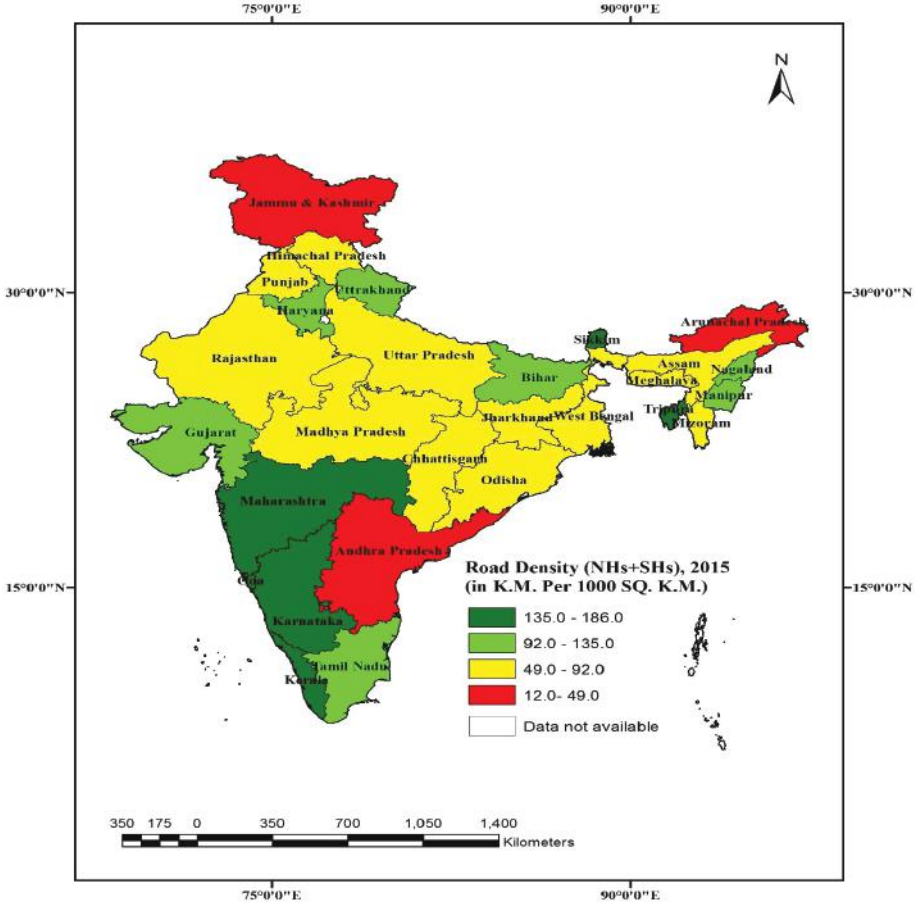
USA (0.67 km/ sq km), China (0.46 km/ sq. km), Brazil (0.18 km/sq.km) and Russian Federation (0.08 km/ sq km). The surfaced road length in India was 61 per cent of the total road length which was much lower as compared to United Kingdom (100 per cent), Korea (83 per cent) Russia (71 per cent) and China (68 per cent). The Government's focus on constructing National Highways in Indian States has a significant impact on trade and per capita income. Two interesting relationship can be established as follows:

- Higher the Density of National Highways, higher the Interstate Trade (Export + Import) as per cent of Gross State Domestic Product (GSDP) in Indian States (figure 5)[1]
- A positive relationship exists between density of NHs and the per capita income in Indian States. Higher the density of National Highways (NHs), higher the Per capita GSDP. (figure 6)[2]

[1] State wise Density of National Highways are taken from Ministry of National Highways and Transportation and the Trade as per cent of GSDP are taken from Economic Survey 2016-17, Vol. I. In the figure the Survey has shown the relationship between density of NHs and trade among states.

[2] Figure 6 shows the relationship between State wise Density of NHs and Per Capita GSDP.

Map 1 : Density of National Highways (NHs) and State Highways (SHs) in India (In K.M. Per 1000 SQ K.M. of Area)



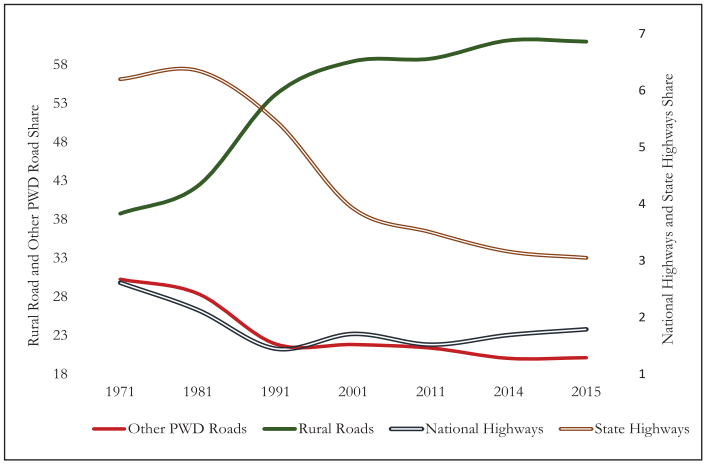
Source: **Ministry of Statistics & Programme Implementation**

8.42 The National Highways facilitate medium and long distance intercity passenger and freight traffic across the country; while the State Highways are intended to carry the traffic along major centres within the state. The relatively developed States like Maharashtra, Karnataka, Kerala and Goa have higher density of National Highways and State Highways followed by Gujarat, Tamil Nadu, Bihar, Haryana and a number of hilly States (MAP 1).

Policy for Construction of other PWD Road, especially District Roads

8.43 Other Public Works Department (OPWD) roads consist of district roads and rural roads developed and maintained by Public Work Department of the State/UTs. These roads play an important role in providing villages the accessibility for transportation of agricultural and other produce to nearby markets, along with access to schools and medical centres. The share of OPWD roads which serve as the main roads for intra district movement has decreased over the period of time (Figure 7). The largest share in the road network in India is of rural roads (61 per cent). Other PWD Roads accounted for the second highest share (20 per cent), Urban Roads (9 per cent), Project Roads (5 per cent), SHs (3 per cent) and NHs (2 per cent) in the year 2015.

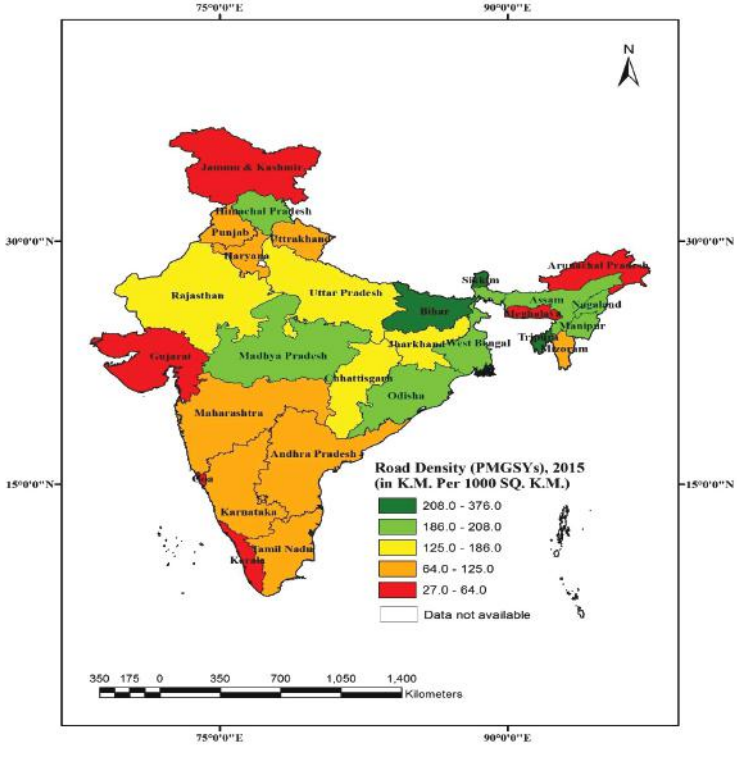
Figure 7 : Road Network by Categories (per cent)



Source: **Statistical Year Book, 2017, Ministry of Statistics & Programme Implementation**

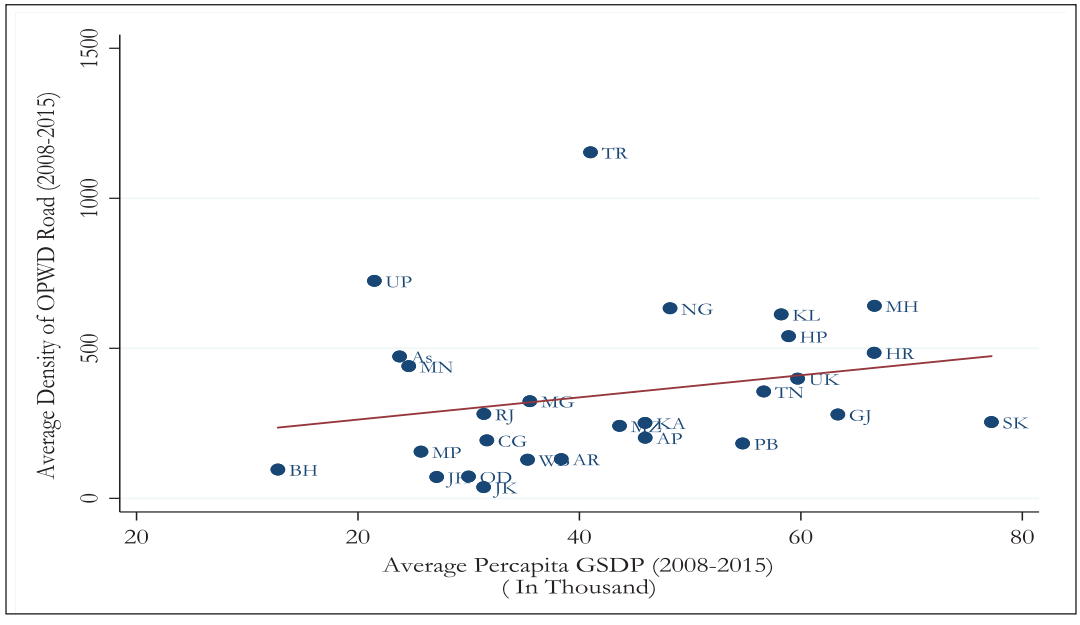
8.44 The Government is connecting habitations with rural roads through the Pradhan Mantri Gram Sadak Yojana (PMGSY), which is a centrally sponsored scheme. The District roads provide the critical function of linkage between main roads and rural roads. Map 2 shows density of PMGSY road in Indian States. Density of PMGSY road is more in States like Bihar, Odisha, Madhya Pradesh, West Bengal, Sikkim and Tripura; while the density is less in J&K, Gujarat, Kerala and Arunachal Pradesh. The relatively developed States like Gujarat, Kerala with higher density of NHs and SHs have lower density of rural roads constructed under PMGSY.

Map 2 : Density of PMGSY Road in India (In K.M. Per 1000 SQ K.M. of Area)



Source: **Ministry of Statistics & Programme Implementation**

Figure 8 : Relationship between GSDP Per capita and Density of OPWD Road



Source: **Ministry of Road Transport & Highways**

8.45 Among Indian States there is a positive relationship between GSDP Per capita and Density of OPWD road (Figure 8). In many under developed States with lower Per capita GSDP like Bihar, Odisha, Chhatisgarh, Jharkhand and Jammu & Kashmir, West Bengal, Madhya Pradesh, the density of OPWD/District Road is very low. In fact, the density is higher in many North Eastern States like Nagaland, Tripura, Assam and Manipur. There is a need for developing OPWD roads including District Roads through special projects, so as to provide access to district headquarter, market hubs etc. and to facilitate connectivity to State highways, thereby enhancing economic activities.

Status of Stalled Projects and NPAs in Road Sector

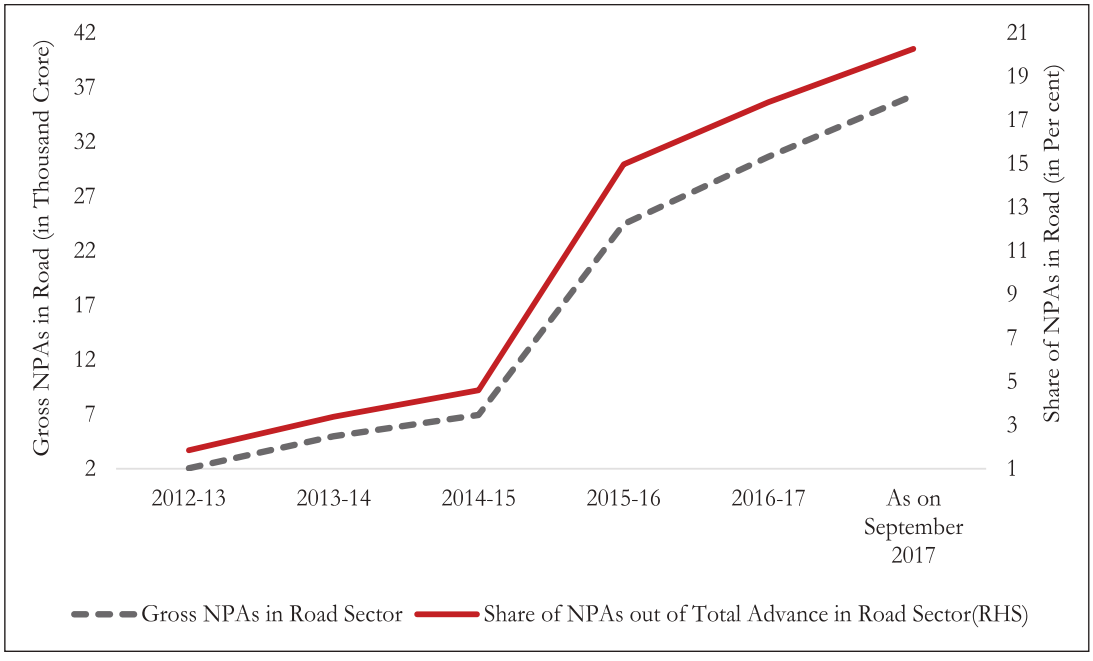
8.46 As on September 2017, out of the 1263 total ongoing monitored projects across sectors, there are 482 projects in Road Transport and Highways with (original) cost of ₹3,17,373.9 crore. Of these, 43 projects face cost overruns and 74 projects time overruns. Some of the projects under different phases of National Highway Development Program are delayed mainly due to problems in land acquisition, utility shifting, poor performance of contractors, environment/ forest/wildlife clearances, Road Over Bridge (ROB) & Road Under Bridge (RUB) issue with Railways, public agitations for additional facilities, and arbitration/ contractual disputes with contractors etc.

8.47 During 2012-13, total credit advances to road sector was ₹1,27,430 crore, which increased to ₹1,80,277 crore as in September 2017-18. The share of Non-Performing Assets (NPAs) out of total advances in road sector increased from 1.9 per cent in 2012-13 to 20.3 per cent in September 2017-18 (Figure 9).

Measures taken for revival of stalled projects on NHs

8.48 The Ministry of Road Transport & Highways and National Highway Authority of India (NHAI) have been monitoring the stalled projects. Wherever physical completion is established, one-time fund infusion by NHAI is being done to revive stalled projects. The funds are being arranged through the common fund available with NHAI for development of roads.

Figure 9 : Share of NPAs out of Total Advances in Road Sector



Source: **Reserve Bank of India**

8.49 Further, in order to expedite completion of delayed projects, regular meetings are held with project developers, State Governments and contractors, concessionaires/contractors. Various steps have been taken for streamlining of land acquisition & environment clearances, exit for equity investors, premium re-schedulement, revamping of dispute resolution mechanism, frequent reviews at various levels etc.

8.50 In order to facilitate implementation of the projects, Hybrid Annuity Model (HAM) instead to Engineering, Procurement and Construction (EPC) has been adopted. Capital expenditure is deferred under HAM (Box 8.2) and requires lesser amount of funds during construction years in comparison to projects on EPC mode. Further, initiatives such as monetization of projects through the Toll-Operate in Transfer model, securitization of toll revenue, adopting the 'Infrastructure Investment Trusts route, other innovative financing options including LIC, Long Term Pension Funds etc., have been taken to attract fresh capital from the market on the strength of already operational projects. With proactive policy interventions, around 88 per cent of these projects have now been put back on track, or appropriately re-engineered and restructured and the total number of stalled projects have been reduced to three.

Bharatmala Pariyojana

8.51 Bharatmala Pariyojana is a new umbrella program for the highways sector that focuses on optimizing efficiency of freight and passenger movement across the country by bridging critical infrastructure gaps through effective interventions like development of Economic Corridors, Inter Corridors and Feeder Routes, National Corridor Efficiency Improvement, Border and International connectivity roads, Coastal and Port connectivity roads and Green-field expressways. A total of around 24,800 km are proposed to be constructed in Phase I. In addition, Phase I also includes 10,000 km of balance road works under NHDP. Estimated outlay for Phase I is ₹5,35,000 crore. The objective of the program is to achieve optimal resource allocation for a holistic highway development/improvement initiative.

Box 8.2 Hybrid Annuity Model (HAM)

Hybrid Annuity Model (HAM) is a combination of two models i.e., the EPC (Engineering, Procurement and Construction) model and BOT - Annuity (Build, Operate, Transfer) model. Under the EPC model, the private players construct the road and have no role in the road's ownership, toll collection or maintenance. National Highways Authority of India (NHAI) pays private players for the construction of the road. The Government with full ownership of the road, takes care of toll collection and maintenance of the road.

Under the BOT model private players have an active role in road construction, operation and maintenance of the road for a specified number of years as per agreement. After the completion of the years of operation, the private players transfer the asset back to the Government. Under BOT, the private players arrange all the finances for the project, while collecting toll revenue (BOT toll model) or annuity fee (BOT annuity model) from the Government, as agreed. In the BOT annuity model, the toll revenue risk is taken by the Government. The Government pays private player a pre-fixed annuity for construction and maintenance of roads.

HAM combines EPC (40 per cent) and BOT-Annuity (60 per cent) Models. On behalf of the Government, NHAI releases 40 per cent of the total project cost, in five tranches linked to milestones. The balance 60 per cent is arranged by the developer. The developer usually invests not more than 20-25 per cent of the project cost, while the remaining is raised as debt.

In BOT toll model, the private players did not show their willingness to invest, since they had to fully arrange for the entire finances, either through equity contribution or debt. NPA-riddled banks were reluctant to lend to these projects. Since there was no compensation structure such as annuity, the developers had to take entire risk in low traffic projects. The essence of HAM model arose due to requirement of better financial mechanism where the risk would be spread between developers and the Government.

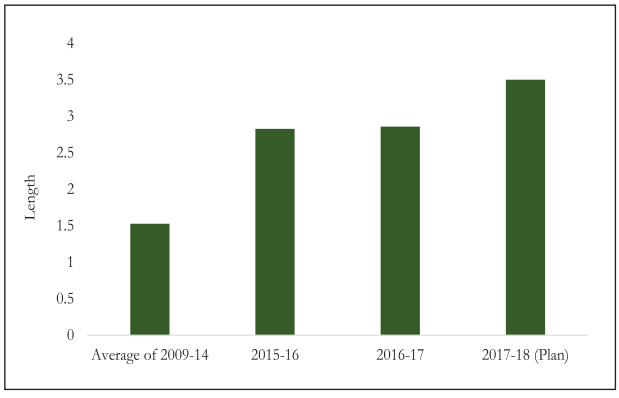
Railways

8.52 Facing stiff competition from other modes of transportation the Government is initiating various transformative measures to keep railways on track. These measures are focusing on prioritizing investments in important areas, viz. dedicated freight corridors, high speed rail, high capacity rolling stock, last mile rail linkages, port connectivity, and attracting private and foreign direct investment. During 2017-18 (upto September 2017) Indian Railways carried 558.10 million tonnes of revenue earning freight traffic as against 531.23 million tonnes during 2016-17 (upto September 2016), showing an increase of 5.06 per cent during this period.

8.53 The share of Indian Railways in freight movement has been declining over a period of time primarily due to non-competitive tariff structure. While the passenger fare had remained more or less flat, the freight fare has increased sharply over the year. To make rail transportation attractive and arrest the declining trend of rail share, various initiatives were taken in 2016-17 which includes tariff rationalization, classification of new commodities, new policy guideline for station to station rates, expansion of freight basket through containerization, withdrawal of dual freight policy for export of iron ore, rationalization of coal tariff, policy guidelines of Merry Go Round System, discount for loading of bagged consignment in open and flat wagons, new delivery models like Roll-on Roll-off services, re-introduction of short lead concession and reduction in minimum distance for charge, digital payment for freight business, Long Term Tariff Contract Policy (which provides tariff stability and attractive rebate in freight to customers), and Liberalised Automatic Freight Rebate scheme for traffic loaded in empty flow directions etc.

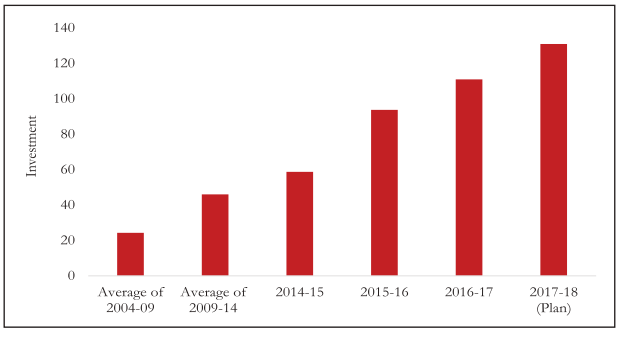
8.54 Apart from above initiatives, the Government has emphasized on railways infrastructure development. The pace of commissioning Broad Gauge lines and completion of electrification have been accelerated during the last three years (Figure 10). The capital investment during the last three years has also increased (Figure 11).

Figure : 10 Broad Gauge Lines Commissioned (thousand km)



Source : **Ministry of Railways**

Figure : 11 Capital Investment (₹ thousand crore)



Source : **Ministry of Railways**

Infrastructure Status to Station Redevelopment

8.55 'Station Redevelopment' is the biggest non-fare revenue generating project for redeveloping railways stations in the country and has been included in the Harmonized List of Infrastructure Subsectors. Station redevelopment programme is envisaged to be done by leveraging commercial development of railways' spareable space in and around the station. The stations to be redeveloped will provide world class amenities and services to passengers. The station redevelopment has been undertaken through various modes such as Zonal Railways, Indian Railway Stations Development Corporation Ltd. (IRSDC), JV with Smart City SPVs, Railway PSU and Co-operation with State Government.

8.56 Moreover, the commercial development undertaken near the stations will become the nerve centres of the city and provide quality retail, commercial and hospitality development. Besides, the redeveloped stations will improve passenger experience by providing amenities like digital signage, escalators/elevators, self-ticketing counters, executive lounges, luggage screening machines, walkways, holding areas for passengers, grand and distinctive roofing and flooring, free and paid Wi-Fi etc. An MOU has been signed by Ministry of Railways with Ministry of Housing and Urban Affairs for integrated planning for station redevelopment projects in cities identified as SMART cities. 10 stations have been taken up for redevelopment under this scheme jointly by Rail Land Development Authority (RLDA) and NBCC (India) Limited.

Metro Rail System

8.57 Rapid urbanisation has created increased demand of civic facilities and transport infrastructure. Higher capacity rail based mass transit system popularly called Metro, are rapidly being accepted across the country as a solution to the problem of urban transportation. Following the success of the Delhi Metro, many cities have implemented or are planning for metro rail systems. Government of India has been providing financial assistance to cities for improving public transport including metro rail projects. There are 425 km of metro rail systems operational in the cities of Delhi, NOIDA, Gurugram, Kolkata, Mumbai, Chennai, Bengaluru, Hyderabad, Jaipur, Lucknow and Kochi and another about 684 km are under construction in various cities by December 2017.

8.58 As metro rail projects are highly capital intensive, it is difficult to fund metro rail projects from Government exchequer only. In this context, in order to create an ecosystem for proliferation of metro rail in country, the Government of India has notified Metro Rail Policy, 2017. The policy imbibes on the learnings from international examples and bridges the much needed gap for enhancing the feasibility of metro rail projects from economic, social and environmental perspective.

Civil Aviation

8.59 India is the 3rd largest and the fastest growing domestic aviation market in the world in terms of number of domestic tickets sold. In 2016-17, annual growth in domestic passenger departures

was 23.5 per cent as compared to 3.3 per cent in the US and 10.7 per cent in China.

8.60 Domestic passenger traffic registered a compound annual growth rate (CAGR) of 9.89 per cent during 2007-08 to 2016-17. In 2017-18 (April - September), domestic airlines carried 57.5 million passengers, with a growth rate of 16 per cent over the corresponding previous year period. Scheduled Indian and foreign carriers carried 29.2 million passengers to and from India, and showed a growth rate of 9 per cent in 2017-18 (April - September) over the corresponding previous year period. During this period, the domestic air cargo handled was 0.61 million MT showing a growth of 10.27 per cent over the corresponding previous year time period, and international air cargo handled was 1.07 million MT showing a growth of 19.02 per cent.

Recent Initiatives taken for the growth of the Civil Aviation sector are as follows:

Regional Connectivity Scheme – 'Ude Desh ka Aam Naagrik' (RCS-UDAN)

8.61 To make flying accessible and affordable for the masses in the regionally important cities, the RCS-UDAN scheme was launched in October 2016. This is a first-of-its-kind scheme globally to stimulate regional connectivity through a market-based mechanism. 27 States/UTs have already signed MOUs with the Central Government under RCS-UDAN. Many private sector airlines are actively participating under this scheme.

Airport Development

8.62 Provision of ₹4,500 crore for revival of 50 unserved and underserved airports/air strips has been taken up with budgetary support of Government to be completed by December 2018. Revival of airstrips/airports will be 'demand driven', depending upon firm commitment from airline operators as well as from the State Governments.

8.63 Government has granted in-principle approval for setting up 18 Greenfield airports in the country, which include Mopa in Goa, Navi Mumbai, Shirdi and Sindhudurg in Maharashtra, Bijapur, Gulbarga, Hasan and Shimoga in Karnataka, Kannur in Kerala, Durgapur in West Bengal, Dabra in Madhya Pradesh, Pakyong in Sikkim, Karaikal in Puducherry, Kushinagar in Uttar Pradesh, Dholera in Gujarat, and Dagadarthi Mendal, Bhogapuram, and Oravakallu in Andhra Pradesh. Government has granted "site clearance" for 5 Greenfield airports: Machiwara in Punjab, Itanagar in Arunachal Pradesh, Jamshedpur in Jharkhand, Alwar in Rajasthan and Kothagudem in Telangana.

Liberalization of Air Services

8.64 India-Afghanistan Air freight Corridor: The decision to establish an Air Freight Corridor between Afghanistan and India was taken in September 2016. The Corridor will provide Afghanistan, a landlocked country, greater access to Indian market especially for perishables, and will allow Afghan businessmen to leverage India's economic growth and trade networks for its benefit.

8.65 Air Services Agreement between India and Serbia: The agreement signed on 31.01.2003 has been liberalised and updated in May 2017 with a view to spur greater trade, investment, tourism and cultural exchanges between the two countries. It will provide enabling environment for enhanced connectivity and commercial opportunities to the carriers of both sides while ensuring greater safety and security.

Shipping

8.66 Shipping is an important indicator of commodity trade of any country. Around 95 per cent of India's trade by volume and 68 per cent in terms of value is transported by sea. As on 31st December, 2017, India had a fleet strength of 1,374 ships with dead weight tonnage (DWT) of 18.80 million (12.36 million GT) including Indian controlled tonnage, with Shipping Corporation of India (SCI) having the largest share of around 34 per cent. Of this, around 443 ships of 17.19 million DWT (10.88 million GT) cater to India's overseas trade and the rest to coastal trade.

8.67 To encourage the growth of Indian tonnage and for higher participation of Indian ships in

Indian trade, the Government has implemented several measures which include reduction of GST from 18 per cent to 5 per cent on bunker fuel used in Indian flag vessels; brought parity in the tax regime of Indian seafarers employed on Indian flag ships vis-à-vis those on foreign flag ships; removing obstacles in the smooth implementation of the India Controlled Tonnage (ICT) scheme which allows Indian companies to directly own ships in foreign flags; and easing many procedural compliance issues like ship registration, procuring chartering permission and payment of chartering fees online.

Scope for Shipbuilding and ship-repair industry

8.68 Ship-building is a manufacturing industry endowed with the unique feature of having nearly 65 per cent value addition coming from other technology/ancillary industries. In India, there are 27 Shipyards comprising 6 under Central Public Sector, 2 under State Governments and 19 under Private Sector Undertakings. Shipbuilding industry employs over 30,000 people directly. However, over the years, the industry has developed a large number of ancillary units and subcontractors around them employing lakhs of people.

8.69 Globally, the shipbuilding industry is dominated by three countries namely, South Korea, China & Japan, which together have more than 90 per cent share of the shipbuilding market. Major shipbuilding nations support their industry through direct financing, and fiscal incentives. It is important to note that India is located strategically on the international trade route, whereby it can attract ships plying from west to east in the trade route for its ship-repair activity. Geostrategic location of India, abundance of labour and quality of work are the strengths for the ship-repair business. There is a scope for ship building industry that can be unlocked, which will not only create a strong manufacturing base but also generate millions of jobs.

Port Development

8.70 In 2016-17, cargo traffic at Indian Ports has increased by 5.9 per cent (Y-o-Y) with 6.9 per cent growth in Major Ports and 4.2 per cent growth in Non-Major Ports. In 2017-18 (till 31.12.2017), cargo traffic handled at Major Ports has been 499.41 million tonnes compared to 481.87 million tonnes handled during the corresponding period of 2016-17. In 2017-18, projects with an investment of around ₹10,000 crore and capacity addition of about 80 MMTPA are targeted for award. Of these, 15 projects involving an investment of around ₹3159 crore and capacity addition of 18 MMTPA have already been awarded (as on 31.12.2017).

8.71 In addition, the Government has taken following initiatives to improve the performance of Major Ports:

a. Major Ports have been benchmarked to international standards and 116 initiatives were identified of which 86 initiatives have been implemented and remaining will be implemented by 2019.

b. Major Ports Authorities Bill, 2016 to replace Major Ports Trust Act, 1963 to modernise the institutional structure of Major Ports has been introduced in the Parliament on 16.12.2016. Subsequently, referred to the departmental standing committee that submitted its report in July 2017.

c. Radio Frequency Identification System (RFID) to reduce dwell time, transaction time and ease congestion has been operationalized in 9 Major Ports. The remaining Major Ports are in the process of operationalising RFID which would be completed by March, 2018.

d. Direct port delivery and direct port entry initiated at Major Ports for EXIM containers.

Sagarmala programme

8.72 The Sagarmala programme is the flagship programme of the Ministry of Shipping to promote port-led development in the country through harnessing India's 7,500 km long coastline, 14,500 km of potentially navigable waterways and strategic location on key international maritime trade routes. The main vision of the Sagarmala Programme is to reduce logistics cost for international and domestic trade,

with minimal infrastructure investment. Under the Sagarmala Programme, 508 projects at an estimated investment of more than ₹8 Lakh Crore have been identified for implementation over the next 20 years. Of these, 289 Projects worth ₹2.17 Lakh Crore are under various stages of implementation and development. These projects are being implemented primarily through the private players or PPP mode. Under the budget head of Sagarmala, a total of ₹945.74 Crore has been sanctioned for the year 2017-18 and ₹644.96 Crore has already been released for the development and implementation of 49 projects.

8.73 A roadmap has been created for increasing the Indian port capacity to 3000+ MMTPA to cater the projected traffic of 2500 MMTPA by 2025. For all the 12 major ports, master plans have been finalized. From the port master plans, 131 port capacity expansion projects with project cost of ₹85,346 Cr. have been identified for implementation over next 20 years.

Inland Waterways Transport (IWT)

8.74 The 'Jal Marg Vikas Project' on National Waterways-I (NW-I) in river Ganga, a large integrated IWT project, has been launched between Varanasi and Haldia covering a distance of 1380 kms at an estimated cost of ₹5369 crore. On NW-2 (River Brahmaputra), Ro-Ro services have commenced between Dhubri and Hatsingimari in July 2017 on an Inland Waterways Authority of India (IWAI) vessel. Further, under the National Waterways Act, 2016, 106 additional inland waterways have been declared as National Waterways (NWs). Based on techno economic studies, eight new NWs have been taken up for development in 2017-18. These include, NW-16 (Barak river); three in Goa viz. NW- 27:Cumberjua, NW 68 – Mandovi , NW 111 – Zuari; NW-86 (River Rupnarayan) ; NW 97 (Sunderbans); NW-9 (Alappuzha–Kottayam– Athirampuzha Canal) and NW-37 (River Gandak). In order to reduce the logistics cost of cargo and facilitate passenger movement between North East and mainland, MOUs have been signed with Bangladesh.

8.75 To provide institutional funding, the Government has proposed to allocate 2.5 per cent of the proceeds of Central Road Fund for development and maintenance of National Waterways. In 2017-18, IWAI raised ₹660 crore from the market by issuing 'GOI fully serviced Bonds' to meet capital expenditure on development of National Waterways.

Telecom

8.76 Over the last few years the Indian telecom sector has shown remarkable growth as a result of key reforms viz., spectrum management, Bharat Net programme and umbrella scheme like 'Digital India' in order to convert India into a digital economy and a knowledge based society. As on end of September 2017, the total subscribers stood at 1207.04 million, out of which 501.99 million connections were in the rural areas and 705.05 million in the urban areas. Wireless telephony constitutes 98.04 per cent of all subscriptions whereas share of landline telephones stands at 1.96 per cent at the end of September 2017. The overall tele-density in India was 93.42 per cent including 56.78 per cent in rural areas and 172.86 per cent in urban areas (as on September, 2017). The mobile industry in India is currently employing over 4 million people both directly and indirectly.

8.77 However it is important to note that the telecom sector is going through a stress period with growing losses, debt pile, price war, reduced revenue and irrational spectrum costs as also highlighted in Chapter 8 of Economic Survey 2016-17 (Volume II). A new entrant has disrupted the market with low-cost data services and the revenue of incumbent players has fallen. The crisis has also severely impacted investors, lenders, partners and vendors of these telecom companies.

8.78 Despite various bottlenecks, the Government is committed to extending the reach of telecom network to the remote and rural villages, and bridging the digital divide with support from all stake holders. The Government is implementing the flagship 'Bharat Net' project (in two phases), to link each of the 2.5 lakh Gram Panchayats of India through optical fibre network. This is the largest rural connectivity project of its kind in the world, and is the first pillar of Digital India Programme.

It will facilitate the delivery of various e-Services and applications including e-health, e-education, e-governance and e-commerce in the future. Work on phase I of the project is progressing at a brisk pace. As on November, 2017, the fibre has reached 1,03,275 Gram Panchayats with the laying of 2,38,677 km. of optical fibre cable. The Government has launched Phase II of Bharat Net project with an outlay of ₹30,920 crore on 13th November, 2017. The phase II, which will connect 1.5 lakh Gram Panchayats through high speed broadband, is likely to be completed by March 2019.

8.79 Government is in the process of formulating the New Telecom Policy, targeted to be released in 2018, after holding wide range of consultations with various stakeholders. The major themes that new Telecom Policy shall try to address include Regulatory & Licensing frameworks impacting the sector, Connectivity for All, Quality of Services, Ease of Doing Business and Absorption of New Technologies including 5G and Internet of Things. Telecom Regulatory Authority of India (TRAI) has also recommended new policy on 'Net Neutrality' which prohibits discriminatory tariffs for data services. As per the policy, the service providers should be restricted from entering into any arrangement, agreement, or contract, with any person, natural or legal, that has the effect of discriminatory treatment based on content, sender or receiver, protocols or user equipment.

Power

8.80 The All-India installed power generation capacity has increased substantially over the years and reached 330860.6 MW as on 30th November, 2017. The peak deficit i.e. the per centage shortfall in peak power supply vis-à-vis peak hour demand, has declined from around 9 per cent in 2012-13 to 1.6 per cent during 2016-17, although slightly higher at 2 per cent during April-September 2017-18.

8.81 Despite these achievements in power generation capacity enhancement, the bottleneck continues in distribution of power supply, as discussed in the Economic Survey 2016-17 Vol II, Chapter 8. Programmes have been taken up to address improvement in performance of distribution companies so that the ambitious plan to provide electricity for all by 2019 can be achieved.

8.82 There were 18542 un-electrified census villages reported by the states as on 1st April 2015. As on 30th November 2017, electrification in 15183 villages has been completed and 1052 found to be uninhabited. The remaining 2217 villages are expected to be electrified by May 2018.

8.83 In order to enhance power supply in rural areas, Deen Dayal Upadhyaya Gram Jyoti Yojana was launched in December 2014 to extend financial assistance for capital expenditure by distribution companies (discoms) for strengthening and augmenting distribution infrastructure, including metering, in rural areas. The estimated outlay for the scheme is ₹43033 crore. In addition, the approved outlay of ₹39275 crore of erstwhile Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY) has been carried forward to this scheme. The scheme is being implemented by the States and their discoms with support from Central Government to the tune of 60 per cent in 'General Category' States and 85 per cent in 'Special Category' States.

8.84 A new scheme, Saubhagya (Pradhan Mantri Sahaj Bijli Har Ghar Yojana), was launched in September 2017 to ensure electrification of all remaining willing households in the country in rural and urban areas with an outlay of ₹16320 crore. The scheme envisages electrification of around 4 crore households that do not have electricity connection by March 2019. For unelectrified households located in remote and inaccessible areas, solar photo voltaic based standalone systems with power packs of 200-300 Watt with battery backup are to be provided to allow maximum of 5 LED Lights, one DC fan, one DC power plug along with repairment and maintenance for five years. The prospective beneficiary households would be identified using Socio Economic Caste Census (SECC) 2011.

8.85 Integrated Power Development Scheme was approved in November 2014 with a total outlay of ₹32612 crore including budgetary support of ₹25354 crore form Government of India. Upto end November 2017, projects worth ₹26930 crore covering 3616 towns has already been sanctioned and state utilities are awarding the works.

Table 10 : Progress of National LED Programme

	UJALA	SLNP
No. of LED bulbs distributed/streetlights installed	28.07 crore	41.79 lakh
Average energy saved per year	36.45 billion kWh	2.80 billion kWh
Avoided peak demand/avoided capacity	7299 MW	467 MW
GHG emission CO2 reductions per year	29.53 million t CO2	1.93 million t CO2

Source: **Ministry of Power**

8.86 Government has also approved establishment of a National Smart Grid Mission in power sector to plan and monitor implementation of programmes related to smart grid activities in India with a budget allocation of ₹30 crores for 2017-18.

8.87 As discussed in detail in Economic Survey 2016-17, Vol II, the Government launched the Ujjawal DISCOM Assurance Yojana (UDAY) in November 2015 envisaging reduction in interest burden, cost of power and aggregated technical and commercial losses. 31 states/UTs have already come under UDAY. The primary focus has been on billing and collection efficiency of DISCOMS that has increased to 82 per cent by the first quarter of 2017-18. The states need to focus on reducing their technical and commercial losses (AT&C) through tariff revisions. However, the higher tariffs face potential threat from lower solar and wind prices. Latest estimates indicate solar energy price of ₹2.5 per kwh and wind energy price of ₹3.4 per kwh.

Energy Conservation

8.88 Apart from the above developments aimed at enhancing availability of power, energy efficiency also assumes significance for the country. Lighting itself accounts for about 20 per cent of the total electricity consumption in India. A number of initiatives have been taken up by the Government to ensure commercial energy efficiency in the country including the following:

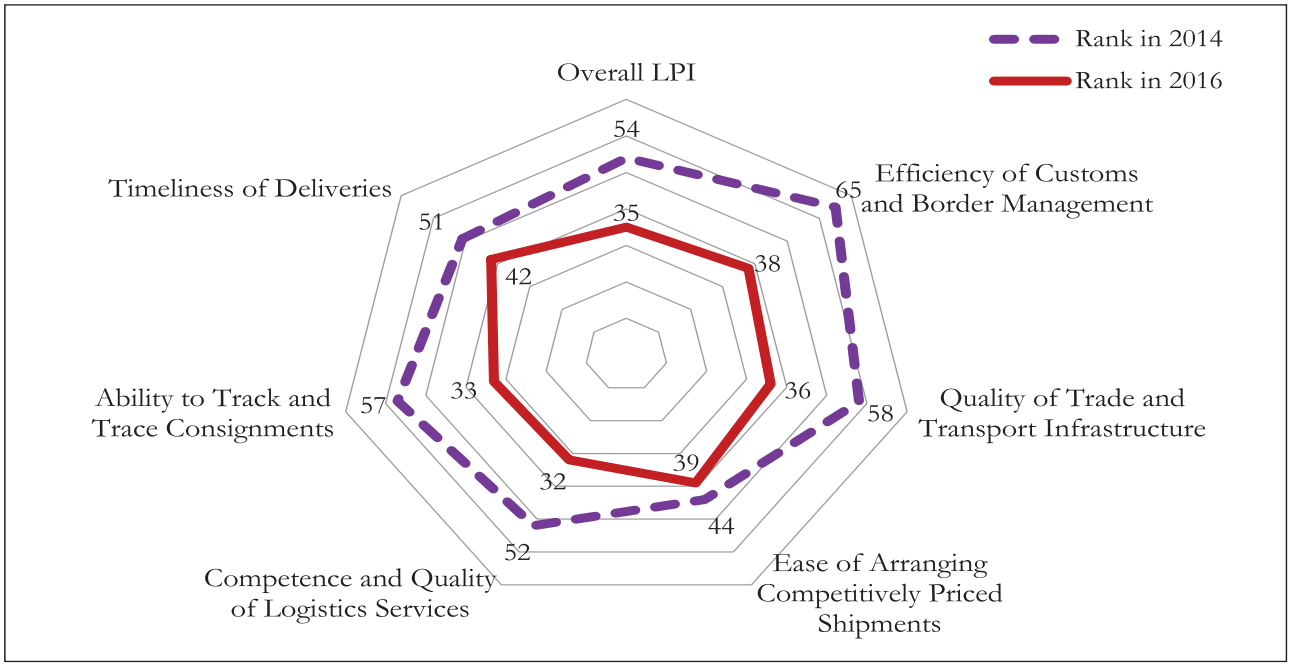
- National LED programme: A programme for promoting use of the most efficient lighting technology at affordable rates was launched in January 2015. The programme includes two components (a) Unnat Jyoti by Affordable LED for All (UJALA) providing LED bulbs to domestic consumers with a target to replace 77 crore incandescent bulbs with LED bulbs and (b) Street Lighting National Programme (SLNP) to replace 1.34 crore conventional street lights with smart and energy efficient LED street lights by March 2019. The current progress of implementation of the National LED programme up to 18th December 2017 since its launch on 5th January 2015 is as follows (Table 10):
- In addition, the Bureau of Energy Conservation is simultaneously taking up number of programmes for energy conservation including standardisation and labelling of appliances, buildings, passenger cars and heavy duty vehicles etc.

Logistics Sector: Exploring the Unexplored

8.89 Logistics including transportation, inventory management, warehousing, materials handling & packaging, and integration of information, is related to management of flow of goods between the point of origin and the point of consumption. Logistics sector in India remains unorganized to a large extent. The sector is facing challenges such as high cost of logistics impacting competitiveness in domestic and global market, under-developed material handling infrastructure, fragmented warehousing, multiple regulatory/ policy making bodies, lack of seamless movement of goods across modes, lack of integrated IT infrastructure/modern technology. In order to develop this sector in an integrated way, it is important to focus on new technology, improved investment, skilling, removing bottlenecks, improving intermodal transportation, automation, single window system for giving clearances, and simplifying processes.

8.90 The Indian logistics industry worth around US$ 160 Billion has grown at a compound annual

Figure 12 : Logistics Performance Index (LPI): India's Ranking



Source : **World Bank**

growth rate (CAGR) of 7.8 per cent during last five years. Logistics sector provides employment to more than 22 million people. Improving logistics sector has huge implication on exports and it is estimated that a 10 per cent decrease in indirect logistics cost can increase 5-8 per cent of exports. With the implementation of Goods and Services Tax (GST), the Indian logistics market is expected to reach about US$ 215 Billion in 2020, growing at a CAGR of 10.5 per cent. By recognising the importance of the logistics sector, a new Logistics Division has been created in the Department of Commerce to develop and co-ordinate integrated development of the logistics sector, improvement in existing procedures, identification of bottlenecks and gaps, and introduction of technology based interventions in this sector.

8.91 The Global Ranking of the World Bank's 2016 Logistics Performance Index shows that India jumped to 35th rank in 2016 from 54th rank in 2014 in terms of overall logistics performance. Apart from increasing trade, better performance in logistics will augment the programme like Make in India, and also enable India to become an important part of the global supply chain. India has improved its rank in all the six components of logistics performance index (Figure 12).

8.92 Realizing the importance of the sector and to address the inefficiencies, the Government has included the Logistics sector in the Harmonized Master List of Infrastructure Subsector.

8.93 Inclusion of Logistics Sector in the Harmonized Master List of Infrastructure Subsector will benefit the sector in many ways as follows:

i. It will be helpful in facilitating the credit flow into the sector with longer tenures and reasonable interest rates.

ii. The infrastructure status will simplify the process of approval for construction of multimodal logistics (parks) facilities that includes both storage and transport infrastructure.

iii. It will encourage market accountability through regulatory authority and will attract investments from debt and pension funds into recognized projects.

Petroleum & Natural Gas

8.94 Crude oil production target during 2017-18 (April-Oct) was 21.85 MMT against which actual production was 21.06 MMT which meets only 96.38 per cent of the target. Shortfall in production was mainly due to declining production from old and marginal fields, delay in completion of some projects in western offshore, unplanned shutdown of wells, processing platform/plants and pipelines. Natural gas production target during 2017-18 (April-October) was 20.26 BCM against which actual production was 19.22 BCM which is 94.87 per cent of the target. Shortfall in production of natural gas has been attributed to decline of production from old and marginal fields, under-performance of wells, delay in getting multiple clearances, land acquisition, Right of Use (RoU) permission issues and resistance from local groups for development projects and unplanned shutdown of wells, processing platforms/plants and pipelines.

8.95 Some of the important new initiatives taken to transform hydrocarbon sector in India are as under:

Complete mapping of sedimentary basins

8.96 India has 26 sedimentary basins covering an area of 3.14 Million Sq Km spread over onshore, shallow water and deep water. An area of about 1.502 Million Sq. Km i.e. 48 per cent of total sedimentary basin area does not have adequate geo-scientific data. As a base to launch future Exploration and Production (E&P) activities, appraisal of all un-appraised areas has been approved and would be instrumental in increasing investments in domestic production of oil and gas. The project is being implemented by Oil India Limited (OIL) and Oil and Natural Gas Corporation (ONGC) at an estimated cost of ₹2932.99 crore.

Refining Capacity

8.97 India, which is second largest refiner in Asia after China, is emerging as a refinery hub with refining capacity exceeding demand. The country's refinery capacity has increased from 230.06 MMTPA in 2016-17 to 237.06 MMTPA at present with addition of 1 MMTPA capacity in HPCL, Mumbai refinery and capacity expansion of BPCL, Kochi from 9.5 MMTPA to 15.5 MMTPA.

National Gas Grid:

8.98 Government has envisaged developing an additional 15,000 km long pipeline network to have an ecosystem of National Gas Grid in the country. The Government has approved partial capital grant of ₹5,176 Crore (40 per cent of the estimated capital cost of ₹12,940 Crore) in September 2016 to GAIL for constructing 2650 km Jagdishpur-Haldia & Bokaro-Dhamra Pipeline (JHBDPL) natural gas pipeline project, popularly known as Pradhan Mantri Urja Ganga of Eastern India. This project will connect Eastern part of the country with National Gas Grid and will ensure the availability of clean and eco-friendly fuel, Natural Gas, to the industrial, commercial, domestic and transport sectors in the States of Uttar Pradesh, Bihar, Jharkhand, Odisha and West Bengal. These pipeline Projects would support the revival of 3 Fertilizer Plants namely Gorakhpur (U.P.), Barauni (Bihar) and Sindri (Jharkhand) along the route of these pipeline projects.

Households covered under DBTL

8.99 Government has introduced well targeted system of subsidy delivery to LPG consumers through Pratyaksh Hanstantrit Labh (PAHAL). The initiative of the Government was aimed at rationalizing subsidies based on approach to cut subsidy leakages, but not subsidies themselves. So far, about 19.05 crore LPG consumers have joined Pahal Scheme as on 31.10.2017. PAHAL has entered into Guinness Book of World Records being largest Direct Benefit Transfer (DBT) Scheme. So far, more than ₹57,196 crore have been transferred directly into the bank accounts of the consumers.

LPG Connections to BPL Houses- Pradhan Mantri Ujjwala Yojana

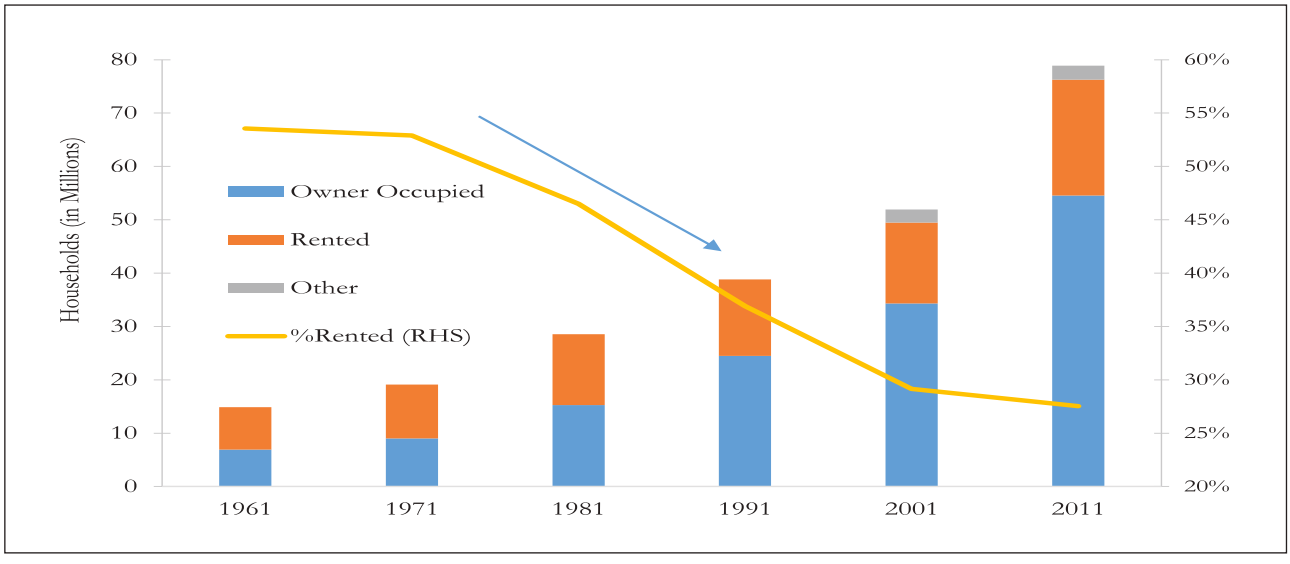
8.100 Under Pradhan Mantri Ujjwala Yojana (PMUY), 5 crore LPG connections are targeted to be provided to BPL families with a support of ₹1600 per connection by 2018-19. The scheme is aimed at replacing the unclean cooking fuels mostly used in rural India with the clean and more efficient LPG (Liquefied Petroleum Gas). During April-October, 2017, a total of around 1.86 crore new LPG connections have been released, including 1.05 crore connections under

PMUY achieving 70 per cent of the yearly target of 1.5 crore. Cumulative 3.05 crore new LPG connections under PMUY have been released till 31.10.2017, since launch of this scheme.

Housing for All – Some Issues

8.101 A key policy priority of the government is to deliver Housing for All. Policies related to housing need to recognize that India has an increasingly fluid population. A successful housing policy should enable horizontal or spatial mobility, namely the ability to move to, between and within cities as job opportunities arise. It should also

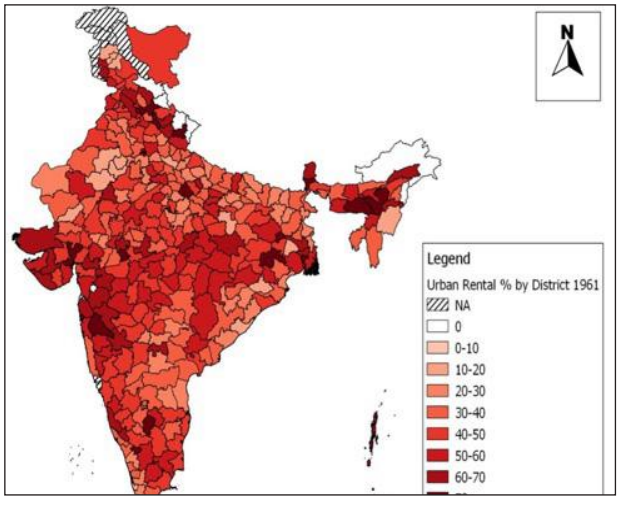
Figure 13 : Rental and ownership break up for households in Urban India[3]



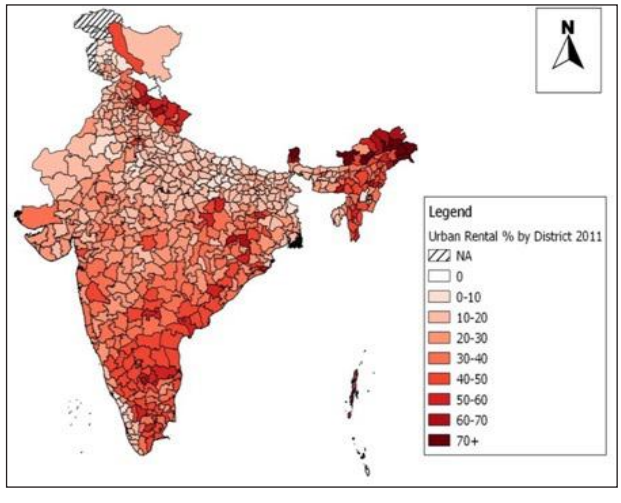
Source: **For years 1981 to 2011- Harish (2015); for 1971 and 1961 - Census of India.**

Figure 14 : Rental housing in Urban India

a. 1961



b. 2011



Source: **Tandel, V., Patel, S., Gandhi, S., Pethe, A., & Agarwal, K. (2016). Decline of rental housing in India: the case of Mumbai. Environment and Urbanization.**

[3] Note: Other was a category introduced in 2001 and includes rent-free accommodation provided by employers or, in cases of unauthorised slums/ construction, where the household neither owns the structure nor pays rent. Further, the 1961 census is based on 20 per cent sample and numbers reported here are population estimates of the sample.

deliver vertical mobility, so that an aspirational population can climb the socio-economic ladder. These concerns should be embedded in policies ranging from urban design to those related to transaction costs in the secondary market. In this context, two areas namely the rental market and the prevalence of vacancies are discussed in this section.

The Importance of Rental Housing

8.102 Rental housing is important for both horizontal and vertical mobility as it allows people to access suitable housing without actually having to buy it. Across the income spectrum, rental housing is an important foothold into a city for new arrivals, until they are able to, or choose to, purchase their own homes. For rural migrants, in particular, whose financial portfolios may already be tied up in land and livestock, it is access to shelter that is more important than investing in another lumpy asset that is subject to local market risk.

8.103 Nonetheless, the share of rental housing has actually been declining in Indian cities since independence from 54 per cent in 1961 to 28 per cent in 2011 (see Figure 13). Although most parts of the country have witnessed a decline in the share of rentals, it is not uniform. Figure 14 provides a comparison of share of urban rental houses at district level between 1961 and 2011. The maps show that decline has been especially sharp in the northern states (excluding the mountain states).

8.104 As a proportion of all housing, renting accommodation is more prevalent in urban areas than in rural. According to the 2011 Census, the share of households living in rented houses was only 5 per cent in rural areas, but 31 per cent in urban areas. A state-wise picture also shows that the more urbanised states, such as Gujarat, Maharashtra and Andhra Pradesh have a higher per centage of rental housing (Harish, 2016). Similarly, larger cities had greater shares of rented housing – from 28 per cent for small towns, 36 per cent for medium-sized towns, to 40 per cent of total housing being rented in large cities (Kumar, 2016).

8.105 In many countries, including India, home ownership is encouraged as part of socio-economic policy. While there are good reasons for encouraging home ownership, it must be recognized that the rental market is also an important part of the urban eco-system. Rent control, unclear property rights and difficulties with contract enforcement have constrained the market in India in recent decades. These problems need to be resolved in order to allow horizontal and vertical mobility as well as to address a related issue – high vacancy rates.

The Problem of Vacant Housing

8.106 Despite the shortage of housing in urban India (more than 18 million households in 2012) (MHUPA, 2016), there is also a trend increase in vacant houses: from 6.5 million in 2001 to 11.1 million in 2011. According to the national census, vacant houses constitute around 12 per cent of the share of the total urban housing stock (Kumar, 2016) (Table 11).[4]

8.107 The district-wise distribution of vacant housing stock shows a greater prevalence of this phenomenon in the western half of the country. Figure 15 shows the number and share of vacant census houses in urban parts of major states. Maharashtra has the highest number of vacant houses (slightly greater than 2 million) followed by Gujarat (around 1.2 million). Gujarat has the highest share of vacant houses to the total residential stock (18.5 per cent), followed by Rajasthan (17.3 per cent) and Maharashtra (16.39 per cent).

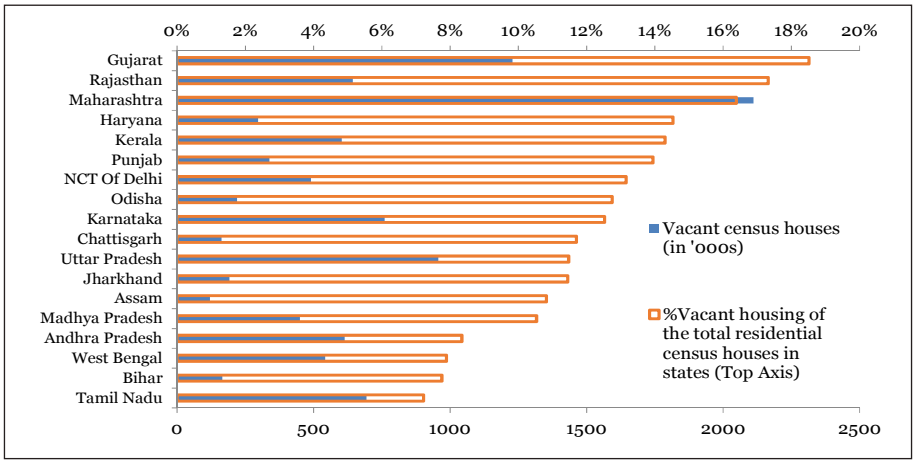
[4] In the instruction manual for the Census Housing listing, the instructions for categorising vacant housing are, *"If a Census House is found vacant at the time of House listing i.e. no person is living in at and it is not being used for any other non-residential purpose(s) write 'Vacant' ".* (http://www.censusindia.gov.in/2011-Documents/Houselistingper cent20English.pdf accessed on 8 January 2011). Also note that the comparable figure for vacant housing in the US is less than 3 per cent (US Census Bureau 2016).

Table 11 : Break-up of census houses and vacant houses in urban India[5]

Type	in Millions
Total number of vacant census houses [1]	11.09
Total number of census houses for 'Residence' [2]	76.13
Total number of census houses for 'Residence-cum-other use' [3]	2.35
Total Residential Stock [1+2+3=4]	89.58
per centVacant census houses of the total residential stock [1÷4]	12.38 per cent

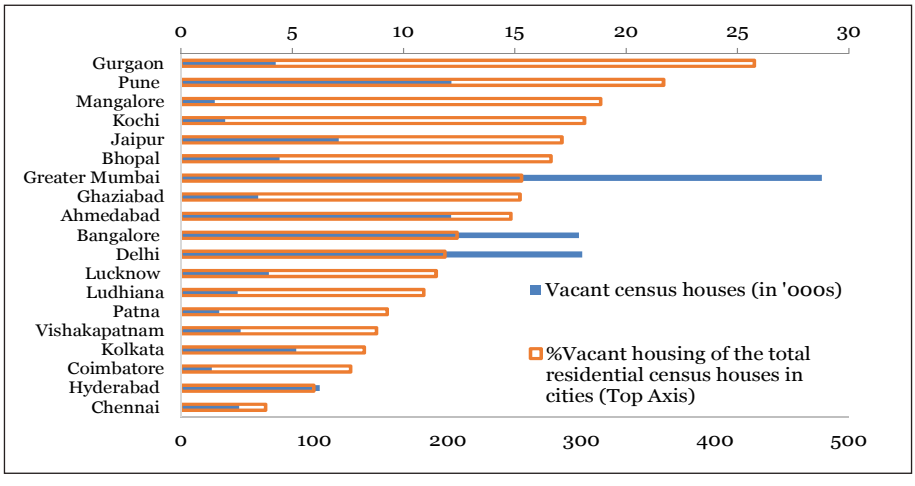
Source: **Census of India (2011) & IDFC Institute (2017).**

Figure 15 : Vacant Census Houses in major States (Urban)



Source: **Census of India (2011) & IDFC Institute (2017).**

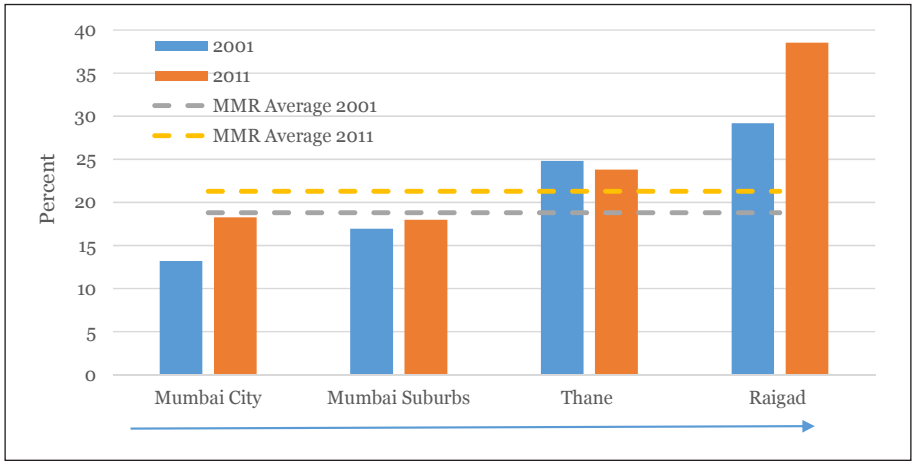
Figure 16 : Vacant Census Houses in some cities in India



Source: **Census of India (2011) & IDFC Institute (2017).**

[5] Census houses have different uses such as for residential, schools, hospitals etc. All vacant census houses are for residential use.

Figure 17 : Vacant Urban Housing as a Per cent of Total Census Urban Housing Stock in the Mumbai Metropolitan Region – 2001 and 2011.



Source: Census 2001 and 2011 & IDFC Institute (2017).

8.108 Figure 16 shows the number and share of vacant census houses for 19 major cities in India. Of these cities, Mumbai has the highest number of total vacant houses (0.48 million), followed by Delhi (0.3 million) and Bengaluru (around 0.3 million). In terms of share of vacant houses to total residential stock, Gurgaon ranks highest (26 per cent). The phenomenon of high vacancy rates is not fully understood but unclear property rights, weak contract enforcement and low rental yields may be important factors. The spatial distribution of the new real estate may also be an issue as the vacancy rates generally increase with distance away from the denser urban cores. Figure 17 shows this trend for the Mumbai Metropolitan Area (MMR), where vacancy rates are higher in the districts of Thane and Raigad than in the denser "Island City" and Suburbs.

8.109 India's housing requirements are complex but till now policies have been mostly focused on building more homes and on home ownership. The above data suggests that we need to take a more holistic approach that takes into account rentals and vacancy rates. In turn, this needs policy-makers to pay more attention to contract enforcement, property rights and spatial distribution of housing supply vs. demand.

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