

# **DEVELOPMENT OF INFRASTRUCTURE IN INDIA**

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# **Structure of Presentation**

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## **Tracing the development of infrastructure during :**

- **Post independence - various Five Year Plans**
- **Post 12th FYP**

**The 1<sup>st</sup> part of this presentation based on the IDFC Occasional Paper Series 2007/1 titled “The Political Economy of Infrastructure Development in Post-Independence India” a well researched paper written by Rajiv Lall and Anupam Rastogi to mark the Golden Jubilee of NCAER, New Delhi**

**2<sup>nd</sup> part presents the Central government initiatives for Infrastructure development post 2017**

# INFRASTRUCTURE SINCE INDEPENDENCE

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- Definition of 'infrastructure' is nebulous & a temporally moving target changing with technological innovation.
- Today's infrastructure (optical fiber networks) could not have been envisioned as such fifty years ago
- until the Fourth Five Year Plan, irrigation was considered part of infrastructure & all data pertaining to investments therein were part of infrastructure.
- Since Fifth Five Year Plan irrigation was included in the agriculture sector, thus inter-temporal comparisons became more challenging

# **INFRASTRUCTURE SINCE INDEPENDENCE**

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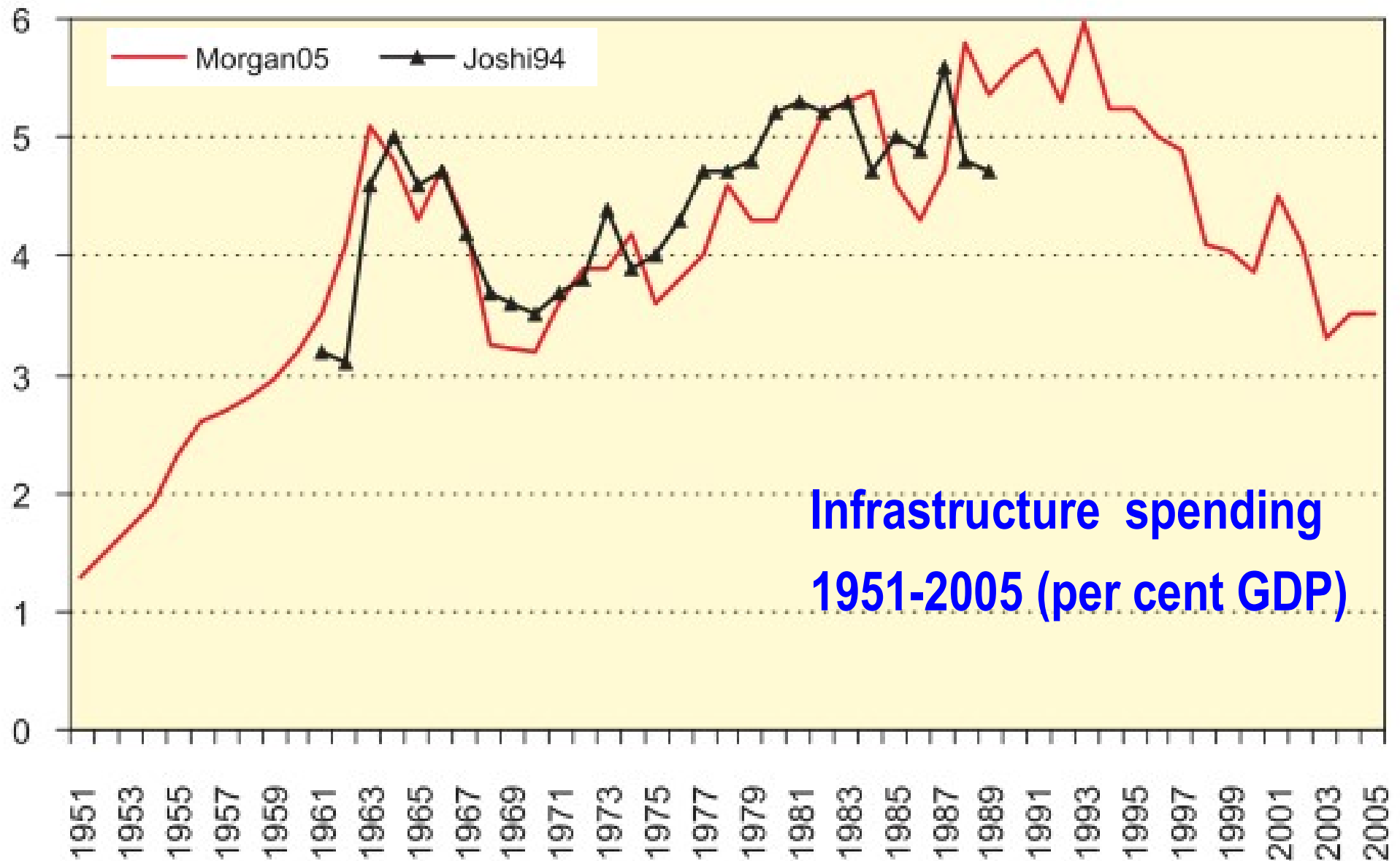
- **Further Infrastructure definition varies within Govt agencies (Ministry of Finance & the Reserve Bank of India ) and also amongst worldwide funding agencies**
- **Authors for their research considered power, irrigation, roads, rail, airports, ports & telecom under the . purview of infrastructure**
- **They used two different time series data to generate a bird's eye view of the broad trends in the sector.**

# INFRASTRUCTURE SINCE INDEPENDENCE

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- **The 2 time series data being :**
  - **1<sup>st</sup> - Joshi & Little (1994) series which included electricity, water (including irrigation), railways, communication & other transport sectors, But the series could be compiled from 1961 to 1989**
  - **2<sup>nd</sup> - Morgan Stanley (2005) series for 1951-2005, it included energy, airports, seaports, roads & telecom but excluded water / irrigation & railways & therefore, it understates the actual spending on infrastructure.**
  - **The two series were supplemented IDFC estimates for 1950-1960 to get a more complete trends over the entire period of five year plans.**
- **The 2 series suggest a very similar pattern for infrastructure spending after 1960**

# INFRASTRUCTURE SINCE INDEPENDENCE



**Infrastructure spending  
1951-2005 (per cent GDP)**

Source: Morgan Stanley (2005), Joshi and Little (1994) and IDFC Estimates

# INFRA : POST INDEPENDENCE PERIOD

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- **Five Year Plan (FYP) period can be classified as**
  - **Nehru era (1950-67) covering 1<sup>st</sup> 3 FYPs,**
  - **Indira Gandhi era (1967-84) covering 4th ,5th , 6th FYPs,**
  - **Rajiv Gandhi era (1984-91) covering 7th FYP**
  - **Era of Decentralized Governance (1991-beyond) covered 8th-12th FYPs.**
- **Enormous infrastructure Assets built during past 7 decades**
- **Infrastructure spending as percentage of GDP also increased in different plans**
  - **except in some plans where it was cut short due to**
    - **social, political,**
    - **military reasons or economic crisis.**

# INFRA: POST INDEPENDENCE PERIOD

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- **Broad positive correlation prevailed between GDP growth & infrastructure spending during the period 1947-1994, at occasions growth faltered on account of drought, foreign exchange crisis or political upheaval & infrastructure spending invariably suffered as a consequence.**
- **Growth in infrastructure spending contributed to India's GDP growth, at least up to 1990 decade.**
- **10 year moving average of growth in real infrastructure spending (cause of long gestation & pay back periods for infrastructure projects) versus the moving average of real GDP growth (smoothened out to take account of distorting impact of crisis-driven outlier figures) when plotted for the duration 1951-2005 produces the following line graph**



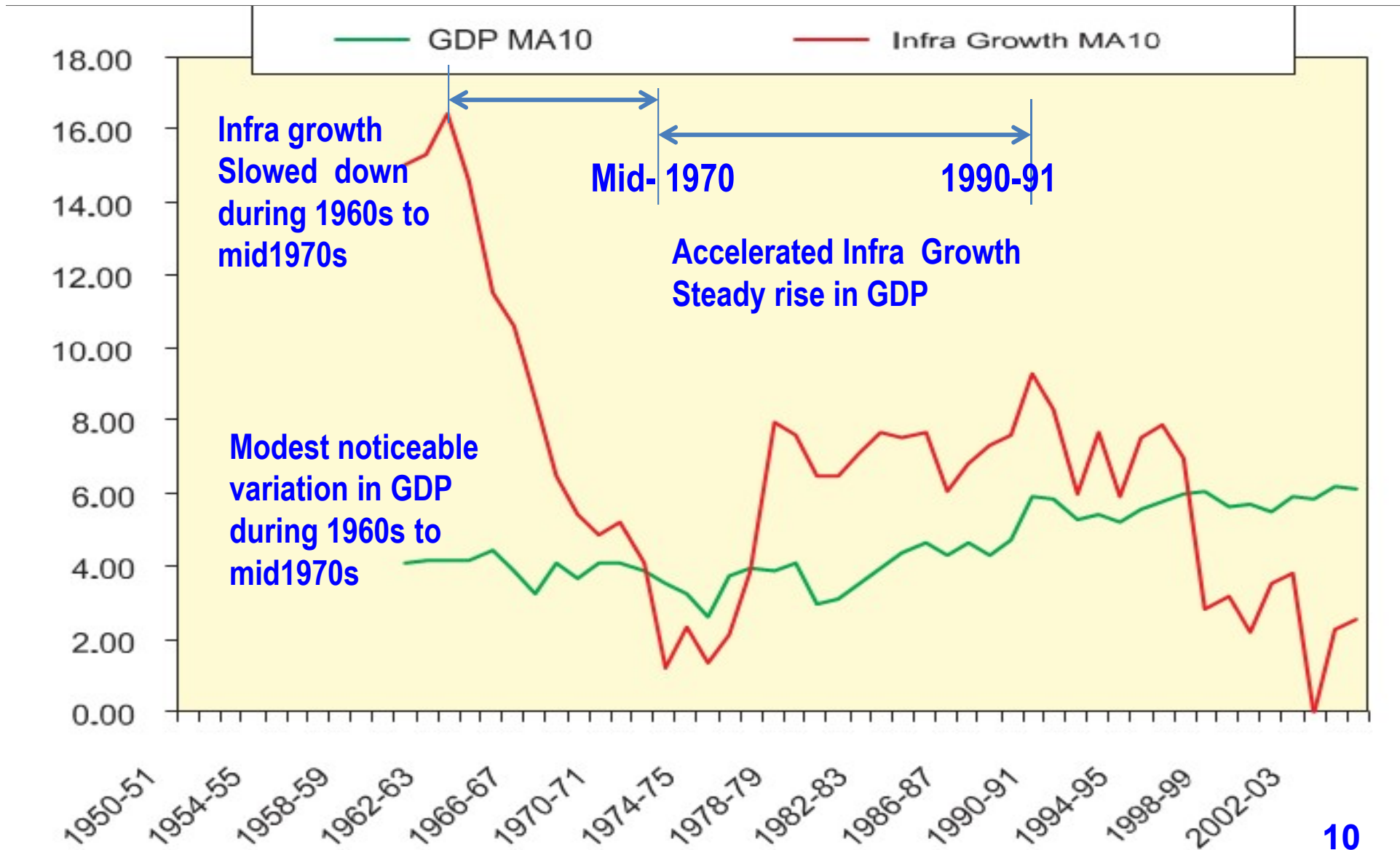
# INFRA : POST INDEPENDENCE PERIOD

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# INFRA : POST INDEPENDENCE PERIOD

## GDP growth & Growth in Infrastructure Spending 1951-2005 (10yr Moving Average)



# INDIA : POST INDEPENDENCE PERIOD

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- The graph suggests that growth in infra. spending slowed down quite sharply over the decade of 1960 & early 1970s, even though the real GDP growth rates showed a more modest noticeable trend of decline over the same period.
- Following mid-1970s, growth in infra. spending accelerated again right up to 1990/91, but there was a less marked, but steady rise in real GDP growth rates during same period.
- Relationship between infra. spending & GDP growth clearly breaks down post-1990. It is remarkable to note that in last 15 years as growth in real infra. spending have sharply declined, real GDP growth rates have tended to accelerate.

# INDIA : POST INDEPENDENCE PERIOD

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- **Two possible explanations could be that :**
  - **the infrastructure stock build upto 1990-91 was sufficient to support the momentum of GDP growth through the decade;**
  - **the last 15 years were different from earlier years in a way that positive impact on GDP growth of structural reforms pursued, starting in 1991, was much more significant than negative impact due to the sharp deceleration in infrastructure spending.**
- **It was hypothesized that the 1990s did see a fundamental shift in the drivers of growth in the Indian economy. Until then, growth in the Indian economy was led primarily by public sector investment, the 1990s saw an important shift to private consumption & private investment led growth.**

# NEHRU ERA 1951-66

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- **Growth targets during this era were set w.r.t National Income.**
- **Initial 7yrs of 1950s, the 1<sup>st</sup> phase of infrastructure saw a good amount spent on infrastructure like major irrigation projects, electric power, roads & strategic assets for rehabilitation.**
- **Next 3 yrs experienced severe reduction because of 1957-58 foreign exchange crisis.**
- **2<sup>nd</sup> phase of infrastructure spending covered about 1<sup>st</sup> half of 1960s & was cut short due to : death of Nehru in 1964, war with Pakistan in 1965, drought of 1967- 68, & 1971 Bangladesh war.**
- **Infrastructure spending further declined & hit a post-independence low of 3.3% of GDP.**

# INDIRA GANDHI ERA 1969-84

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- During this era for 4th Plan (1969-74) growth targets were set w.r.t Net Domestic Product
- From 5th Plan (1974-79) onwards, targets were set w.r.t GDP.
- 3rd phase of Infrastructure spending spanning 1970 decade also saw two cuts - one being oil shock of 1973-74 & Emergency of 1975-76; other being oil shock of 1979-80.
- The 1980 decade saw interruptions in 4th & 5th phases of infrastructure spending. 4th phase peaked at 5.3% of GDP but was interrupted in 1984-85 due to failed monsoon & Indira Gandhi's assassination.

# INDIRA GANDHI ERA 1969-84

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- Infrastructure built was village-oriented infrastructure like Tube well based i.e. minor irrigation projects were taken up at large scale, electric power for pumps requiring power sector infra. for farming sector.
- Power Grid extensions were provided to farms, not to village habitants.

# RAJIV GANDHI ERA 1985-90

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- During Rajiv Gandhi era, 7th FYP (1985-90) period, the 5th phase of infra. spending saw a sharp climb to 5.7% of GDP but it was also interrupted in 1991 because of Rajiv Gandhi's assassination & the IMF crisis.
- Two noteworthy features of this era were:
  - 1st significant investment was made in the country's telecommunications infrastructure because of Rajiv Gandhi's fascination with modernization & technology,
  - 2nd physical infrastructure for ground water irrigation & electricity supply was built. Because of severe fiscal constraints, the development of critical transportation & urban infrastructure continued to be neglected.



# **DECENTRALISED GOVERNANCE ERA 1992 +**

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- **Decentralized Governance era started from 1992 & same time 8th Plan was formulated. Experience of 8th 9th & 10th Plan spanning 15 yrs, was different from previous decades as there was no sustained recovery in infra. spending post-IMF crisis.**
- **On the contrary, an unprecedented decline in infra. spending was witnessed, interspersed by 2 growth inputs : One in 1994-95, inflow of significant FDI in telecommunication sector, & Second in 2001-02 when Govt. supported 4-laning of National Highway network.**
- **By 2003-04, infrastructure spending dipped to previous post-Independence low of 3.3% of GDP.**

# **DECENTRALISED GOVERNANCE ERA 1992 +**

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- **During these 15 years even as infrastructure spending sharply declined, real GDP growth rates improved because of 2 reasons :**
  - **infrastructure stock build till 1990-91 was sufficient to support the momentum of GDP growth through the decade;**
  - **positive impact of 1991 structural reforms on GDP growth was significant than the negative impact from the sharp deceleration in infra. spending.**
- **Till 1990, public sector investment led the growth in Indian economy while 1990s saw an important shift to private investment led growth.**

# **DECENTRALISED GOVERNANCE ERA 1992 +**

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- In the next decade starting 2007, India invested about \$1.1 trillion on infrastructure during 11th & 12th FYPs which focused on education; clean drinking water for all which was modified to cover 50% of rural population & electricity to all villages.
- Targeted investment was achieved through private sector investment especially in Power & Telecommunications resulting in sharp increase in infrastructure investments from 10th to 12th FYP. Achieved 9% of GDP by end of 12th FYP.
- It can be concluded that evolution of infra. during the FYPs culminated with PPPs increasingly becoming the preferred mode for construction & operation of infrastructure projects.

# **DECENTRALISED GOVERNANCE ERA 1992 +**

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- **With large investment in infrastructure during the decade 2003-04 to 2013-14 India become the second fastest growing economy of the world but in the two years (April 2012-March 2014) economic growth slowed down, mainly due to the stalled infrastructure projects which held back economic development.**
- **Need of the hour was that infrastructure projects be given environment clearance quickly and investment in them speeded up, so that the Indian economy comes back on the fast growth trajectory**

## **PERIOD BEYOND 12<sup>TH</sup> FYP 2012-17**

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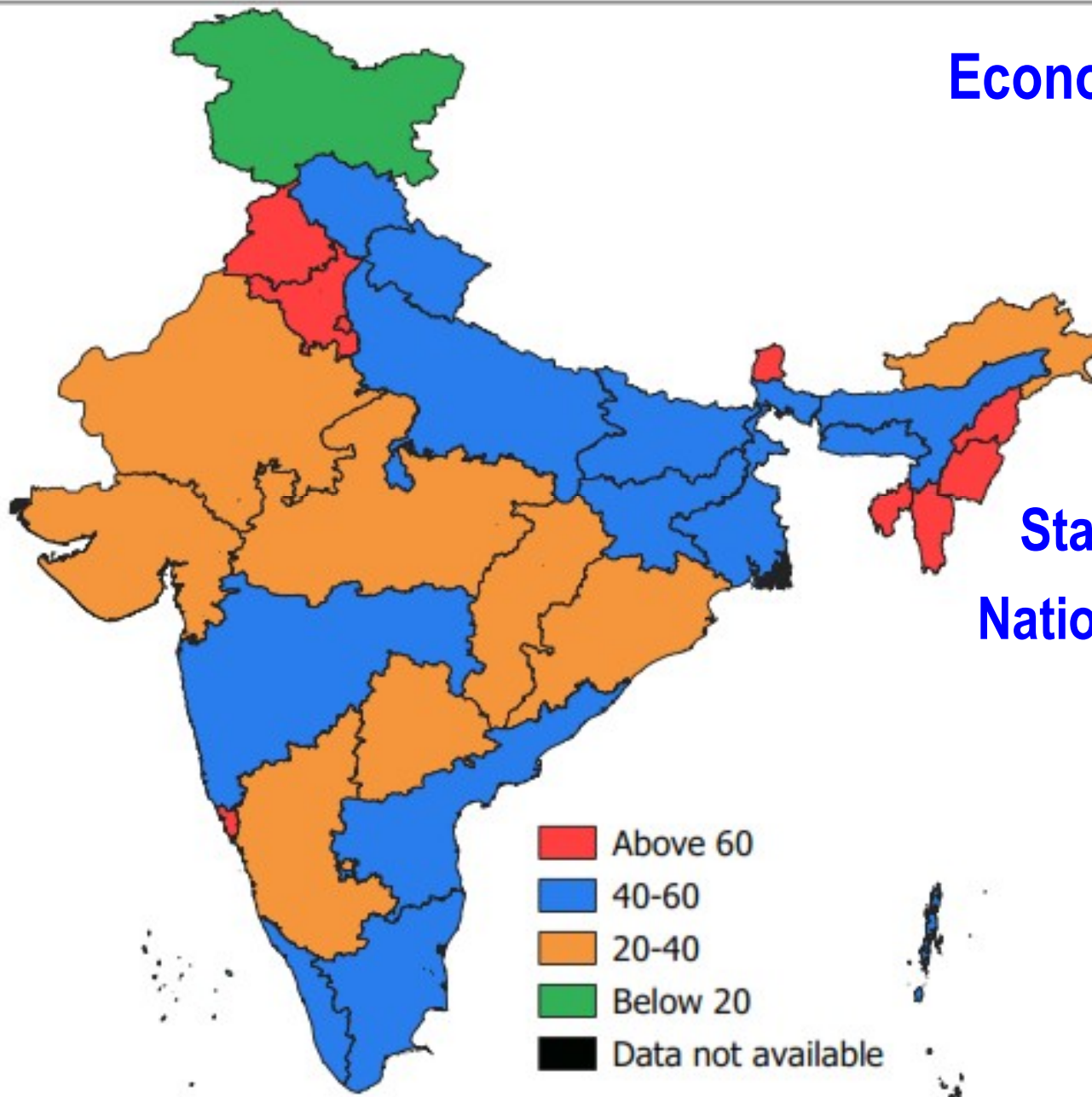
- **As per the Economic Survey 2019-20 , Vol 2 Chapter 8 and Industry and Infrastructure**
- **Road transport is the dominant mode of transportation in terms of its contribution to Gross Value Added (GVA) & traffic share.**
- **The share of transport sector in the GVA for 2017-18 was about 4.77% of which road transport contributed 3.06%, followed by the Railways (0.75 %), air transport (0.15 %) & water transport (0.06%).**
- **National Transport Development Policy Committee Report, 2011-12, estimated road transport to handle 69% & 90 % of the countrywide freight & passenger traffic, respectively.**
- **Indian Railways (IR) with over 68,000 route kms is the third largest network in the world under single management.**

# PERIOD BEYOND 12<sup>TH</sup> FYP 2012-17

Economic Survey 2019-20

Infrastructure

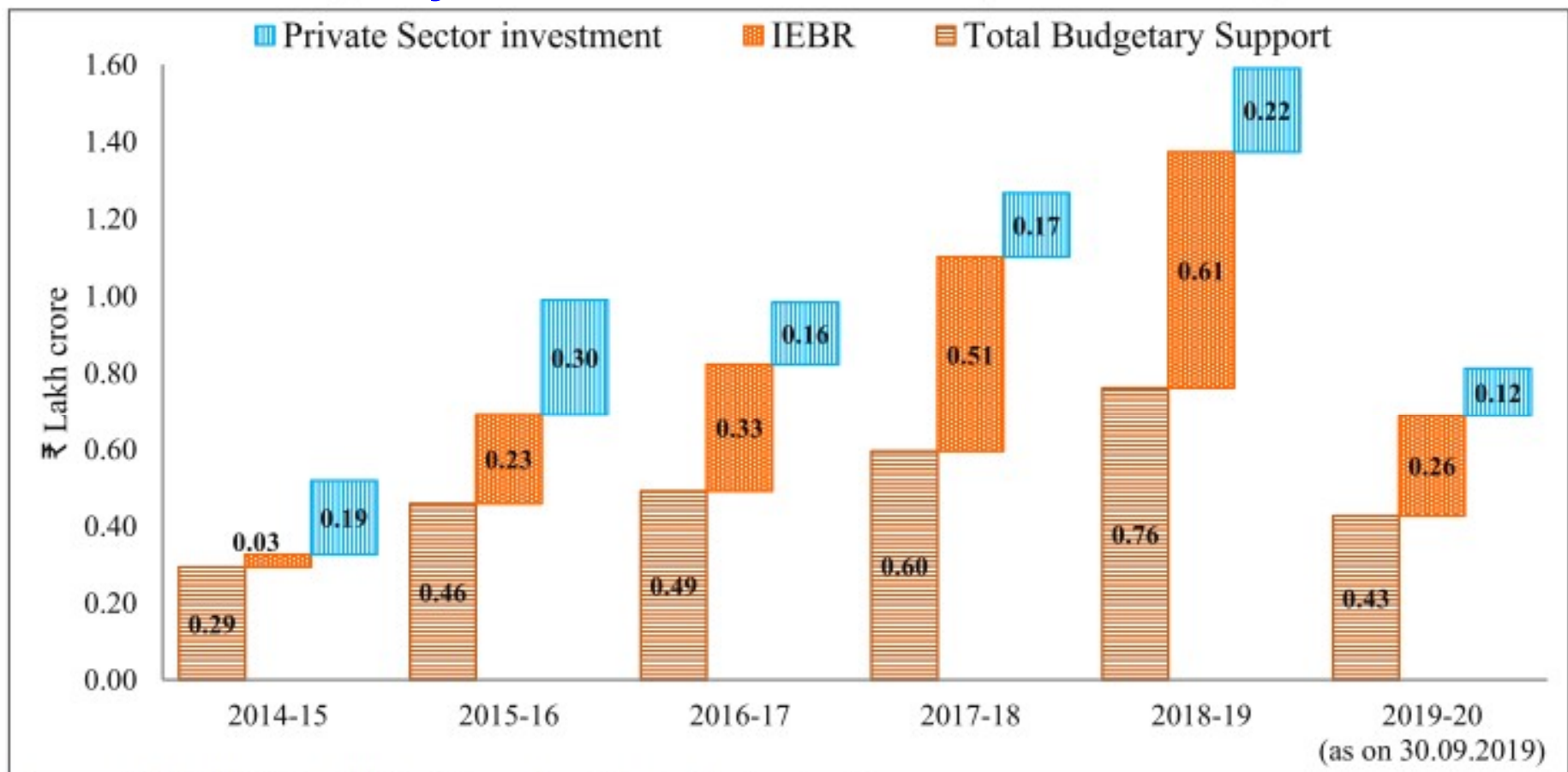
Roads



State/ UT-wise density of  
National Highways (NH) as  
on 01.03.2019  
(in Kms/1,000 sqkm)

# PERIOD BEYOND 12<sup>TH</sup> FYP 2012-17

## Economic Survey 2019-20 ; Infrastructure ; Roads

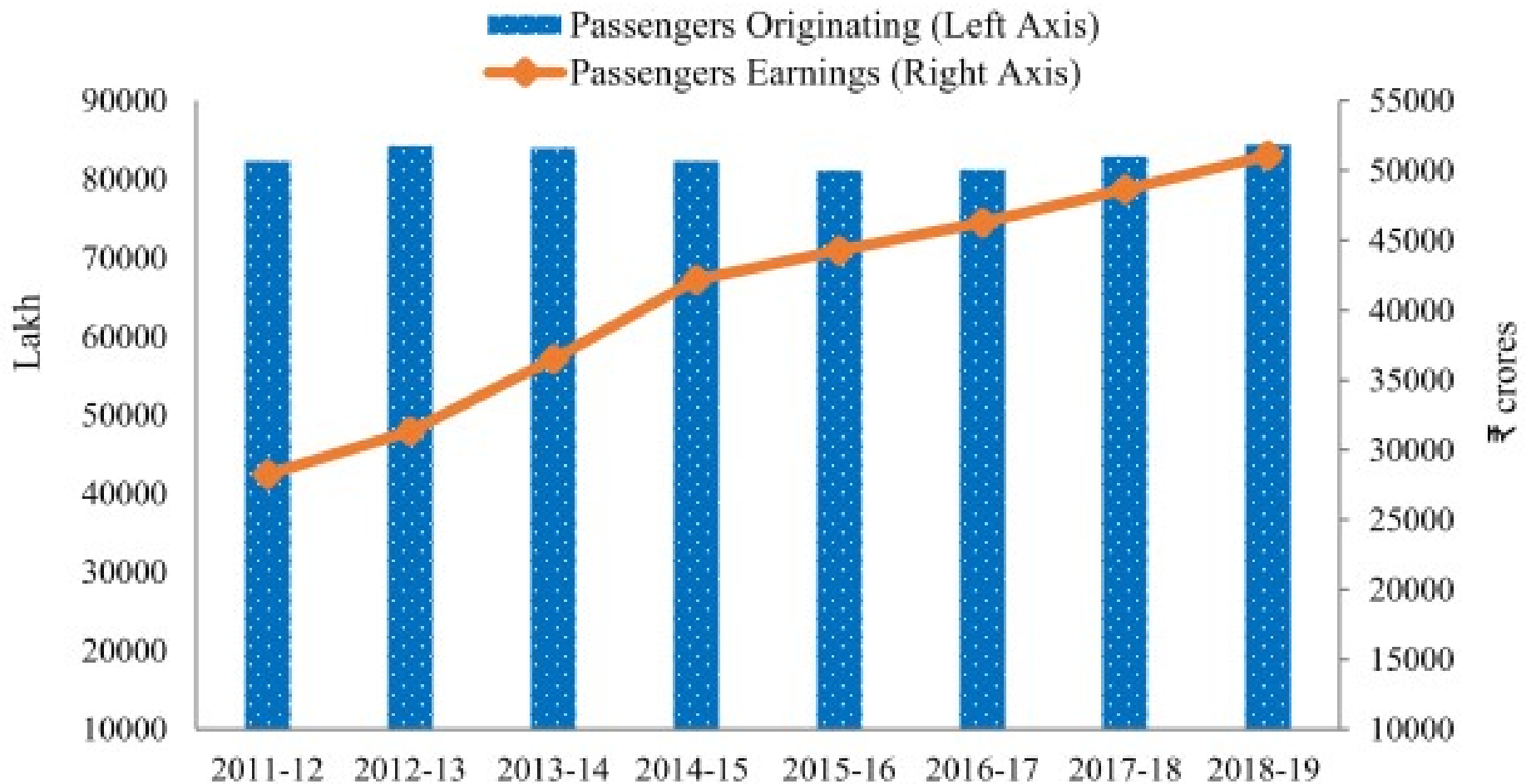


Source: MoRTH, Note: IEBR - Internal and Extra Budgetary Resources.

## Investment in Road Sector (in Rs Lakh crore)

# PERIOD BEYOND 12<sup>TH</sup> FYP 2012-17

## ES 2019-20 ; Infrastructure ; Railway



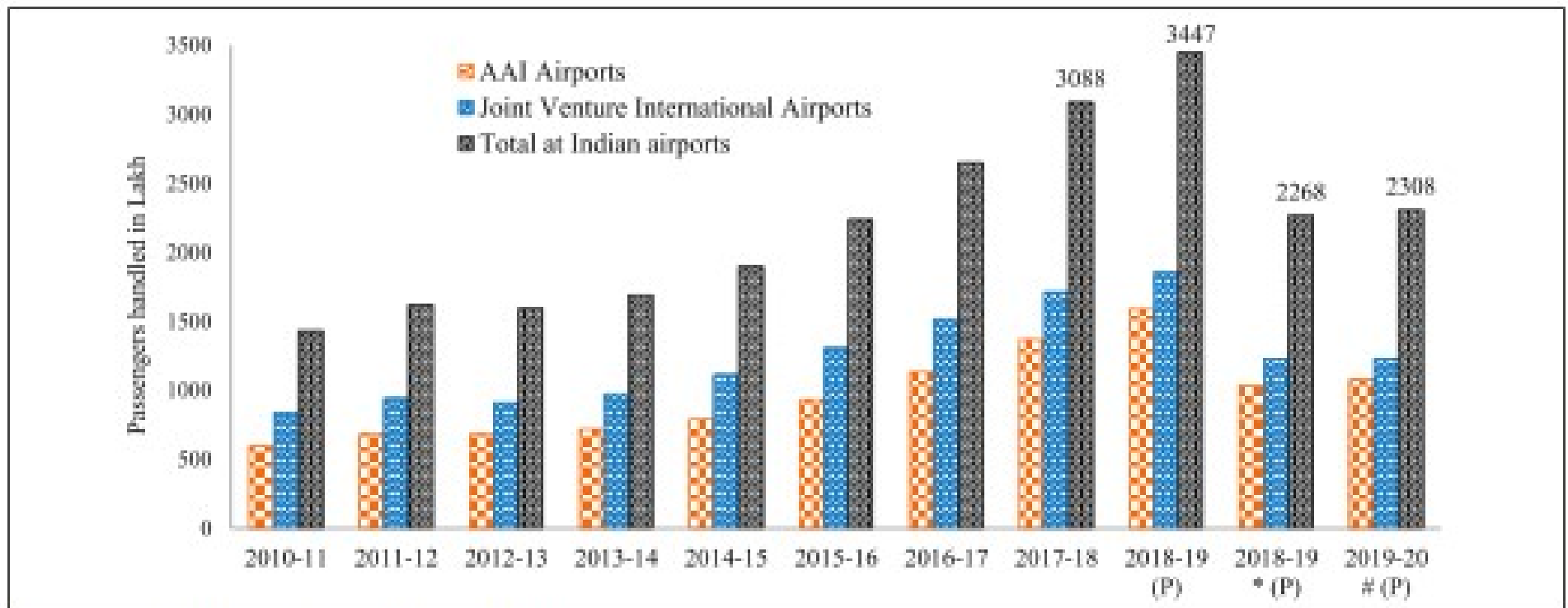
Source: Ministry of Railways.

**Passengers originating (in lakh) & Passengers Earnings Rs Crores**



# PERIOD BEYOND 12<sup>TH</sup> FYP 2012-17

## ES 2019-20 ; Infrastructure ; Civil Aviation



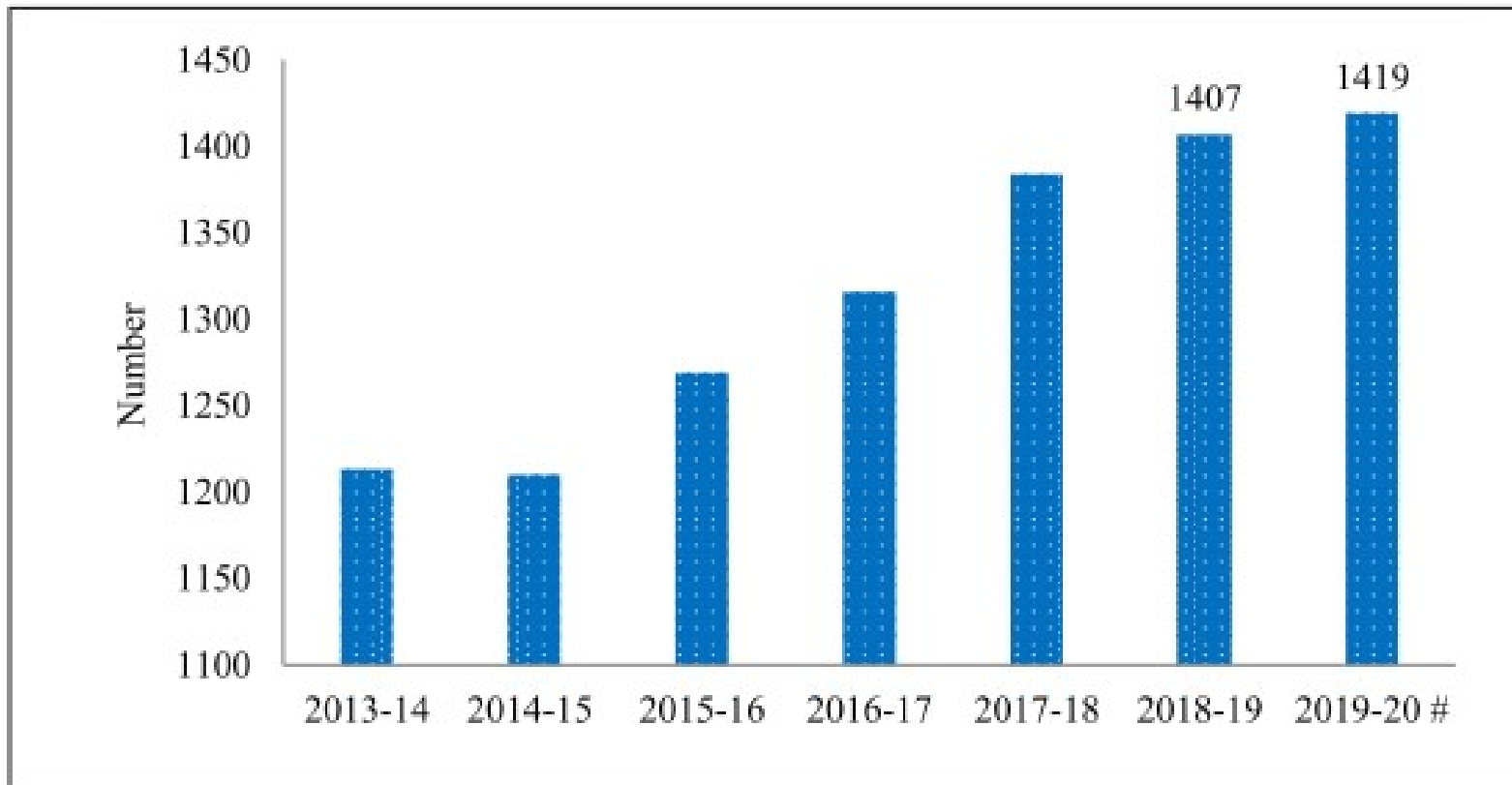
Source: Ministry of Civil Aviation.

Note: (P) - Provisional, \* - (April to November 2018), # - (April to November 2019)

### Passengers handled by Indian Airports (in lakh)

# PERIOD BEYOND 12<sup>TH</sup> FYP 2012-17

## ES 2019-20 ; Infrastructure ; Shipping



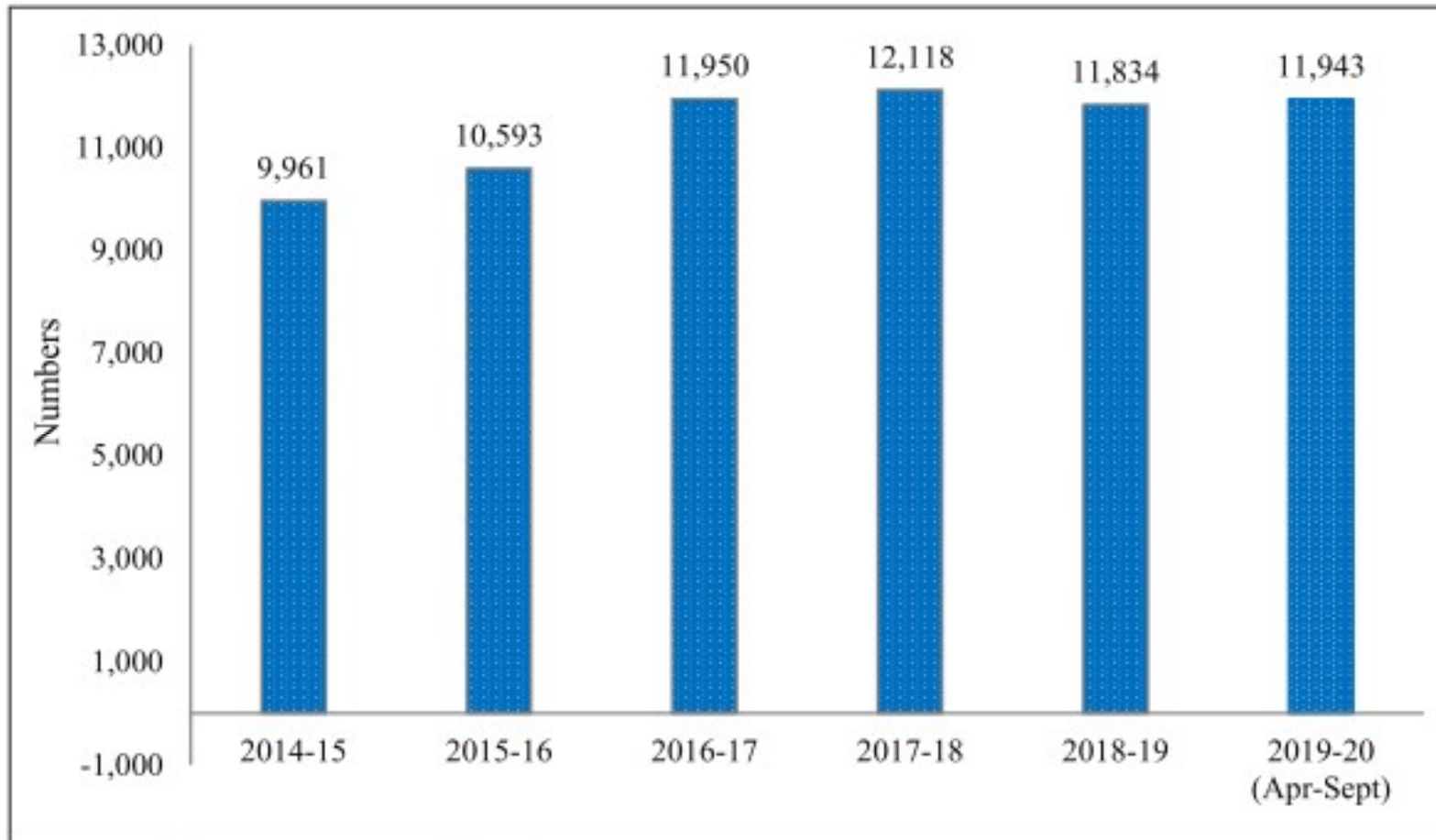
Source: Ministry of Shipping.

Note: # - As on 30 September 2019

**Fleet strength of ships (in number)**

# PERIOD BEYOND 12<sup>TH</sup> FYP 2012-17

## ES 2019-20 : Infrastructure : Telecom Sector



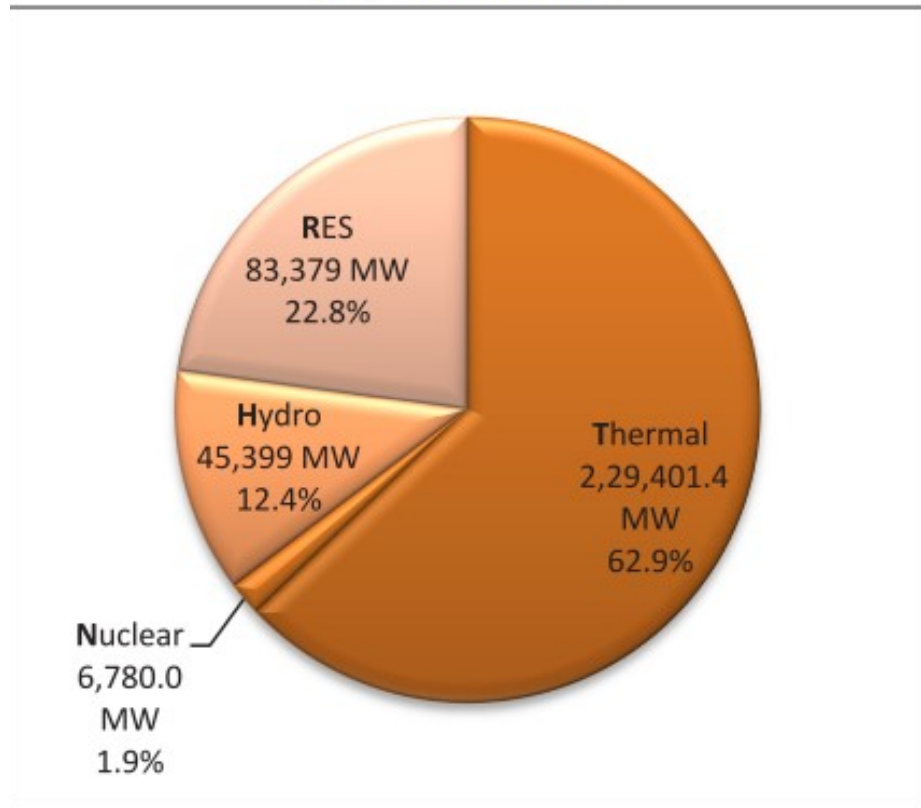
Source: Department of Telecommunication.

**Total telephone connections from 2014-15 to 2019-20  
(April-September) (in lakh)**

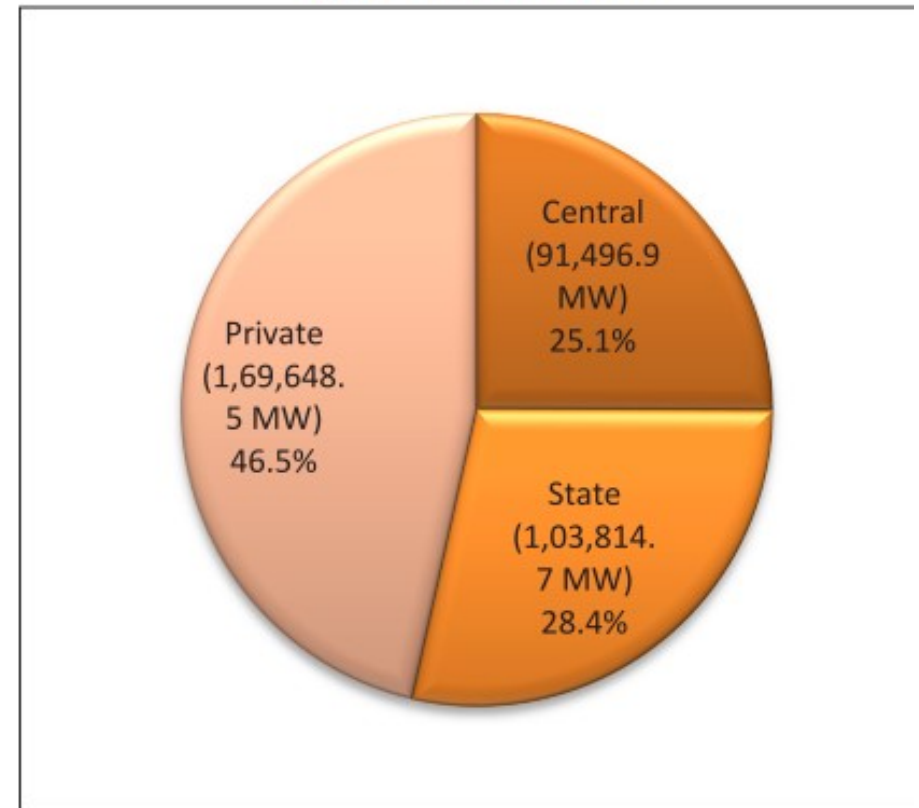
# PERIOD BEYOND 12<sup>TH</sup> FYP 2012-17

## ES 2019-20 ; Infrastructure ; Power

(a) Fuel-wise



(b) Sector-wise



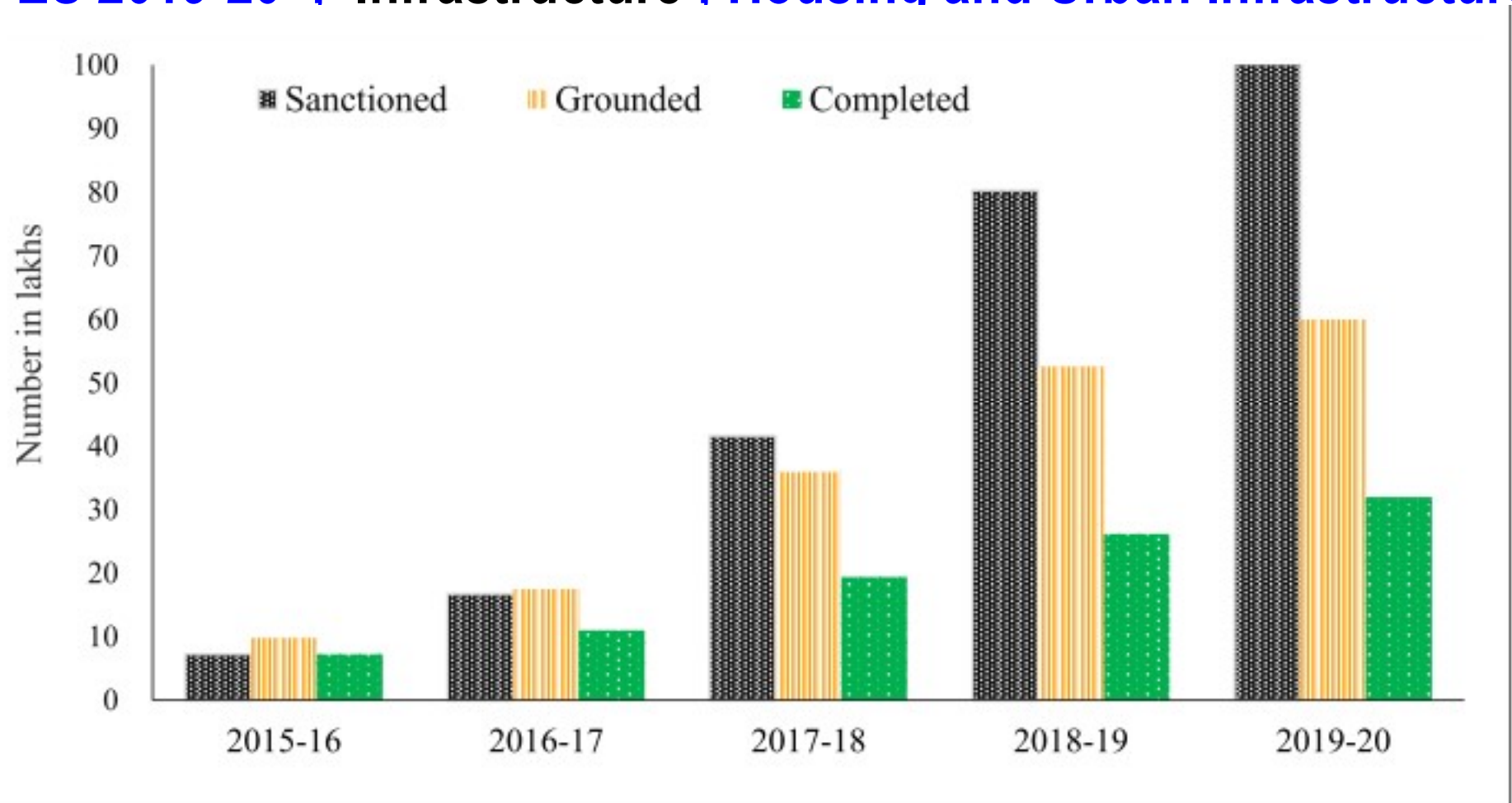
Source: Ministry of Power.

**Total Power Generation Capacity as on October 2019  
(Fuel-wise and Sector-wise)**



# PERIOD BEYOND 12<sup>TH</sup> FYP 2012-17

## ES 2019-20 : Infrastructure : Housing and Urban Infrastructure



Source: Ministry of Housing and Urban Affairs.

**Physical progress of PMAY (U)**  
**(Number of Houses in lakhs) (As on 01.01.2020)**

# PERIOD BEYOND 12<sup>TH</sup> FYP 2012-17

## ES 2019-20 ; Infrastructure ; Housing and Urban Infrastructure



Source: Ministry of Housing and Urban Affairs.

## Smart Cities Mission: Major achievements (As on 14.11.2019)

## **PERIOD BEYOND 12<sup>TH</sup> FYP 2012-17**

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- **The programmes to build infrastructure & connect India are picking up pace.**
- **The 2019 budget allocated the highest ever capital expenditure of USD 22.77 billion for Indian Railways.**
- **The plan of building 83,677 km of roads is underway & to be completed by 2021-22.**
  - **The Bharatmala Pariyojana programme accounts for 34,800 km of roads at a cost of USD 7.713 billion. It will create 142 mn man-days of jobs in the process.**
  - **Remaining 48,877 km to be developed by NHAI & Ministry of Road Transport and Highways.**



## **PERIOD BEYOND 12<sup>TH</sup> FYP 2012-17**

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- **The Sagarmala Programme focuses on connectivity by sea.**
- **It forecasts a role for multiple central ministries and agencies, as well as state governments.**
- **As on 30 September 2018, a total of 522 projects at a cost of USD 6.18 billion were under various stages of implementation, development and completion.**
- **The projects are across port modernization, new port development, port connectivity enhancement, port-linked industrialization and coastal community development.**

# PERIOD 2019-2020

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- **Hon'ble PM's statement in his 2019 Independence Day Speech**
- **Rs.100 Lakh Crore (USD 1.4 trillion) would be invested on social & economic infra. projects over the next 5 yrs so as to achieve the GDP of USD 5 trillion by 2024-25.**
- **Task Force was constituted with**
  - **Sec. (DEA) as Chairman &**
  - **other members being :**
    - **CEO (NITI Aayog) , Sec.(Exp.) ,**
    - **Sec. (Adm.Ministries), & Add.Sec.(Invests),DEA &**
    - **Jt. Sec. (IPF), DEA as Mem. Sec.**
  - **to draw up the National Infrastructure Pipeline (NIP) for each of the yrs from FY 2019-20 to FY 2024-25.**

# **NATIONAL INFRASTRUCTURE PIPELINE**

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- **The Summary Report of the Task Force on NIP for 2019-2025 was released by the Finance Minister on 31st Dec. 2019 & NIP program of Rs.103 Lakh Cr was also launched on same day. Its Final Report submitted on 29th April 2020, has projected total infrastructure investment of Rs 111 Lakh Cr (USD 1.55 trillion) during 2020-25.**
- **It consists of more than 6500 projects across sectors, which are classified as per their size & stage of development.**
- **New projects will include :**
  - **housing, safe drinking water,**
  - **access to clean & affordable energy, healthcare for all,**
  - **world-class educational institutes, modern railway stations,**
  - **airports, bus terminals, metro & railway transportation,**
  - **logistics & warehousing, irrigation projects, etc.**

# **NATIONAL INFRASTRUCTURE PIPELINE**

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- **NIP captures the infrastructure vision of the country for FY20-25.**
- **This is the first-ever exercise undertaken in the country. However, financing it would be a challenge.**
- **It has been designed as a bouquet of well-prepared projects, which would attract investment from Central and State Governments, Urban Local Bodies, Banks and Financial Institution, PE funds, and private investors, both local and foreign.**
- **NIP envisions improving the Ease of Living for every citizen.**
- **It will also bring in generic & sectoral reforms in Development, Operation, & Maintenance of these infrastructure projects.**

# BUDGET SPEECH 2020-21

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- Finance Minister in her introductory remarks of the Budget Speech, delivered on 1st Feb.2020, said Govt is presenting the “Ease of Living” bouquet having 3 flowers i.e. 3 themes – Aspirational India, Economic Development & Caring India.
- In 2nd theme of Economic Development “Infrastructure” got focus after “Industry, Commerce & Investment”.
- Under Infrastructure sub-theme she mentioned about recently launched NIP which will generate huge employment opportunity for Indian youth. National Skill Development Agency will give special thrust to infrastructure-focused skill development opportunities.

# **BUDGET SPEECH 2020-21**

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**Apart from this she mentioned 9 other items:**

- **National Logistics Policy soon to be released**
- **Accelerated development of highways to be undertaken**
- **Monetise at 12 lots of highway bundles by FASTag mechanism**
- **Indian Railways's 5 measures, among others, were highlighted**
- **Technology to be used to improve performance of sea-ports**
- **Under "Arth Ganga" Scheme Jal Vikas Marg on National Waterway-1 to be completed**
- **100 more airports would be developed by 2024 to support Udaan scheme.**

# BUDGET SPEECH 2020-21

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- Electricity to every household has been a major achievement. However, distribution sector is under financial stress. “Smart” metering to be promoted by the Ministry & last of all
- Open Acreage Licensing Policy (OALP) of the oil & gas sector has successfully awarded 1,37,000 sq km for exploration to private sector and to the CPSEs
- From a policy perspective, India has to capitalize infrastructure development to sustain the high economic growth it has been experiencing for the last few years.

**Thanks for  
kind  
Attention**