

Industrial, Corporate, and Infrastructure Performance

06 CHAPTER

Industrial sector plays an important role in realizing higher economic growth in the country. Riding high on the performance of manufacturing sector, industrial sector in India have registered higher growth during 2015-16. Many policy measures taken by the government for creating enabling environment for industrial growth have started showing its impact on increased FDI inflows, better performance of infrastructure sector. The landmark initiatives like Make in India, Ease of Doing Business, Start Up India, Digital India, and Smart Cities, etc. will provide further impetus to industries and the industrial sector is expected to be the key driver of economic growth in the country. These initiatives would also help in transforming infrastructure sector which is sine qua non for achieving and sustaining higher economic growth.

6.2 The year 2015-16 is witnessing a tumultuous global economic environment with major economies showing signs of slowdown in growth. Against this background, the fact that the Indian economy has emerged as the fastest growing economy with a high growth rate of over 7 per cent, as seen in Chapter 1 is noteworthy. The manufacturing sector has been a major contributor in sustaining this high growth rate. As per latest data released in January 2016 on revised estimates of national income the growth of Industrial sector broadly comprising mining, manufacturing, electricity and construction is 5.9 per cent during 2014-15, as against a growth of 5.0 per cent during 2013-14. The advance estimates of national income 2015-16 shows that the growth of industrial sector is estimated to be 7.3 per cent with manufacturing sector growing at 9.5 per cent. Further, the industrial sector registered a growth of 8.9 per cent in the third quarter

(Q3) of 2015-16 as compared to 3.8 per cent during the corresponding period of 2014-15. The trends in the Index of Industrial Production (IIP) data at 2004-05 base shows that during April-December, 2015-16, growth rate was 3.1 per cent as compared to a growth of 2.6 per cent in the same period of 2014-15.

6.3 The contribution of the manufacturing sector to Gross Value Added (GVA) has been hovering around 17 per cent for the last four years. The government has taken several measures to accelerate the growth of the industrial sector so as to strengthen and sustain the momentum of economic growth. These are primarily focused on simplification and rationalization of procedures and processes for boosting investment, adopting a more open Foreign Direct Investment (FDI) policy and measures for creating a conducive business environment.

6.4 Some of the recent reforms are: reducing the list of industries that can be considered defence industries requiring industrial licence; and amendments in FDI policy which include allowing FDI in defence up to 49 per cent, in railway infrastructure up to 100 per cent and in the insurance and pension sector up to 49 per cent. The investment limit requiring prior permission from the Foreign Investment Promotion Board (FIPB)/Cabinet Committee on Economic Affairs has been increased from ₹1200 crore to ₹3000 crore. The definition of investment by Non Resident Indians (NRI), Persons of Indian Origin (PIO) and Overseas Citizens of India (OCI) in the FDI policy has been revised.

6.5 The government has launched several programmes/initiatives such as ease of doing business, Make in India, Invest India, and e-biz Mission Mode Project under the National e-Governance Plan. Further, the Government of India is also building a pentagon of corridors across the country to boost manufacturing and to project India as a global manufacturing destination. The National Investment and Infrastructure Fund (NIIF) has been approved to extend equity support to infrastructure Non-Bank Financial Companies (NBFC). Issue of tax-free infrastructure bonds has been allowed for rail, roads and irrigation programmes.

6.6 The Ministry of Environment, Forest and Climate Change has completed the process for online submission and clearance of applications for environment, coastal regulation zone and forest clearances. The system for coal block auctions has been streamlined so that these are now granted in a transparent framework. In order to improve the financial viability of the State Electricity Distribution Companies, a comprehensive financial restructuring of these bodies has been taken up through the Ujwal DISCOM Assurance Yojana (UDAY) programme. The scheme envisages reduction of interest

burden and cost of power and AT&C (Aggregate Technical and Commercial) losses incurred by discoms that have entered into tripartite agreements with the Government of India and the respective state governments. The process of labour market reforms, as initiated in some states, has been taken up by the central government also. Enhanced public investment in infrastructure has been emphasized to 'crowd-in' private investments.

6.7 With these initiatives, Indian industry has been given a boost leading to an improved business environment and larger FDI inflows and these have also improved India's global outlook. In the World Bank's Ease of Doing Business report 2016, India's position has improved to 130 in 2016 from 142 in 2015. The reforms mainly in the mining and power sectors, as well as in the labour market, are extremely significant for higher, faster, inclusive and sustainable growth.

INDUSTRIAL PERFORMANCE

6.8 The Index of Industrial Production (IIP) which provides quick estimates of the performance of key industrial sectors have started showing upward momentum (Figure 6.1). As per IIP, the industrial sector broadly comprising mining, manufacturing and electricity attained 3.1 per cent growth during April-December 2015-16 as compared to 2.6 per cent during the same period of 2014-15 due to the higher growth in mining and manufacturing sectors (Table 6.1). The mining, manufacturing and electricity sectors grew by 2.3 per cent, 3.1 per cent, and 4.5 per cent respectively during April-December 2015-16. The mining sector growth was mainly on account of higher coal production. The manufacturing sector was propelled by the higher production by the industry groups like furniture; wearing apparel, dressing and dyeing of fur; motor vehicles, trailers & semi-trailers; chemicals and chemical products; refined petroleum products & nuclear fuel;

and wood & products of wood. The growth in electricity is mainly contributed by higher growth in generation of thermal and nuclear sector.

6.9 In terms of use based classification, consumer durable goods have witnessed a remarkable growth at 12.4 per cent during April-December 2015-16. Basic goods and capital goods have registered 3.4 per cent and 1.7 per cent growth with intermediate goods by 1.9 per cent (Table 6.1).

6.10 The eight core infrastructure supportive industries, coal, crude oil, natural gas, refineries products, fertilizers, steel, cement and electricity that have a total weight of nearly 38 per cent in the IIP, registered a cumulative growth of 1.9 per cent during April-December 2015-16 as compared to 5.7 per cent during April-December 2014-15. Month-wise performance of the eight core sectors shows that the production of coal and fertilizers have increased substantially, while that of crude oil, natural gas and steel have mostly been negative. Refinery products, cement and electricity have attained moderate growth. Clearances for coal projects have

facilitated production of coal. Crude oil and natural gas production declined because of a fall in production by Oil and Natural Gas Corporation (ONGC), Oil India Limited (OIL) and also private/joint venture (JV) companies in different months. In electricity generation, while the thermal and nuclear sectors have registered higher growth, the hydro sector has not performed well.

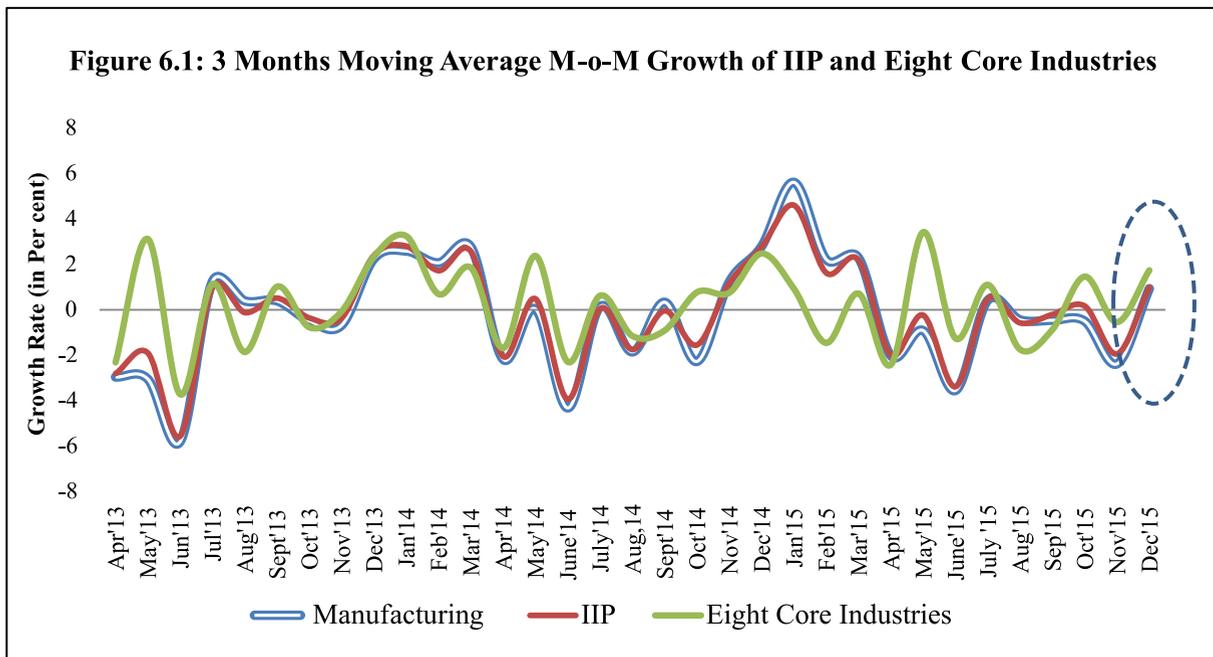
6.11 Figure 6.1 depicts three months moving average month-on-month (M-o-M) growth of the IIP, manufacturing and eight core industries. The growth in industrial production, manufacturing sector and the eight core sectors started picking up again in December 2015. It is expected that the uptick in growth rate will be maintained due to revival in manufacturing production.

6.12 While the overall IIP has shown recovery, there is variation in the performance of some of the major industries during April-December 2015. While some sectors like electricity, coal, fertilizers, cement and passenger cars have shown positive growth, sectors like steel and aluminium have shown negative growth during April-December

Table 6.1: IIP-based Growth Rates of Broad Sectors/ Use-based Classification (in per cent)

	Weight	2013-14	2014-15	2014-15				2015-16			
				Q1	Q2	Q3	Apr.-Dec.	Q1	Q2	Q3	Apr.-Dec.
General	100.00	-0.1	2.8	4.5	1.3	2.0	2.6	3.3	4.8	1.5	3.1
Sectoral											
Mining	14.16	-0.6	1.5	3.0	0.5	2.1	1.8	0.4	3.1	3.3	2.3
Manufacturing	75.53	-0.8	2.3	3.9	0.4	1.1	1.8	3.7	4.7	0.9	3.1
Electricity	10.32	6.1	8.4	11.3	9.4	9.4	10.0	2.3	6.8	4.4	4.5
Use Based											
Basic goods	45.68	2.1	7.0	8.7	7.0	8.3	8.0	4.7	4.4	1.3	3.4
Capital goods	8.83	-3.6	6.4	13.6	-0.5	3.2	5.1	2.0	13.4	-10.0	1.7
Intermediate goods	15.69	3.1	1.7	3.1	1.6	0.8	1.8	1.6	2.2	1.9	1.9
Consumer goods	29.81	-2.8	-3.4	-3.2	-5.4	-6.4	-4.9	2.5	2.7	6.8	4.0
Consumer durables	8.46	-12.2	-12.6	-9.5	-15.5	-20.9	-15.2	3.7	11.9	23.4	12.4
Consumer non-durables	21.35	4.8	2.8	1.4	2.3	3.2	2.3	1.7	-3.0	-1.6	-1.0

Source: CSO



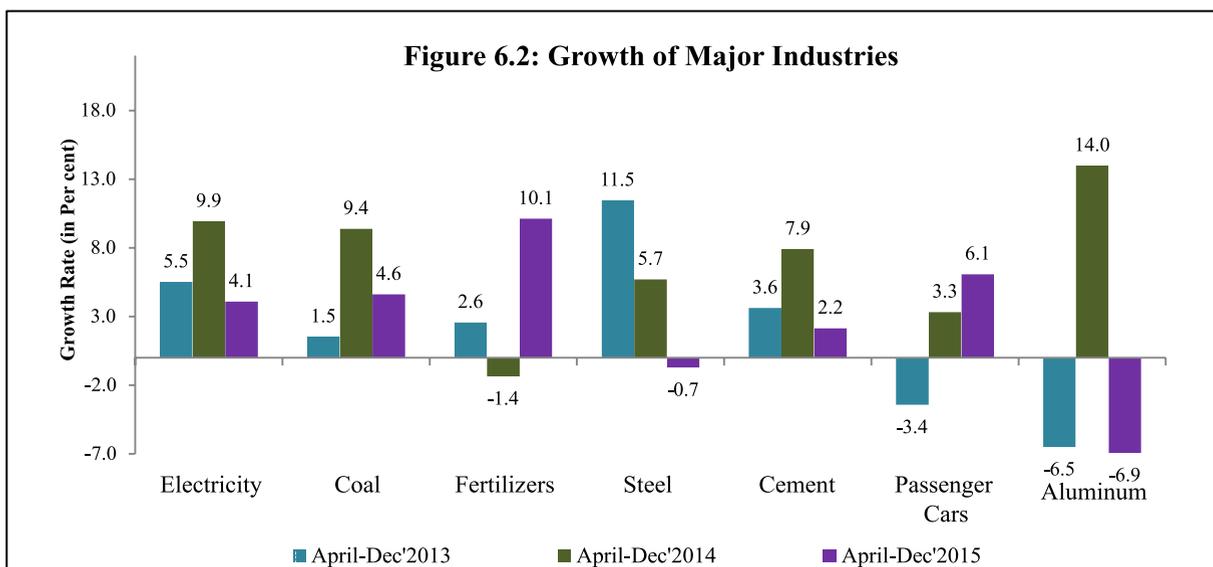
Source: CSO and Office of Economic Adviser, Department of Industrial Policy and Promotion (DIPP).

2015 (Figure 6.2). In terms of production, fertilizers and passenger cars have achieved higher levels during April-December 2015 as compared to the same period of the previous two years.

6.13 The steel and aluminum industries faced serious problems that are discussed in the following paragraphs, along with the steps taken by the government to address the concerns.

Steel Industry

6.14 India produces 86.5 million tonnes (MT) of steel, which is over 5 per cent of world production, making it the fourth largest producer of crude steel in the world. Domestic steel consumption in the country was 76.99 MT per cent in 2014-15, showing a modest increase of 3.9 per cent over 2013-14. Global steel consumption was estimated to increase by 0.5 per cent in 2015 and a



Source: Office of Economic Adviser, DIPP and CSO.

projected 1.4 per cent in 2016. The World Steel Association has projected India's steel consumption to increase by 6.2 per cent in 2015 and 7.3 per cent in 2016. Steel imports increased from 5.45 MT in 2013-14 to 9.32 MT in 2014-15. While world prices declined by 20 per cent to 45 per cent during April 2014 to October 2015, domestic prices of steel products declined from 17 per cent to 35 per cent during this period.

6.15 Steel production in India has fallen short of the increased capacity from 59.85 MT in 2007-8 to 109.85 MT in 2014-15. The cost of production of domestic steel companies like Jindal Steel and Power Limited, Bhushan Steel and Essar Steel is more than the import parity price at 10 per cent import duty and hence are not globally competitive.

6.16 Due to near-stagnant demand for steel globally, and in particular in China, major global steel producers are pushing steel products into the Indian market, leading to a surge in steel imports. The Indian steel industry with higher borrowing and raw material costs and lower productivity is at a comparative disadvantage. The government has taken the following measures to curb the surging steel imports and make domestic production sustainable:

- a) Raised basic customs duties on certain primary iron and steel products by up to 2.5 percentage points during June to August 2015.
- b) Imposed anti-dumping duties in June 2015, ranging from US\$180 to US\$316 per tonne for some industrial-grade stainless steel imported from China, Malaysia and South Korea. Forty countries initiated anti-dumping measures including the USA, the EU, Brazil, Mexico and Argentina and 9 countries also imposed countervailing duties (CVD).
- c) Imposed provisional safeguard duty effective from September 14, 2015 on

hot-rolled flat products of non-alloy and other alloy steel in coils at the rate of 20 per cent ad-valorem for a period of 200 days.

- d) Minimum import price has been imposed on a number of steel product for a six month period.
- e) Reduced export duty on iron ore to 10 per cent for select steel (grade < 58), others remained at 30 per cent.

6.17 Any further safeguards will impact the downstream industries as steel is used as an input in different industries like basic metal and non-metal products, machineries, transport, construction and consumer goods. It is estimated that for a 10 per cent increase in steel prices due to a hike in anti-dumping or import duties, the cost of production of basic metal and non-metal products will increase by 5.4 per cent, construction by 1.7 per cent, machineries by 1.3 per cent, transport by 0.7 per cent and the consumer goods sector by 0.4 per cent.

Aluminum Industry

6.18 India is the second largest aluminum-producing country in the world with a production of 3.96 MT in 2014-15, which was lower only than China's production of 21.48 MT. India is the third largest aluminum-consuming country with a consumption of 3.8 MT in 2014-15, lower than China with 22.09 MT and the USA with 5.5 MT, India's share in world aluminum consumption has increased from 3 per cent in 2008-9 to 7 per cent in 2014-15. World aluminum prices have dropped by 41 per cent from US\$ 2,662/tonne in April 2011 to US\$ 1,570/tonne in August 2015 and US\$ 1,500/tonne in January 2016. During this period in India, imports as a proportion of total demand (sales plus imports) have increased substantially from 39.8 per cent in 2011-12 to 56.5 per cent in 2015-16.

6.19 The capacity utilization of the Indian aluminum industry has fallen drastically in

the last one and a half years as international prices have slid. The cost of production is higher than international prices. Huge capacity has been created in China and world growth has slowed down. The Indian capacity has increased substantially in 2014-15 and 2015-16 (first half--H1) but its utilization, which was nearly 100 per cent up to 2013-14, has declined to 50 per cent.

6.20 India's cost of production of aluminum is increasing gradually even as world costs are static. The Indian aluminum industry will continue to face difficulty unless world prices increase, because in the short run it is virtually impossible to reduce the cost of production. International aluminum prices, like other metal prices, are cyclical and though it is difficult to forecast when they will begin to move upwards, the trend is expected to change when world industrial growth improves. Imposition of additional duties to reduce import of aluminum may erode the competitiveness of downstream sectors like power, transport and construction.

COMPARATIVE POSITION OF INDIA AND WORLD MANUFACTURING

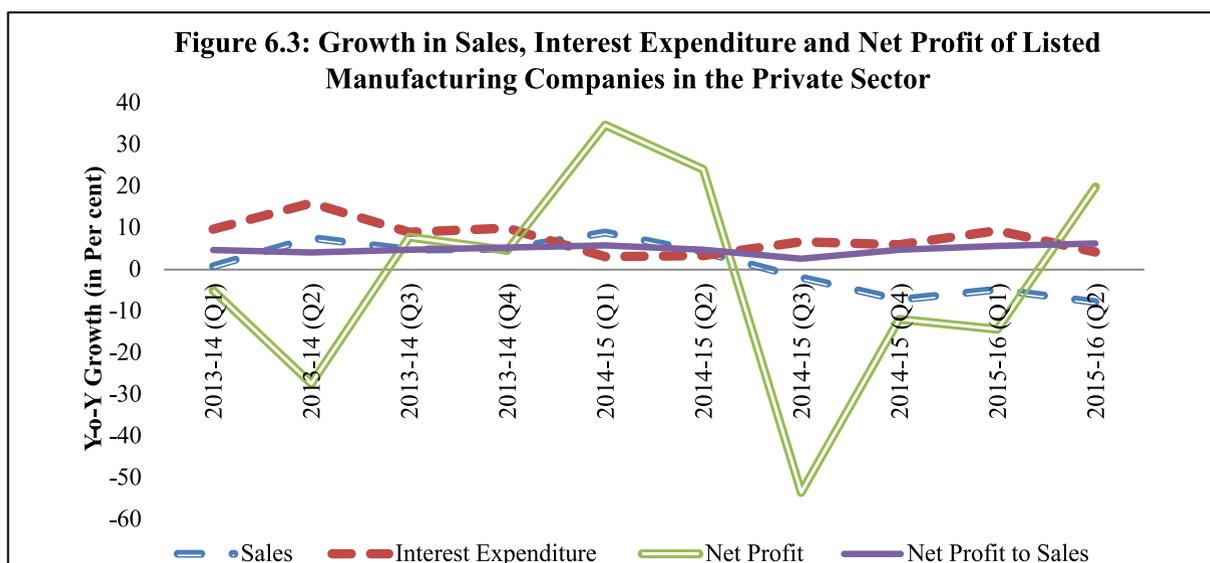
6.21 Owing to weak global demand and a decline in commodity prices along with an uncertain investment climate, global

manufacturing output rose by 2.7 per cent in the second quarter (Q2) of 2015, following a growth of 2.5 per cent (Q1) in the first quarter of 2015. The manufacturing sector of industrialized countries driven by the United States and Europe grew by 1.2 per cent in the second quarter of 2015, signalling economic recovery. The developing and emerging industrial economies registered manufacturing growth of 5.0 per cent in Q2 of 2015, compared to the same period of the previous year. China's slowdown is raising concerns about world economic growth. Because of falling global demand for Chinese manufactured goods, China has excess capacity; but its manufacturing output is slightly lower at 7.0 per cent growth in Q2 from 7.1 per cent in Q1 of 2015. The global prices of metals and a number of manufactured goods have declined.

6.22 As against this, India's manufacturing sector grew by 12.6 per cent in Q3 of 2015-16 as compared to a growth of 1.7 per cent in Q3 of 2014-15 (as per National Accounts data of February 2016).

CORPORATE SECTOR PERFORMANCE

6.23 Growth of sales has been contracting since Q3 of 2014-15, reaching a low of (-) 7.8 per cent in Q2 of 2015-16 (Figure 6.3).



Source: Reserve Bank of India (RBI).

Petroleum products and iron and steel are two major industries within the manufacturing sector that recorded contraction in the last three quarters. During the last four quarters, since Q3 2014-15, there has been a steep contraction in raw material expenses. year-on-year (Y-o-Y) growth in interest expenses moderated during 2014-15 as compared to 2013-14. Further it declined from 9.4 per cent in Q1 2015-16 to 4.2 per cent in Q2 2015-16. Other income, which had been contracting since Q3 2014-15, grew by 12.5 per cent in Q2 2015-16. Net profit grew by 19.8 per cent in Q2 2015-16 on the back of contraction in three successive quarters. Net profit to sales ratio improved during the last three quarters and stood at 6.3 per cent, the highest in 10 quarters.

6.24 Capacity utilization, as measured by the 31st Round of the Order Books, Inventories and Capacity Utilisation Survey (OBICUS) of the Reserve Bank of India (RBI), recorded fractional decline in Q2 2015-16 over the previous quarter and stood at 70.6 per cent, lower than the level during the same quarter of the previous year. New orders grew marginally in Q2 2015-16 from the previous quarter level. The finished goods inventory to sales ratio remained steady in Q2 2015-16. The raw material inventory to sales ratio increased in Q2 2015-16 and stood at a higher level than in the same period of 2014-15.

GROSS CAPITAL FORMATION IN THE INDUSTRIAL SECTOR

6.25 The recently released data on national income, consumption expenditure, saving and capital formation for 2014-15 shows that Gross Capital Formation (GCF) at current prices is estimated at ₹42.76 lakh crore for 2014-15 as compared to ₹39.12 lakh crore during 2013-14. However, the rate of GCF to GDP declined from 34.7 per cent during 2013-14 to 34.2 per cent in the year 2014-15. The rate of GCF to GDP at constant (2011-12) prices has gone down from 36.2 per

cent in 2013-14 to 35.9 per cent in 2014-15. The rate of growth of GCF in industry has registered a sharp rise from (-)3.7 per cent in 2013-14 to 3.6 per cent in 2014-15, showing upward momentum of investment in industry. The sector-wise shares of different industries in overall GCF showed a mixed trend with the share of electricity going up, the shares of mining, manufacturing and construction are declining (Table 6.2).

Table 6.2: Per cent of GCF by Industry

(at 2011-12 constant prices)

	2011-12	2012-13	2013-14	2014-15
Rate of growth of GCF in industry		2.8	-3.7	3.6
Sector-wise share in overall GCF				
i Mining	2.1	2.3	4.0	3.3
ii Manufacturing	19.2	18.4	17.4	16.9
iii Electricity	9.6	9.1	8.6	9.2
iv Construction	7.2	7.7	5.5	5.4

Source: CSO.

CREDIT FLOW TO THE INDUSTRIAL SECTOR

6.26 Growth in credit flow to the industrial sector, including mining and manufacturing, has slowed down in 2015-16 as compared to 2014-15 (Table 6.3). In the manufacturing sector it was 2.5 per cent in 2015 (up to December) as compared to 13.2 per cent in 2014 (up to December). Credit flow to industries like basic metal and metal products, chemical and chemical products and engineering industries increased while a sharp decline was noticed in industries like petroleum and nuclear fuel, cement and cement products, transport equipment and food processing industries. The reduction in credit flow to the petroleum sector could be related to lower requirements by oil marketing companies with rationalization of fuel subsidies. In 2015-16, credit to micro & small industries, and large industries grew at 2.5 per cent and 6.6 per cent respectively. But credit flow to medium scale industries declined by 7.6 per cent during the same period.

Table 6.3: Growth of Credit to Industry by Scheduled Commercial Banks (in per cent)

Sectors	2014-15*	2015-16**
Industries	6.7	5.3
Manufacturing	13.2	2.5
Mining	3.9	-0.3
Manufacturing sub-sectors		
Food processing	12.4	-1.9
Textiles	2.8	2.1
Petroleum & nuclear fuel	-7.4	-10.4
Chemical & chemical products	-9.0	2.9
Cement & cement products	5.8	-1.1
Basic metal & metal products	7.3	8.8
All engineering	6.4	6.3
Transport equipment	5.0	-1.5
Other industries	-3.1	9.8

Source: RBI

Note: *End-December 2014 over end-December 2013.

**End-December 2015 over end-December 2014.

MICRO, SMALL AND MEDIUM ENTERPRISES SECTOR

6.27 With 3.6 crore units spread across the country, that employ 8.05 crore people, Micro, Small and Medium Enterprises (MSME) have a contribution of 37.5 per cent to the country's GDP. The sector has huge potential for helping address structural problems like unemployment, regional imbalances, unequal distribution of national income and wealth across the country. Due to comparatively low capital costs and their forward-backward linkages with other sectors, MSMEs will play a crucial role in the success of the Make in India initiative.

6.28 Realizing the importance of the MSME sector, the government has undertaken a number of schemes/programmes like the Prime Minister's Employment Generation Programme (PMEGP), Credit Guarantee Trust Fund for Micro and Small Enterprises (CGTMSE), Credit Linked Capital Subsidy Scheme (CLCSS) for

Technology Upgradation, Scheme of Fund for Regeneration of Traditional Industries (SFURTI), and Micro and Small Enterprises-Cluster Development Programme (MSE-CDP) for the establishment of new enterprises and development of existing ones. Some of the new initiatives undertaken by the government for the promotion and development of MSMEs, are as follows:

- **Udyog Aadhar Memorandum (UAM):** The UAM scheme, which was notified in September 2015 under section 8 of the MSME Development Act 2006, is a path-breaking step to promote ease of doing business for MSMEs. Under the scheme, MSME entrepreneurs just need to file an online entrepreneurs' memorandum to instantly get a unique Udyog Aadhaar Number (UAN). The information sought is on self-certification basis and no supporting documents are required. This marks a significant improvement over the earlier complex and cumbersome procedure.
- **Employment Exchange for Industries:** To facilitate match making between prospective job seekers and employers an employment exchange for industries was launched on June 15, 2015 in line with Digital India. More than 3.42 lakh job seekers have been registered on the portal as on December 30, 2015.
- **Framework for Revival and Rehabilitation of MSMEs:** Under this framework, which was notified in May 2015, banks have to constitute a Committee for Distressed MSME enterprises at zonal or district level to prepare a Corrective Action Plan (CAP) for these units.
- **A scheme for Promoting Innovation and Rural Entrepreneurs (ASPIRE):** ASPIRE was launched on March 16, 2015 with the objective of setting up a network of technology centres and incubation centres to accelerate entrepreneurship

and promote start-ups for innovation and entrepreneurship in rural and agriculture-based industry.

6.29 In addition, the government intends to provide more credit to MSME sectors, especially in the rural areas, focusing on skill development, encouraging entrepreneurial activities with optimistic mindset among rural youth and creating job opportunities among rural women, for high, inclusive and sustained industrial growth.

CENTRAL PUBLIC SECTOR ENTERPRISES

6.30 The Central Public Sector Enterprises (CPSE) have played a significant role in India's growth process. Out of 298 CPSEs under the administrative control of various ministries/departments, 235 were in operation and 63 under construction up to December 2015. Financial investment (paid-up capital + long-term loans) in all the CPSEs taken together stood at ₹10,96,057 crore as on 31 March 2015, showing an increase of 10.48 per cent over 2013-14. The net profit of profit making (157) CPSEs stood at ₹1,30,363 crore in 2014-15, while net loss of loss-making (77) CPSEs stood at ₹27,360 crore. ONGC Ltd, Coal India Ltd, NTPC Ltd, the National Mineral Development Corporation (NMDC) Ltd and Power Finance Corporation Ltd were the top five profit-making CPSEs during 2014-15, whereas Bharat Sanchar Nigam Ltd, Air India Ltd, Mahanagar Telephone Nigam Ltd, Hindustan Photo Films Manufacturing Company Ltd and Mangalore Refinery and Petrochemicals Ltd were the top five loss-making CPSEs.

6.31 CPSEs contribute to the central exchequer by way of dividend payment, interest on government loans and payment of taxes and duties. Their contribution to the central exchequer, however, decreased from ₹2,20,981 crore in 2013-14 to ₹2,00,584 crore in 2014-15. This was mainly on account of a decrease in their contribution to dividend, corporate tax and custom duty in

2014-15. There was, however, an increase in their contribution to excise duty, dividend tax, sales tax and service tax.

FOREIGN DIRECT INVESTMENT

6.32 Foreign direct investment (FDI is an important driver of economic growth as it leads to productivity enhancement and is a major source of non-debt financial resources and employment generation. FDI inflows are critical for sustaining a high growth rate. The government is playing a proactive role in investment promotion through a liberal FDI policy. A favourable policy regime and sound business environment have facilitated increase in FDI flows into the country.

6.33 With a view to liberalizing and simplifying the FDI policy to provide ease of doing business climate in the country that will also lead to larger FDI inflows, the government has undertaken various reforms. A number of sectors have been liberalized, including defence, construction, broadcasting, civil aviation, plantation, trading, private sector banking, satellite establishment and operation and credit information companies. During 2015-16, FDI policy in the pension sector has been revised to permit foreign investment up to 49 per cent, with 26 per cent under automatic route. Manufacturing of medical devices and white label ATM operations have been opened up to 100 per cent FDI under automatic route.

6.34 The various reforms in the FDI sector have led to a significant increase in FDI inflows into India. During April-November 2015, total FDI inflows were US\$34.8 billion as compared to US\$27.7 billion during April-November 2014, showing a 26 per cent surge. FDI equity inflows also increased from US\$18.9 billion during April-November 2014 to US\$24.8 billion during April-November 2015, showing 31 per cent growth. There were FDI inflows into sectors like computer software and

hardware, services, trading, automobile industry, construction (infrastructure) activities, chemicals (other than fertilizers) and telecommunications. FDI statistics of the last fifteen years reveal that the services sector has accounted for the highest inflows (17.6 per cent of total FDI inflows into India),

followed by construction development (8.8 per cent), computer hardware and software (7.2 per cent), telecommunications (6.6 per cent) and the automobile industry (5.2 per cent). Sector-wise FDI flows during 2014-15 and 2015-16 (April- Nov) are presented in Table 6.4.

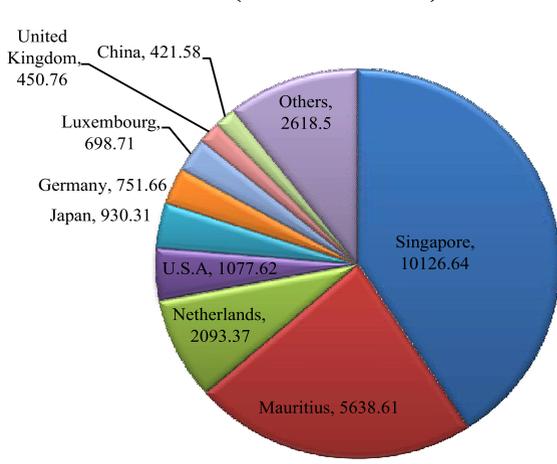
Table 6.4: Sector-wise FDI Inflows during April 2014 to November 2015

Sl No	Sector	Amount of FDI (in US\$ million)		
		2014-15	2015-16	Percentage of total FDI
		Apr.-Mar.	Apr.-Nov.	
1	Services Sector (financial, non-financial and others)	4443.26	4102.47	16.5
2	Computer Software & Hardware	2296.04	4419.84	17.8
3	Trading	2727.96	2604.40	10.5
4	Automobile Industry	2725.64	1657.82	6.7
5	Telecommunications	2894.94	1062.91	4.3
6	Construction (Infrastructure) Activities	870.25	1368.96	5.5
7	Chemicals (Other Than Fertilizers)	762.76	1157.37	4.7
8	Drugs & Pharmaceuticals	1497.74	321.37	1.3
9	Hotel & Tourism	777.01	865.25	3.5
10	Power	707.04	635.13	2.6
11	Mining	684.39	518.84	2.1
12	Petroleum & Natural Gas	1079.02	48.69	0.2
13	Non-Conventional Energy	615.95	440.64	1.8
14	Industrial Machinery	716.79	293.56	1.2
15	Others, excluding above- mentioned sectors	8131.71	5310.51	21.4

Source: DIPP

6.35 There are wide variations in the FDI inflows into India from different countries. However, Singapore, Mauritius, Netherlands and the USA account for the major share (Figure 6.4). Out of FDI equity inflows of US\$24.8 billion during 2015-16 (April-November), more than 60 per cent have come from two geographically small countries named Singapore and Mauritius. These inflows need perhaps to be examined more closely to determine whether they constitute actual investment or are diversions from other sources to avail of tax benefits under the Double Tax Avoidance Agreement that these countries have with India.

Figure 6.4: FDI Inflows in April-November, 2015-16 (in US \$ Million)



Source: DIPP.

6.36 A country-wise analysis of the FDI inflows in major sectors from 2011 to 2015 (till November) from top five countries are given in Table 6.5.

6.37 A state-wise analysis of FDI inflows to different Indian states shows a clear regional disparity in FDI inflows (Table 6.6). Delhi, Haryana, Maharashtra, Karnataka, Tamil Nadu, Gujarat and Andhra Pradesh have together attracted more than 70 per cent of total FDI inflows to India during the last 15 years. However, states with vast natural resources like Jharkhand, Bihar, Madhya Pradesh, Chhattisgarh and Odisha have not been able to attract foreign funds directly for investment in different sectors. To make the recently launched Make in India initiative a

success, the states will have a critical role in facilitating FDI in different sectors.

6.38 After the launch of the Make in India (Box 6.1) initiative in September 2014, there is a nearly 40 per cent increase in FDI inflows during October 2014 to June 2015 over the corresponding period of the previous year. Under the programme, the government has awarded a record 56 defence manufacturing permits to private sector entities in the past year, vis-à-vis 47 licences granted in the preceding three years. Several countries such as Japan, China, France and South Korea have announced their intention of making huge investments in India in various industrial and infrastructure projects.

Table 6.5: FDI Inflows to Major Sectors from Top Five Host Countries (in per cent) from 2011-12 to 2015-16 (November)

Sectors	Singapore	Mauritius	Netherlands	US	Japan
Services sector	18.6	18.9	15.4	19	20
Computer software and hardware	13.8	6.2	3.2	9.8	1
Trading	11.8	2.4	10	3.2	4.6
Telecommunications	8.6	11.5	0.3	2	0.1
Drugs & pharmaceuticals	6.6	1.0	0.6	2	3
Power	5.0	6.1	2.7	4	0.3
Construction (infrastructure)	3.5	3.9	0.2	3.5	0.5
Hotel tourism	2.3	10.6	0.6	0.8	0.1
Automobiles	1.9	1.5	8.7	17.8	21
Chemicals	NA	1.6	8.9	1.8	2.7
Petroleum and natural gas	0.7	1.1	8.4	0.1	1.2

Source: DIPP.

Table 6.6: State-wise FDI Inflows during April 2014 to November 2015

Sl No	States covered	Amount of FDI (in US \$ Million)			Percentage of total FDI
		2014-15	2015-16	Total	
		Apr.-Mar.	Apr.-Nov.		
1	Delhi	6874.95	9401.73	16276.68	29.20
2	Maharashtra	6361.09	4875.81	11236.89	20.16
3	Karnataka	3443.89	3266.48	6710.36	12.04
4	Tamil Nadu	3817.69	1889.15	5706.85	10.24
5	Gujarat	1531.15	1330.63	2861.78	5.13
6	Andhra Pradesh	1368.72	707.72	2076.43	3.73

Source: DIPP.

Box 6.1: MAKE IN INDIA

With the objective of making India a global hub of manufacturing, design and innovation, the Make in India initiative, which is based on four pillars --new processes, new infrastructure, new sectors and new mindset-- has been taken by the government. The initiative is set to boost entrepreneurship, not only in manufacturing but in relevant infrastructure and service sectors as well. An interactive portal <http://makeinindia.com> for dissemination of information and interaction with investors has been created with the objective of generating awareness about the investment opportunities and prospects of the country, to promote India as a preferred investment destination in markets overseas and to increase Indian share of global FDI. In addition, information on 25 thrust sectors, along with details of the FDI Policy, National Manufacturing Policy, Intellectual Property Rights and the proposed National Industrial Corridors including the Delhi Mumbai Industrial Corridor (DMIC), are available on the portal.

The Department of Industrial Policy and Promotion (DIPP), in consultation with various central ministries, state governments, industry leaders, and other stakeholders, has formulated a strategy for increasing the contribution of the manufacturing sector to 25 per cent of the GDP by 2020.

The Government of India has set up Invest India as the national investment promotion and facilitation agency. With the objective of promoting investment in the country, a full-fledged Investment Facilitation Cell has been set-up under the Make in India initiative, primarily to support all investment queries as well as to handhold and liaise with various agencies on behalf of potential investors.

As envisaged by the National Manufacturing Policy 2011, Make in India seeks to create 100 million additional jobs in manufacturing by 2022. The government is taking a number of steps to enhance the skills of workers/the unemployed in India in order to improve their employability. In order to tap the creative potential and boost entrepreneurship in India, the Start-up India, Stand-up India campaign has been announced. An innovation promotion platform called Atal Innovation Mission (AIM) and a techno-financial, incubation and facilitation programme called Self-Employment and Talent Utilization (SETU) are being implemented to encourage innovation and start-ups in India.

For supporting the financial needs of the small and medium enterprise sector and promote start-ups and entrepreneurship, the government has taken various steps through Make in India. The India Aspiration Fund has also been set up under the Small Industries Development Bank of India (SIDBI) for venture capital financing of newly set-up or expanding units in the MSME sector. SIDBI Make in India Loan for Small Enterprises (SMILE) has been launched to offer quasi-equity and term-based short-term loans to Indian SMEs with less stringent rules and regulations and a special focus on 25 thrust sectors of Make in India. Further, a Micro Units Development Refinance Agency (MUDRA) Bank has been set up to provide development and refinance to commercial banks/NBFCs/cooperative banks for loans given to micro-units. MUDRA Bank would follow a credit-plus approach by also providing financial literacy and addressing skill gaps, information gaps, etc.

6.39 The Government of India has taken a series of measures to improve 'Ease of Doing Business' (Box 6.2) in the country. Existing rules have been simplified and information technology introduced to make governance more efficient and effective. Large improvements in World Economic Forum and World Bank rankings testify to the reforms implemented in this regard. This improvement manifests the effectiveness of the series of small steps taken by the government to foster an investment-friendly environment. India's rank has improved

on the 'starting a business', 'dealing with construction permit' and 'getting electricity' indicators.

6.40 Reflecting the better economic performance and the commitment of the government to reforms, the global perception about India's competitiveness has improved as per the Global Competitiveness Index of the World Economic Forum. Significantly, at position 55, India went up 16 rungs in 2015-16, which is the largest gain among the major economies.

Box 6.2: Measures Taken under ‘Ease of Doing Business’

- The process of applying for Industrial License (IL) and Industrial Entrepreneur Memorandum (IEM) has been made online and this service is now available to entrepreneurs on a 24x7 basis at the eBiz website.
- Twenty services are integrated with the eBiz portal which will function as a single window portal for obtaining clearances from various governments and government agencies.
- Notification has been issued by Directorate General of Foreign Trade (DGFT) to limit number of documents required for export and import to three.
- The Ministry of Corporate Affairs has introduced an integrated process of incorporation of a company, wherein applicants can apply for Director’s Identification Number (DIN) and company name availability simultaneous to incorporation application [Form INC-29].
- The Companies (Amendment) Act 2015 has been passed to remove requirements of minimum paid-up capital and common seal for companies.
- Application forms for Industrial Licence (IL) and Industrial Entrepreneur Memorandum (IEM) have been simplified.
- Defence products’ list for industrial licensing has been issued, wherein a large number of parts/components, castings/forgings, etc. have been excluded from the purview of industrial licensing.
- Similarly, dual-use items, having military as well as civilian application (unless classified as defence item), will also not require ILs from the defence angle.
- The Ministry of Home Affairs has stipulated that it will grant security clearance on IL applications within 12 weeks.
- An Investor Facilitation Cell has been created under Invest India to guide, assist and handhold investors during the entire life-cycle of the business.
- The process of applying for environment and forest clearances has been made online through the Ministry of Environment and Forests and Climate Change portals.
- Registration with the Employees Provident Fund Organization (EPFO) and Employees State Insurance Corporation (ESIC) has been automated and ESIC registration number is being provided on a real-time basis.
- A unified portal for registration of units for Labour Identification Number (LIN), reporting of inspection, submission of returns and grievance redressal has been launched by the Ministry of Labour and Employment.
- A report titled ‘Assessment of State Implementation of Business Reforms’ was released on 14th September 2015. It reports the findings of an assessment of reform implementation by states by the DIPP, Ministry of Commerce and Industry, Government of India, with support from World Bank group and KPMG. This assessment has been conducted to take stock of reforms implemented by states in the period January 1 to June 30 2015 based on a 98-point action plan for business reforms agreed between the DIPP and states/union territories (UT) and rank them according to the ease of doing business.

**INFRASTRUCTURE
SPECIFIC SECTORS****POWER**

6.41 In view of the growing need of the Indian economy, the government has embarked upon a massive programme to provide uninterrupted continuous access to power supply in the country. Several steps have been taken for increasing power generation, strengthening of transmission and distribution, separation of feeder and metering of power to consumers. In order to

PERFORMANCE-

restructure the sector, various amendments are being brought in the Electricity Act, and tariff policy in collaboration with states.

Electricity Generation and Capacity

6.42 During 2014-15, the achievement in electricity generation exceeded the target. Against the target of 1023 BU, the achievement was 1048.4 BU, registering y-o-y growth of 8.4 per cent. Annual generation crossed 1 trillion units last year. In the current year (April–December 2015), generation registered a growth of 4.4 per

Table 6.7: Power Generation by Utilities (billion units)

Category	April – March			April - December		
	2013-14	2014-15	Growth (per cent)	2014-15	2015-16	Growth (per cent)
	967.15	1048.67	8.43	794.65	829.85	4.43
Hydroelectric#	134.85	129.24	-4.16	106.71	102.15	-4.28
Thermal	792.48	878.32	10.83	657.53	694.83	5.67
Nuclear	34.23	36.10	5.47	25.56	27.75	8.55
Bhutan import	5.60	5.10	-10.54	4.85	5.12	5.51

Source: Ministry of Power.

cent. This is 97.6 per cent of the target of 849.9 BU during the year 2015-16 (April–December). In April–December 2015-16, in the thermal category, growth in generation from coal, lignite and gas-based stations was of the order of 6.2 per cent, - 4.1 per cent, and 7.9 per cent respectively. Growth in the generation of thermal power, which is the primary source of power in India, was achieved due to enhanced availability of coal and statutory clearances provided for a number of projects. Table 6.7 shows the power generation by utilities:

6.43 Further, as against the capacity addition target of 20037.1 MW set for 2015-16, 11,226 MW has been added till December 31, 2015. The cumulative capacity addition during the 12th Plan, as on December 31, 2015, is 72,240 MW, which constitutes 81.6 per cent of the plan target.

Distribution

1. Under the Integrated Power Development Scheme (IPDS) launched in December 2014 for strengthening sub-transmission and distribution system, projects worth ₹5134 crore have been sanctioned and ₹196.79 crore has been released, as on December 31, 2015.
2. Similarly, the new scheme, the 'Deendayal Upadhyaya Gram Jyoti Yojana' (DDUGJY), has an estimated outlay of ₹43,033 crore, including budgetary support of ₹33,453 crore. In addition, the already approved outlay of ₹39,275

crore, including budgetary support of ₹35,447 crore, for continuation of the Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY) in 12th and 13th Plans, has also been carried forward to the DDUGJY. As on December 31, 2015, projects worth ₹41100.4 cr. have been sanctioned under the scheme. The government also intends electrifying all the remaining 18,452 villages (as on April 1, 2015) by May 1, 2018.

UDAY (Ujwal DISCOM Assurance Yojana)

6.44 Efforts towards 100 per cent village electrification, 24x7 power supply and clean energy cannot bear fruit without improving the performance of the electricity distribution companies (DISCOM). Power outages also adversely affect national priorities like 'Make in India' and 'Digital India'. In addition, default on bank loans by financially stressed DISCOMs has the potential of seriously impacting the banking sector and the economy at large. The UDAY scheme for financial turnaround of power distribution companies has been formulated and launched by the government on November 20, 2015, in consultation with the various stakeholders for financial and operational turnaround of DISCOMs and to ensure a sustainable permanent solution to the problem. The scheme envisages reducing interest burden, cost of power and AT&C losses. DISCOMs and participating states would enter into a tripartite agreement with the Government of India to achieve operational and financial

targets as per the agreed trajectory.

National LED Programme

6.45 The Prime Minister, on 5th January 2015, launched the 100 cities National LED Programmes with the aim of promoting use of the most efficient lighting technology at affordable rates. This programme has two components: (i) the Domestic Efficient Lighting Programme (DELP) aiming to replace 77 crore incandescent bulbs with LED bulbs by providing LED bulbs to domestic consumers and (ii) the Street Lighting National Programme (SLNP) to replace 3.5 crore conventional streetlights with smart and energy-efficient LED streetlights by March 2019. Box 6.3 discusses the model for implementation of these two components.

6.46 It is estimated that the National LED programme will result in annual electricity saving of about 109 billion units and a 21,500 MW reduction in demand along with monetary savings of ₹45,500 crore accruing to domestic consumers and urban local bodies. Additionally, it will play a major role in mitigating climate change by effecting greenhouse gas emission reductions of 85 million tonnes of CO₂ annually. This will facilitate the nation's commitment towards reducing its emission intensity per unit GDP by 33-35 per cent below 2005 levels by 2030 under its Intended Nationally Determined Contribution (INDC). Apart from this, the programme is expected to encourage and support domestic manufacturing of LED bulbs, making it consistent with the 'Make in India' policy of the government.

The current progress of implementation of the National LED programme by the January 15, 2016 since its launch on January 5, 2015 is as follows:

Parameters	DELP	SLNP
No. of LED bulb distributed/streetlights installed	4.77 crore	5.51 lakh
Average energy saved per day	16.86 MU	0.20 MU
Avoided peak demand/avoided capacity	1529 MW	18.2 MW
GHG emission CO ₂ reduction per day	13,800 t CO ₂	166 t CO ₂
Cost saving per day	6.62 crore	12.01 lakh

National Smart Grid Mission

6.47 Government has approved the establishment of a National Smart Grid Mission (NSGM) in the power sector to plan and monitor implementation of policies and programmes related to smart grid activities in India. Budget allocation for financial year 2015-16 for NSGM activities is ₹40 crore.

COAL

6.48 Coal continues to be the most important source of energy in the country. Production of raw coal in India during April-December 2015 was 447.48 Mte, compared to 427.27 Mte during the corresponding period of the previous year, registering a growth of 4.7 per cent. The annual target for coal production for 2015-16 is fixed at 700 Mte. The gap between demand and supply of coal in the country is currently being met through coal

Box 6.3: Energy Efficiency Services Ltd Service Model DELP

Energy Efficiency Services Ltd (EESL) has evolved a service model where it works with DISCOMs through a benefit-sharing approach. EESL procures the LED bulbs and provides to consumers at a rate of ₹10 each as against their market price of ₹350-400. The upfront investment made by EESL is paid back by cost recovery from consumers by deduction of easy instalments of ₹10 every month for 8-12 months.

SLNP: EESL replaces the conventional streetlights with LEDs at its own costs (without any investment by municipalities) and the consequent reduction in energy and maintenance cost of the municipality is used to repay EESL.

imports by consuming sectors. However, due to higher domestic production, imports have been coming down since last year. Year-wise details of production supply and import of coal are given in Table 6.8.

Initiatives and Achievements

- A. The Coal Mines (Special Provisions) Act 2015 has been enacted to enable the government to reallocate 204 coal blocks whose allocations were cancelled by the Supreme Court. The primary objective of the act is to ensure continuity in coal mining operations and production of coal and to promote optimum utilization of coal resources consistent with the requirement of the country. To carry out the objectives of the act, the Coal Mines (Special Provisions) Rules 2014 have also been notified. The allocation of 204 coal blocks is being made in pursuance of the provisions of the act and rules made thereunder. The auction of coal blocks is being carried out in e-auction mode in order to keep the process transparent.
- B. Under the provisions of the Coal Mines (Special Provisions) Act 2015, the central government has successfully auctioned 31 coalmines. Further, allotment of

42 coalmines/blocks to central/state government companies has also been successfully completed.

- C. As per the recommendations of an Inter-Ministerial Task Force (IMTF) constituted in June 2014 by the Ministry of Coal to review rationalization of linkages, coal sources for 15 out of 19 cases have been rationalized under Stage-I and four cases are under process. Implementation in respect of these 15 cases would result in savings of ₹877 crore (provisional). Similarly, an Inter-Ministerial Committee (IMC) has been constituted to examine the feasibility of allocation of coal linkages/LoAs through a market-based mechanism with a view to providing a level playing field for supply of coal to different stakeholders. The proposed mechanism on auction of linkages is expected to bring objectivity and transparency in allocation of linkages.
- D. To ensure timely implementation of ongoing projects, major coal projects costing more than ₹500 crore of 3 million tonnes per year (MTY) capacity are being closely monitored. In order to

Table 6.8: Production, Supply and Import of Coal

Year	All India Coal		CIL		Import		Total import
	Production	Offtake/ supply	Production	Offtake/ supply	Coking	Non- coking	
2008-9	492.76	489.17	403.73	400.72	21.08	37.92	59.00
2009-10	532.04	513.79	431.26	415.22	24.69	48.57	73.26
2010-11	532.70	523.47	431.32	423.78	19.48	49.43	68.91
2011-12	539.95	535.30	435.84	432.62	31.80	71.05	102.85
2012-13	556.40	567.14	452.21	464.54	35.56	110.22	145.78
2013-14	565.77	572.06	462.41	470.92	36.87	129.99	166.86
2014-15 (P)	612.44	607.63	494.23	488.92	43.71	168.39	212.10
2015-16*	447.48	463.23	373.48	389.13	26.79#	84.89#	111.68#

Source: Ministry of Coal.

Note: * Up to December 2015

Import figures are up to October 2015.

deal with various pending issues relating to clearance of coal sector projects, the government has set up a web portal to fast-track project implementation. The government has also assigned high priority to the early completion of critical railway projects for movement of coal. Joint Venture (JV) companies have been formed by coal companies along with respective state governments and IRCON for the speedy implementation of future rail projects.

6.49 To address the issues of dispute between coal companies and power utilities/ developers and to bring about improvement in the quality of coal supply, the system of third-party sampling was further improved. In addition to the agency engaged by Coal India Limited (CIL), a panel of reputed third-party sampler was jointly drawn up by a committee consisting of representatives from power utilities and the Central Electricity Authority of India (CEA) with the concurrence of CIL and notified by CIL.

MINERALS

6.50 The IIP shows that mineral production for the period April-December 2015 increased by 3.1 per cent as compared to the same period of the previous year owing to increase in the production of bauxite, chromite, iron ore, limestone and phosphorite and also rise in the production of coal by 4.6 per cent. The mining sector had been hit hard for two consecutive years, i.e. 2011-12 and 2012-13, due to legal issues in courts and environmental, regulatory and land acquisition issues. Since the government has taken a number of initiatives for policy reform, there has been a notable turnaround in the mining and quarrying sector which grew by 3.0 per cent and 10.8 per cent in 2013-14 and 2014-15 according to National Accounts estimates. A surge in investment by Singaporean companies has been observed in the iron ore segment.

New Initiatives

1. *Mines and Minerals (Development and Regulation) (MMDR) Act 2015:*

6.51 The Government has recently amended the Mines and Minerals (Development and Regulation) Act 1957 with effect from 12th January 2015 for promoting the mining sector. The salient features of the MMDR Act 2015 are:

- a) The grant of mineral concessions through auction by competitive bidding, which is a transparent and non-discriminatory method and which will also obtain for the state government its fair share of value of the mineral resources;
- b) Transition provisions for extension of existing leases to obviate disruptions in supply of ore and to ensure regular supply of raw material to industry (transition period of minimum 15 years for captive mines and five years for other mines);
- c) Assured tenure and easy transferability of mineral concessions granted through auction to attract private investments and FDI;
- d) Stricter penalty provision to deter illegal mining; special court may be constituted if necessary;
- e) District Mineral Foundation to be established in each mining affected district;
- f) National Mineral Exploration Trust to be set up for impetus to exploration.

2. *Auctioning of Mines:*

6.52 As per the MMDR Amendment Act 2015 the state governments will conduct auction for grant of mineral concessions. The role of the central government is to prescribe the terms and conditions and procedures subject to which the auction shall be conducted, including the bidding parameters for the selection. As on 31st December 2015, a total of 35 mineral blocks have been

offered by seven states, namely Rajasthan, Gujarat, Maharashtra, Jharkhand, Karnataka, Chhatisgarh and Odisha for the auctioning of ores such as limestone, tungsten, gold, iron and bauxite.

3. District Mineral Foundation (DMF):

6.53 The Act also has provision for the establishment of DMF, a non-profit organization, in any district affected by mining-related operations, with the objective of working for the interest and benefit of persons as well as affected areas where mining activity is taking place. The composition and functions of the DMF shall be prescribed by the state government.

4. Pradhan Mantri Khanij Kshetra Kalyan Yojna (PMKKKY):

6.54 Under PMKKKY, an amount of ₹ 6000 crore per annum is to be spent on welfare schemes related to people and districts adversely affected by mining activities. The central government has framed the PMKKKY with the objective of implementing various developmental and welfare programmes in mining-affected areas; to minimize/mitigate the adverse impacts during and after mining on environment, improvement in health,

education and socio-economic condition of people in mining districts; and to ensure long-term sustainable livelihood for the affected people in mining areas.

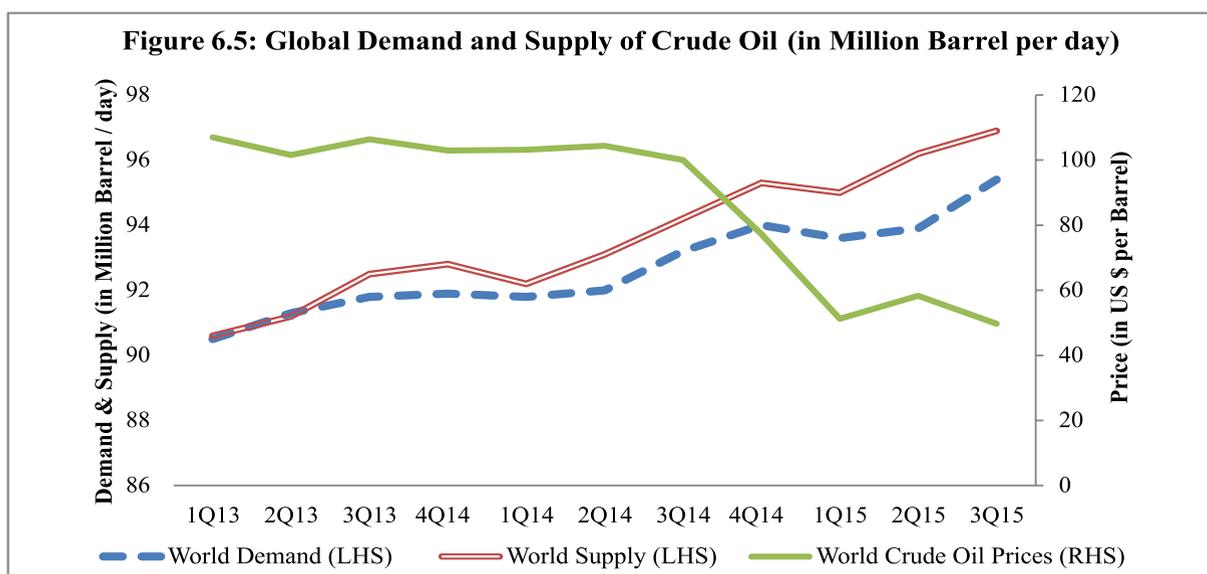
Petroleum And Natural Gas

Production

6.55 Domestic annual production of crude oil has been at around 37-38 million tonnes in the last five years. During April-December 2015, domestic production of crude oil was 27.9 MMT which is 0.8 per cent less than production of 28.2 MMT during the same period of the previous year. Gas production during April-December 2015 was 24.7 BCM against 25.397 BCM during the corresponding period of 2014-15, showing a decline of 2.8 per cent. Some of the issues relating to the sector are discussed in Box 6.4.

6.56 Domestic production is supplemented by oil and gas assets acquired abroad. During April-December 2015, production of crude oil and natural gas from assets abroad was 5.5 MMT and 3.3 BCM respectively.

6.57 In this context, it is important to look at the global developments (Figure 6.5). There has not only been a narrowing of the shortage of supply over demand of crude oil during a little more than a year, but in fact



Source: International Energy Agency.

Box 6.4: Issues Relating to the Petroleum Sector

- (i) In view of the absence of a global gas market for benchmarking domestic gas prices in India, various formulae have been suggested and since October 2014 a formula based on producer and consumer markets is being used to arrive at domestic gas prices in India. It was expected that the formula would balance the interest of producers and consumers in the country. However, market-determined arm's length pricing for domestic gas, with an effective regulator, to provide adequate incentive for investment and also ensure competitiveness and transparency remains the first-best solution that merits consideration. It would reflect the appropriate gas price in relation to alternative fuels. In the medium term, being a large consumer, India may be able to be a price setter for gas prices in the region.
- (ii) Petroleum products and natural gas should be included under the Goods and Services Tax (GST), or at least its exclusion should not be indicated in the Constitution Amendment Bill.
- (iii) The cess collections could be used to support construction of a network of gas pipelines, which is of crucial importance for providing clean energy to deprived regions of the country. The progress is somewhat constrained at present by having been linked to revival of fertilizer units and development of small industries in areas along the gas highway projects.
Alternatively, in order to promote the gas pipeline network, Viability Gap Funding (VGF) may be provided for promoting pipeline assets creation and development of efficient markets.
- (iv) Impetus is required for construction of not only cross-country pipelines but also city gas distribution. The present system of bidding by the Petroleum and Natural Gas Regulatory Board (PNGRB) is lopsided and long-drawn-out and needs to be reformed since it has constrained development of the gas network. Expansion of the PNG/CNG (Compressed Natural Gas) network could help provide gas connections to rural areas.
- (v) Rationalization of LPG subsidy is essential. It may be useful to cap subsidy to 10 LPG (Liquefied Petroleum Gas) cylinders for each household (that being the maximum used for usual domestic cooking) while aligning taxes and duties on domestic and commercial LPG users.
- (vi). Import of liquefied Natural Gas (LNG) for use in the power industry is exempt from customs duty while LNG for all other uses attracts 5 per cent customs duties. There should be no exemptions for any sector.
- (vii). In order to develop a cost-effective and revenue-neutral mechanism for swapping of gas across producing and consuming states for the national gas grid, it is important to make special tax provision for sale of natural gas under the Central Sales Tax Act 1956. Natural gas and LNG may be treated as declared goods to bring about tax parity with crude oil and make prices uniform across states.

there is excess availability with contraction of global demand, primarily in the USA (with shale gas supply) and China (with fall in economic growth). At the same time, there is increased availability from the USA and the Organization of the Petroleum Exporting Countries (OPEC), despite falling prices.

Major Initiatives

➤ **Policy for Marginal Fields of ONGC and OIL:** The Government approved the Marginal Fields Policy (MFP) on 2nd September 2015 for the development of hydrocarbon discoveries made by national oil companies, i.e. ONGC and OIL. With this policy, it is expected that these fields can be brought into

production, helping augment India's energy security.

➤ **Policy on Testing Requirements in New Exploration Licensing Policy (NELP) Production Sharing Contracts (PSC):** The government has approved a policy on Testing Requirement in with/without Drill Stem Test in NELP blocks on 29 April 2015. The policy has paved the way forward for 10 discoveries in the east coast offshore areas by resolving long-pending disputes associated with testing requirements. Reserves associated with these discoveries which are expected to get monetized are about three trillion cubic feet (TCF), with an associated value of ₹90,000 crore.

- **Early Production from new hydrocarbon discoveries:** Government has approved the policy framework to ease rigidities in PSCs and remove bottlenecks for early monetization of hydrocarbon discoveries. Forty pending cases have already been resolved under this policy framework.
- A Uniform Licensing and Open Acreage Policy with new contractual and fiscal regime is being formulated. The policy envisages three fundamental changes in the Exploration and Production (E&P) regime, i.e. single E&P licence for all forms of hydrocarbon, open acreage licensing system and simple and easy to administer revenue-sharing model.

Exploration of Unconventional Resources

- **Coal Bed Methane (CBM):** Out of the total available coal-bearing area of 26,000 sq. km for CBM exploration in the country, exploration has been initiated in about 17,000 sq. km. The estimated CBM resources in the country are about 92 trillion cubic feet (TCF), of which only 9.9 TCF has so far been confirmed. Commercial production of CBM in India has now become a reality with current production of about 1.0 million metric standard cubic metre per day (MMSCMD). In the next three years, CBM production potential is likely to increase to 5.7 MMSCMD. In order to augment CBM gas production, CIL and its subsidiaries have been authorized to undertake CBM operations in coalmining areas held by them.
- **Shale Oil and Gas:** Under the first phase of assessment of shale oil and gas, 50 Petroleum Exploration Lease (PEL)/ Petroleum Mining Lease (PML) blocks have been awarded to ONGC and five to OIL. These blocks are located in Assam (6), Arunachal Pradesh (1), Gujarat (28), Rajasthan (1), Andhra Pradesh (10),

and Tamil Nadu (9). ONGC has drilled 14 wells for shale gas exploration. Commercial production of shale gas is yet to begin.

New And Renewable Energy

6.58 The renewable energy potential in the country has been assessed in the medium term at 8, 96,602 MW, which includes the potential from solar (7, 48,990 MW), wind (1, 00,000 MW), small hydro (20,000 MW) and biomass (26,800 MW) power. Apart from grid power requirement, renewable energy sources are also being used for distributed generation, lighting, pumping and motive power requirement in remote and inaccessible areas. India is graduating from Megawatts to Gigawatts in the generation of clean renewable energy. The target from various renewable energy sources has been increased to 175 GW by the year 2022. The major contributions are expected to be 100 GW from solar energy and 60 GW from wind energy.

6.59 3029.89 MW of grid-connected power generation capacity from renewable energy sources like solar and wind has been added so far this fiscal (April-December) in the country, taking the cumulative generation capacity to over 38,820 MW. In addition, 74.68 MW equivalents decentralized/ distributed systems have also been installed in the country for providing distributed generation, lighting, pumping and motive power requirements.

Major Initiatives:

- i. **Solar Rooftop:** The government has scaled up the budget from ₹600 crore to ₹5000 crore for implementation of grid-connected rooftops systems over a period of five years up to 2019-20 under the National Solar Mission (NSM).
- ii. **Solar Parks:** In pursuance of the Solar Parks Scheme announced by the government in Union Budget 2014-

15 for setting up of 25 solar parks and ultra mega solar power projects with an aggregate capacity of 20,000 MW in the next five years in various states, 34 solar parks with capacity of about 22,000 MW have been sanctioned in 22 states.

- iii. Solar Projects under the NSM: In February 2015, the government has approved a scheme for setting up of 15,000 MW of grid-connected solar PV power projects under the NSM through NTPC Limited/NVVN (NTPC Vidyut Vyapar Nigam) in three tranches by the year 2018-19. As on 31 December 2015, NTPC Ltd. has issued tenders for 2750 MW including 400 MW with domestic content requirement.
- iv. Solar Pumps: Against a target of installation of one lakh solar pumps for irrigation and drinking water, 1,21,524 solar pumps have been sanctioned as on 31 December 2015 and ₹419.73 crore released to various agencies. By January 2016, 15,500 solar pumps had been installed.
- v. Solar Cities: Approval has been granted for 56 solar city projects against a target of 60 under the Development of Solar Cities Programme.
- vi. The Surya Mitra scheme has been launched in May 2015 for creating 50,000 trained personnel within a period of five years (2015-16 to 2019-20).

6.60 In addition to the above, major policy initiatives taken by the government during the year include: (i) the National Offshore Wind Energy Policy 2015 to exploit the vast 7600 km coastline for development of offshore wind energy in the Indian Exclusive Economic Zone (EEZ), (ii) inclusion of renewable energy in the priority sector and bank loans up to ₹15 crore limit to borrowers categories for purposes like solar-based power generators, biomass-based power generators, windmills, micro-hydel plants and for non-

conventional energy-based public utilities like street lighting systems, and remote village electrification and for individual households, up to ₹10 lakh per borrower to be covered under priority sector lending norms, (iii) Investments in renewable energy are on automatic route, i.e. automatic approval for up to 74 per cent foreign equity participation in a JV and 100 per cent foreign investment as equity is permissible with the approval of the Foreign Investment Promotion Board (FIPB), (iv) approval to the amendments in the National Tariff Policy 2005, inter alia adding promotion of renewable power as a key objective of the policy and enhancing Renewable Purchase Obligation (RPO) targets.

Railways

6.61 Indian Railways (IR) is faced with a number of challenges. For speedy capacity creation, IR recognizes the importance of enhancing project execution capabilities. Considering the enormity of the resources required for plan investment in rail infrastructure, and given the limitation of public resources, efforts are on by IR to generate sufficient internal surplus, and tap innovative methods of financing, to meet these needs. The focus is on prioritizing investments in important areas like dedicated freight corridors, high speed rail, high-capacity rolling stock, last mile rail linkages and port connectivity, and attracting private and FDI investments to supplement available resources.

Freight Performance

6.62 During 2015-16 (up to November) IR carried 720.17 million tonnes of revenue-earning freight traffic, as against a budget target of 775.77 million tonnes. This was up from the 711.19 million tonnes of freight carried during 2014-15 (up to November) by 8.98 million tonnes or 1.26 per cent.

Initiatives Taken

6.63 Various measures to improve passenger amenities, infrastructure and services, and initiatives under Make in India, freight initiative, resource mobilization initiative and green initiatives, etc. have been taken by IR (Box 6.5 for High Speed Train Project). Optical Fibre Cable (OFC) over 1098 route kilometres (RKM) has been laid. Cumulatively, 48,818 RKM optical fibre has been commissioned by IR, enabling a high-speed communication network. Integral Coach Factory, Chennai, has developed a first-of-its-kind stainless steel three-phase energy-efficient AC-AC transmission 1600 HP DEMU train set. Mobile application for freight operations--Parichaalan--has been introduced. IR has also installed solar

panels on rooftops of coaches for the train lighting system in 2 broad gauge coaches and 4 narrow gauge coaches plying on the Pathankot-Joginder Nagar section in Kangra Valley, and 14 narrow gauge coaches plying on the Kalka-Shimla section on trial basis. Tenders and policy guidelines for 50 MW solar plants on rooftops of IR buildings have been issued.

6.64 Besides the Mumbai-Ahmedabad corridor, a Diamond Quadrilateral network of High Speed Rail connecting major metros and growth centres of the country was announced in the Railway Budget 2014-15. Feasibility Studies for the Delhi-Mumbai, Mumbai-Chennai, and Delhi-Kolkata corridors are underway.

Box 6.5: High Speed Train Project

The Japan International Cooperation Agency (JICA) which undertook the study on the feasibility of this prestigious project, submitted its report in July 2015. The project was approved by the Cabinet Committee on Economic Affairs, in December 2015, to be implemented with Japanese technical and financial assistance. The memorandum of understanding for cooperation between India and Japan was signed on 12 December 2015. A new special purpose vehicle with 50 per cent equity participation from the Ministry of Railways and 50 per cent from the state governments of Maharashtra and Gujarat was to be set up to implement the project.

Salient features of the project

- The total construction cost of the project is approximately ₹70,915 crore including land cost. Project completion cost is approximately ₹97,636 crore (including price escalation, interest during construction and import duties). Average per km cost of construction works out to be ₹140 crore.
- Project implementation time will be approximately seven years from the commencement of construction.
- Japanese official development assistance will be ₹79,165 crore (81 per cent of project cost) for 50 years with 0.1 per cent interest and a 15-year moratorium.
- Certain identified packages would have either a Japanese company as prime contractor or a Japanese-led JV.
- Certain identified goods manufactured in Japan would be procured from Japan.
- Total length of the proposed corridor will be 508 km between the Bandra Kurla complex in Mumbai and Sabarmati/ Ahmedabad in Gujarat.
- Sixty-four per cent of the corridor will be constructed on embankment, 25 per cent viaduct and 6 per cent tunnel, with a standard gauge.
- The stretch will cover 12 stations between Mumbai and Sabarmati.
- The maximum design speed will be 350 kmph with an operating speed of 320 kmph.
- It will have 10-car trains (750 seats) in the beginning and 16-car trains (1200 seats) in the future.
- Thirty-five trains per day each way will operate by 2023, which will go up to 105 trains per day each way in 2053.
- It will have approximately 36,000 daily users per day (both ways) in 2023, i.e. 13 million per annum projected, which will go up to 186,000 per day (both ways) or 68 million per annum by 2053.

Roads

6.65 With about 52.32 lakh km of road network comprising National Highways, State Highways and other roads, India has the second largest road network in the world. The National Highways (NH) in the country cover a total length of 1,00,475 km and carry about 40 per cent of the road traffic. The status of the National Highways Development Project (NHDP) as on December 31, 2015 is shown in the Table 6.9.

Major Initiatives

- The government has approved a scheme for the development of about 1177 km of NHs and 4276 km of state roads in Left Wing Extremism (LWE)-affected areas as a Special Project with an estimated cost of about ₹ 7300 crore.
- **Special Accelerated Road Development Programme for North-Eastern region (SARDP-NE):** The scheme has been envisaged as a three-part project: Phase A of the SARDP-NE approved by the government will take up improvement

of about 4099 km road lengths (2933 km of NH and 1166 km of state roads) by March 2017. Phase B, to be taken up after Phase A is completed, is to cover 3723 km (1285 km NHs and 2438 km state roads) of road.. The Arunachal Pradesh Package for Road & Highways involving development of about 2319 km road length (2205 km of NH and 114 km of state/general staff/strategic roads) has also been approved by the government.

- **Bharatmala programme:** Bharatmala is a proposed umbrella scheme at an estimated cost of ₹2,67,200 crore for (i) Development of State Roads along Coastal areas / Border areas, including connectivity of non-major ports, about 7000 km for ₹80,250 crore; (ii) Backward Areas, Religious, Tourist Places Connectivity programme, about 7000 km for ₹85,250 crore; (iii) Setubhratam Pariyojana which is for the construction of about 1500 major bridges and 200 ROBs / RUBs for ₹30,000 crore; and (iv) District Head Quarter Connectivity Scheme for development of about 9000

Table 6.9: Status of National Highways

Sl. No.	NHDP component	Total length(km)	Completed length(km) as on 31.12.2015	Under implementation (km)	Balance for award of civil works (km)	Estimated cost (₹ crore)
1.	GQ under NHDP Phase I	5846	5846	0	0	30300
2.	NS-EW Corridors under NHDP Phase I & II	7142	6422	463	257	(NHDP Phase I)
3.	Port Connectivity under NHAI	431	379	52	0	+ 34339 (NHDP Phase II) =
4.	Other NHs with NHAI	1844	1578	266	0	64639
5.	NHDP Phase III	12608	6734	3402	2472	80626
6.	NHDP Phase IV	20000	2877	7483	9640	27800
7.	NHDP Phase V	6500	2319	1356	2825	41210
8.	NHDP Phase VI	1000	0	0	1000	16680
9.	NHDP Phase VII	700	22	19	659	16680
Sub Total (NHDP)		56071#	26177	13041	16853	247635

Source: Ministry of Road, Transport and Highways.

Notes: # included 48,647 km of total NHs, 24 km length of Chennai—Ennore port connectivity road, 700 km NH length under NHDP –VII, other than overlapping length of NHs (5700 km NH length is common under NHDP-I and NHDP-V, 1000 km proposed Expressway under NHDP-VI). NHAI is National Highways Authority of India.

km newly declared NHs for ₹60,000 crore. The programme is targeted for completion by 2022.

Civil Aviation

6.66 The civil aviation industry in India is experiencing a new era of expansion, driven by factors such as increasing private participation under Public Private Partnership (PPP), development of greenfield airports, restructuring and modernization of airports, FDI in domestic airlines, increase in number of Low Cost Carriers (LCCs) and emphasis on regional connectivity, coupled with cutting-edge information technology interventions.

6.67 There has been strong growth in traffic at Indian airports during 2015-16. During April-November 2014, 108.5 million domestic passengers and 35.2 million international passengers were handled at Indian airports. Domestic traffic increased by 20.4 per cent and international passengers by 7.8 per cent during April-November 2015 over the same period of the previous year. International cargo throughput at Indian airports was 1.10 million metric tonnes while domestic cargo throughput stood at 0.70 million metric tons. International cargo throughput increased by 5.8 per cent and domestic by 6.1 per cent in April-November 2015 as compared to the corresponding period of the previous year.

6.68 As regards airport infrastructure during 2015-16, the Airport Authority of India (AAI) has completed development of Kadapah Airport, the New Civil Air Terminal at Chandigarh (Mohali side) and the New Integrated Terminal building at Tirupati Airport with apron and associated works. Major initiatives have been taken to augment airport infrastructure: (a) commissioning of the greenfield Kazi Nazrul Islam Airport at Andal in West Bengal; (b) signing of MoU for engaging Changi airport, Singapore, for executing Operations and Maintenance (O&M) contracts at Ahmedabad and Jaipur airports; (c) 'in-principle' approval for

setting up of a greenfield airport at Dholera in Gujarat; (d) 'site clearance' for setting up of greenfield airports at four locations, namely Bhiwadi (Alwar) in Rajasthan and Bhogapuram, Dagadarthi and Oravakallu in Andhra Pradesh; (e) greenfield airports at Mopa in Goa, Navi Mumbai, Shirdi and Sindhudurg in Maharashtra, Shimoga, Hasan and Bijapur in Karnataka, Kannur in Kerala, Pakyong in Sikkim, Holongi (Itanagar) in Arunachal Pradesh, Datia in Madhya Pradesh, Kushinagar in Uttar Pradesh and Karaikkal in Puducherry are at various stages of planning/execution; (f) development of small airports in tier-II and tier-III cities, namely Hubli and Belgaum in Karnataka, Kishanganrh in Rajasthan, Jarsuguda in Odisha and Tezu in Arunachal Pradesh is progressing.

Shipping Sector

6.69 A vision document for Coastal Shipping, Tourism and Regional Development has been prepared with a view to increasing the share of coastal/inland waterways transport mode from 7 per cent to 10 per cent by 2019-20. An action plan to achieve the objective has also been prepared and is being implemented. An ambitious programme has been drawn up to develop 78 lighthouses in the country as centres of tourism in the first phase under PPP. The identified lighthouses are in Gujarat, Maharashtra, Goa, Karnataka, Kerala, Lakshadweep, Tamil Nadu, Puducherry, Andhra Pradesh, Odisha, West Bengal and Andaman and Nicobar Islands.

6.70 The cargo traffic of Indian ports increased by 8.2 per cent to 1052.2 million tonnes in 2014-15, with traffic at non-major ports increasing at a faster rate than at major ports. During April to September 2015, while cargo traffic at all ports increased by 1.1 per cent, major ports reported an increase of 4.1 per cent and non-major ports a decline of 1.0 per cent as compared to the corresponding period in 2014-15 (Table 6.10).

Table 6.10: Cargo Traffic at Ports (million tonnes)

Category	2013-14	2014-15 (P)	April - September	
			2014-15 (P)	2015-16 (P)
Major ports	555.49 (1.8)	581.33 (4.7)	287.74 (3.8)	299.58 (4.1)
Non-major ports	416.96 (7.5)	471.19 (13.0)	228.14 (11.8)	225.92 (-1.0)
All ports	972.45 (4.1)	1052.52 (8.2)	515.88 (7.2)	525.50 (1.1)

Source: Ministry of Shipping

Note: Figures in parenthesis indicate percentage growth over previous year.

P- Provisional

Inland Waterways Transport Sector

6.71 The Inland Waterways Transport (IWT) sector remained dormant for a long time and lost its relevance and importance in the overall transport sector. Considering its potential in terms of fuel savings, environment friendliness and cost effectiveness for transportation of bulk goods, dangerous goods, etc., it is necessary that wherever potential for IWT corridors exists, this mode is developed with basic infrastructure so that its utilization is increased for transportation of cargo and passengers.

6.72 Various actions are being taken to develop IWT infrastructure and the focus is on cargo-related projects. A significant step in creation of IWT infrastructure is implementation of the Jal Marg Vikas Project with World Bank assistance of ₹4200 crore. After commissioning of NTPC's Haldia - Farakka coal transportation project by a private sector company, the Inland Waterways Authority of India (IWAI) is working on a project for transportation of 3 MMTPA imported coal from the Bay of Bengal to the Barh power plant of NTPC. To provide a thrust to the IWT sector, on the legislative front, it has been decided that in addition to the existing 5 national waterways, 106 more waterways across 24 states would be declared as National Waterways and a bill was passed to this effect by the Lok Sabha in the winter session of Parliament.

Telecommunications

6.73 Growth of telecommunications is one of the key drivers of socio-economic development. The performance of the telecommunications sector during 2015-16 has been encouraging, with approximately 33.4 million new telephone connections added during April to October 2015, which is way ahead of the 29.65 million increase in number of connections in the corresponding period of 2014-15. Overall tele density in the country has increased from 79.4 per cent at the beginning of the financial year to 81.5 per cent at the end of October 2015, while total broadband connections have touched 120.9 million (at end-September 2015).

Spectrum Auction

6.74 The Department of Telecommunications (DoT) conducted auction of spectrum in March 2015 simultaneously in 2100 MHz, 1800 MHz, 900 MHz and 800 MHz bands. Total spectrum on offer was 470.75 MHz, out of which 418.05 MHz (88.8 per cent) was allocated to bidders. The value realized was ₹1,09,874.91 crore (67.8 per cent more than the value of the allocated spectrum at reserve price). Collection of spectrum usage charges during 2015-16 (up to November 2015) is ₹5568.40 crore.

Machine to Machine Communications

6.75 The Government recognizes the futuristic role of machine to machine communication (M2M) to facilitate the role of new technologies in furthering public welfare and enhanced customer choices through affordable access and efficient service delivery. A 'National Telecom M2M Roadmap' has been prepared putting together various standards, policy and regulatory requirements and approach for the industry on how to look ahead to M2M. The roadmap was released on 12th May 2015 and is expected to work as a reference document for all M2M eco-system partners and will augment the policy goals of Make in India and Digital India.

Major New Initiatives

- **BharatNet:** BharatNet / National Optical Fibre Network (NOFN) project is planned to connect all gram panchayats (approximately 2.5 lakh) in the country through optical fibre, utilizing existing fibre of PSUs, namely BSNL, RailTel and Power Grid, and laying incremental fibre wherever necessary. This will bridge the connectivity gap between gram panchayats and blocks and provide broadband connectivity. Access providers/service providers like mobile operators, Internet Service Providers (ISP), cable TV operators, content providers can launch various services in rural areas. Various applications for e- health, e-education, e-governance etc. will be provided. Under this project, up to 30th November 2015, 1,03,643 km of pipes and 74,994 km of optical fibre cables (OFC) have been laid. Further, OFC has been laid in 32,049 gram panchayats.
- **Rural Wireline Broadband Scheme for provision of Broadband Connections:** The Rural Wireline Broadband Scheme provides wireline broadband connectivity to rural and remote areas. As on October 31, 2014, a total of 6,35,929 broadband connections have been provided and 14,653 kiosks have been set up under the scheme in rural and remote areas.

Urban Infrastructure

6.76 With increasing urbanization, opportunities as well as challenges related to urban infrastructure are also increasing. In this context, the government has taken various steps to improve urban infrastructure. Box 6.6 discusses the Smart Cities Mission, a flagship programme for urban development. A number of initiatives have been taken to encourage public transport, for example Bus Rapid Transit Systems (BRTS) approved for 11 cities under the Jawaharlal Nehru National

Urban Renewal Mission (JnNURM), to equip buses with Intelligent Transport System (ITS) and Metro Rail Projects.

New Initiatives

- **Swachh Bharat Mission (SBM):** The SBM aims at making India free from open defecation and at achieving 100 per cent scientific management of municipal solid waste in 4041 statutory towns/cities in the country. The targets set for the mission which have to be achieved by 2 October 2019 are: construction of 1.04 crore individual household latrines (IHHL), 2.52 lakh community toilet (CT) seats and 2.56 lakh public toilet (PT) seats; and achieving 100 per cent door-to-door collection and scientific management of municipal solid waste (MSW). The estimated cost of implementation of the SBM is ₹62,009 crore. As on 1 December 2015, 5.91 lakh IHHLs and 28,948 community and public toilets have been completed under the SBM. In 33,278 wards out of a total of 78,633, 100 per cent door-to-door collection is taking place under Municipal Solid Waste Management and 17.62 per cent of the total waste generated is being processed.
- **National Heritage City Development and Augmentation Yojana (HRIDAY):** The HRIDAY scheme aims at preserving and revitalizing the soul and unique character of heritage cities in India. In the first phase, with a total outlay of ₹500 crore fully funded by the central government, twelve cities--Ajmer, Amaravati, Amritsar, Badami, Dwarka, Mathura, Puri, Varanasi, Velankanni, Kanchipuram, Gaya and Warangal--have been identified for development.
- **Atal Mission for Rejuvenation and Urban Transformation (AMRUT):** AMRUT was launched on June 25, 2015 with the objective of improving basic urban

Box 6.6: Smart Cities

The Government of India has launched a mission on Smart Cities, with the collaboration of states and UTs for implementation of the flagship programme for urban development. The purpose of the Smart Cities Mission is to drive economic growth and improve the quality of life of people by enabling local area development and harnessing technology, especially technology that leads to smart outcomes.

The Smart Cities Mission targets promoting cities that provide core infrastructure and give a decent quality of life to its citizens, a clean and sustainable environment and application of 'smart' solutions. The focus is on sustainable and inclusive development and the idea is to look at compact areas and create a replicable model which will act like a lighthouse to other aspiring cities. The core infrastructure development in a smart city includes adequate water supply; assured electricity supply; sanitation, including solid waste management; efficient urban mobility and public transport; affordable housing, especially for the poor; robust IT connectivity and digitalization; good governance, especially e-Governance and citizen participation; sustainable environment; safety and security of citizens, particularly women, children and the elderly; and health and education.

Strategy

The strategic components of area-based development in the Smart Cities Mission are city improvement (retrofitting), city renewal (redevelopment) and city extension (greenfield development) plus a pan-city initiative in which smart solutions are applied covering larger parts of the city. Retrofitting will introduce planning in an existing built-up area to achieve smart city objectives, along with other objectives, to make the existing area more efficient and liveable. In retrofitting, an area consisting of more than 500 acres will be identified by the city in consultation with citizens. Redevelopment will effect a replacement of the existing built-up environment and enable co-creation of a new layout with enhanced infrastructure using mixed land use and increased density. Redevelopment envisages an area of more than 50 acres, identified by ULBs in consultation with citizens. Greenfield development will introduce most of the smart solutions in a previously vacant area (more than 250 acres) using innovative planning, plan financing and plan implementation tools (e.g. land pooling/ land reconstitution) with provision for affordable housing, especially for the poor. Greenfield development is required around cities in order to address the needs of the expanding population.

Finance

The Mission will cover 100 cities which have been distributed among the states and UTs on the basis of equitable criteria. The distribution of smart cities will be reviewed after two years of the implementation of the mission. Based on an assessment of the performance of states/ULBs in the challenge, some reallocation of the remaining potential smart cities among states may need to be done by the Ministry of Urban Development (MoUD). The Smart City Mission will be operated as a Centrally Sponsored Scheme and the central government proposes to give it financial support to the extent of ₹48,000 crore over five years, i.e. on an average ₹100 crore per city per year. An equal amount, on a matching basis, will have to be contributed by the state/ULB; therefore, nearly ₹one lakh crore of government/ULB funds will be available for smart cities development. In the first phase of implementation, twenty cities have been shortlisted to roll out the programme.

The pace of migration from the rural areas to the cities is increasing. A neo middle class is emerging which has aspirations of better living standards. With all these challenges to the successful implementation of the mission, the centre of attention is the citizen. In other words, a smart city will work towards ensuring the best for all people, regardless of social status, age, income levels and gender, only when citizens will actively participate in governance and reforms. Smart Cities Mission requires involvement of smart people involve themselves in the process of making decisions on deploying smart solutions, implementing reforms, doing more with less, maintaining oversight during implementation and designing post-project structures in order to make the smart city developments sustainable.

infrastructure in 500 cities/ towns which will be known as mission cities/towns. The total outlay for AMRUT, which is being operated as a Centrally Sponsored Scheme (CSS), is ₹50,000 crore for five years from financial year 2015-16 to 2019-20. Cities with a population of

10 lakh or above are entitled to central assistance of one-third of the project cost and all other cities, one half of the project cost. Balance funding is to be arranged by state governments/ urban local bodies (ULB), including through private investment.

MOVING TOWARDS HIGHER INDUSTRIAL GROWTH

6.77 Supply-side bottlenecks, infrastructural and structural constraints hindering the achievement of medium-term growth and job creation, are being addressed on priority basis. Programmes like Make in India, Ease of Doing Business, Skill India, Startup India and reforms in various industrial and infrastructure sectors are some of the major initiatives in the direction of attracting more investment to ensure high industrial growth. Make in India and Ease of doing Business in India are focusing on more and faster industrial growth while Startup India aims at nurturing an entrepreneurial mind set among youth in an inclusive manner.

Startup India: Wings to Fly above the Sky

6.78 Startup India is a flagship initiative of the Government of India to build a strong ecosystem for nurturing innovation, driving sustainable economic growth and generating large-scale employment opportunities. Apart from the technology sector the start-up movement will extend to a wide array of other sectors including agriculture, manufacturing, healthcare and education.; and from existing tier 1 cities will extend to tier 2 and tier 3 cities including semi-urban and rural areas.

Proposed Action Plans under Startup Initiative:

- Creating a compliance regime based on self-certification to reduce the regulatory burden on start-ups, thereby allowing them to focus on their core business and keep compliance cost low.
- Setting up Startup India hub to create a single point of contact for the entire Startup ecosystem and enable knowledge exchange and access to funding.
- Rolling out of mobile app and portal to serve as the single platform for start-ups to interact with government and regulatory institutions for all business needs and information exchange among various stakeholders.

- Relaxed norms of public procurement for start-ups to provide an equal platform to start-ups (in the manufacturing sector) vis-à-vis entrepreneurs/ companies experienced in public procurement
- Legal support and fast-tracking of patent examination at lower costs to promote awareness and adoption of Intellectual Property Rights (IPR) by start-ups and facilitation for them in protecting and commercializing the IPRs
- Faster exit for start-ups
- Providing funding support through a fund of funds with a corpus of ₹10,000 crore
- Credit Guarantee Fund for start-ups to catalyse entrepreneurship by providing credit to innovators across all sections of society
- Tax exemption on capital gains
- Tax exemption for three years
- Launch of Atal Innovation Mission with (SETU) programme to serve as a platform for promotion of world-class innovation hubs, start-up businesses and other self-employment activities, particularly in technology-driven areas
- Building innovation centres at national institutes to propel successful innovation through augmentation of incubation and R&D efforts
- Setting up of 7 new research parks modelled on the research park at IIT Madras
- Promoting start-ups in the biotechnology sector to foster and facilitate bio-entrepreneurship
- Launching of innovation-focused programmes for students to foster a culture of innovation in the field of science and technology

6.79 Startup India will turn Indian youths from job seekers into job creators. It will encourage entrepreneurship, innovation and creation of revolutionary new products in India, that will be used by people around the world.