



ROLE OF INFRASTRUCTURE IN PROMOTING ECONOMIC GROWTH IN INDIA

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Abstract: - Infrastructure sector is a key driver for the Indian economy. The sector is highly responsible for propelling India's overall development and enjoys intense focus from Government for initiating policies that would ensure time-bound creation of world class infrastructure in the country. Infrastructure sector includes transport, telecommunications, energy, water, health, housing, and educational facilities have become part and parcel of human existence. It is difficult to imagine a modern world without these facilities. These are vital to the household life as well as to the economic activity. Infrastructure plays a crucial role in promoting economic growth and thereby contributes to the reduction of economic disparity, poverty and deprivations in a country. Greater access of the poor to education and health services, water and sanitation, road network and electricity is needed to bring equitable development and social empowerment. It is an important pre-condition for sustainable economic and social development. Infrastructural investments in transport (roads, railways, ports and civil aviation), power, irrigation, watersheds, hydroelectric works, scientific research and training, markets and warehousing, communications and informatics, education, health and family welfare play a strategic but indirect role in the development process, but makes a significant contribution towards growth by increasing the factor productivity of land, labour and capital in the production process, especially safe drinking water and sanitation, basic educational facilities strongly influence to the quality of life of the people. Finally it concludes infrastructure helps in improving economic growth and development.

Keywords: Infrastructure, Growth and Development, Infrastructural Investments, social development.

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Introduction: Infrastructure is one of the important factors that drive the economic growth of a country. Good infrastructure is the basic requirement for any production process to work efficiently. Infrastructure itself may not be the part of the production process, but is important for the services it provides. It is an important

input to the production process and raises the productivity of other sectors. Infrastructure connects goods to the markets, workers to industry, people to services and the poor in rural areas to urban growth centers. Infrastructure lowers costs, enlarges markets and facilitates trade. Thus, infrastructure provides services that support economic growth by increasing the productivity of labor and capital thereby reducing the costs of production and raising profitability, production, income and employment. A country's development is strongly linked to its infrastructure strength and its ability to expand trade, cope with population growth, reduce poverty and produce inclusive growth. The World Bank in its "World Development Report 1994" pointed out that productivity growth is higher in countries with an adequate and efficient supply of infrastructure services. Provision of infrastructure services to meet the demands of business, households and other users is one of the major challenges of economic development. In many surveys conducted by World Bank Group, private investors have cited reliable infrastructure services as an important consideration in their investment decisions. The report also points out that "infrastructure capacity grows step by step with economic output – a one percent increase in the stock of infrastructure is associated with a one percent increase in gross domestic product (GDP) across all countries". In an increasingly globalizing world, availability of good quality infrastructure is a crucial factor in attracting foreign investments. Availability and accessibility of adequate infrastructure in a country on par with international community is an indicator of the presence of high quality of life.

Objective of the Study: Every economy either developing or developed has two kinds of main basic objectives *one* providing basic needs and facilities to their population *second* achieving higher growth rates. The present paper provides

how infrastructure impacts growth and development. How infrastructure plays a dynamic role to fulfill their growth targets as well as achieving higher living standards of their mass population.

The objectives of the present study

- To examine the theoretical framework of infrastructure.
- To analyse the socio economic relationship between infrastructure development and economic growth.

Infrastructure And Economic Growth – Linkage: India's infrastructure and transport sector contributes about 5% of its GDP. India has the world's second largest road network in quantitative terms, covering more than 4.3 million kilometers. Qualitatively, India's roads are a mix of modern highways and narrow, unpaved roads. India also has the lowest kilometer lane road density per 100,000 people among G-27 countries — leading to traffic congestion. It is upgrading its infrastructure. As of May 2014, India had completed and placed in use over 22,600 kilometres of recently built 4 or 6-lane highways connecting most of its major manufacturing, commercial and cultural centers. India's road infrastructure carries 60% of freight and 87% of passenger traffic.

Indian Railways is the fourth largest rail network in the world, with a track length of 114,500 kilometers and 7,172 stations. This government owned and operated railway network carried an average of 23 million passengers a day, and over a billion tonnes of freight a year. India has a coastline of 7,500 kilometers with 13 major ports and 60 operational non-major ports, which together handle 95% of the country's external trade by volume and 70% by value (rest handled by air). Nhava Sheva, Mumbai is the largest public port, while Mundra is the largest private sea port. The airport infrastructure of India includes 125 airports, of which 66 airports are licensed to handle both passengers and logistics.

About 74 people out of 100 have land or wireless telephones in India, or about 927 million telephone subscribers, two-thirds of them in urban areas. Internet use has been growing rapidly in India, with an estimated 243 million users in June 2014. This is projected to grow to 330–370 million users by 2016.

Infrastructure Development in India: Given the fact that strong infrastructure facilities form the backbone of a nation's economy, the Indian government began to shift its focus to infrastructure development, as was evident from the 10th and 11th Five Year plans. During this period, the Planning Commission identified inadequate infrastructure as a significant barrier to economic growth. It persuaded the government to undertake initiatives such as public private partnerships (PPPs), to draw private sector investments into the infrastructure sector. This move has benefited several infrastructure companies, and has consequently renewed their interest in undertaking large scale infrastructure projects within the country. Infrastructure investments are expected to double from Rs 9,19,225 crore (US\$ 169.9 billion) during the 10th Five Year Plan (2002–07) to Rs 20,54,205 crore (US\$ 379.6 billion) during the 11th Five Year Plan (2007–12)

Electricity: The revised projections for investments in electricity are marginally lower than the original projections, primarily because of lower contribution from the public sector. On the other hand, private sector investment increased 55 per cent from the initial estimates. The government has liberalised its policies to facilitate 100 per cent FDI in all segments of the power sector, including power trading. This is expected to increase private sector investments approximately 40 per cent during the 12th five year plan. Further, the addition of power generation capacity is likely to show a deficit of close to 20,000 MW with a capacity of only 58,000 MW likely to be achieved by the end of

the 11th plan, primarily due to unforeseeable reasons, such as floods and local agitations.

Roads: The projected investment in roadways is pegged at Rs 2,78,658 crore (US\$ 51.5 billion), approximately 11 per cent lower than the original projection. The reason for this decrease is the inability of the National Highway Authority of India (NHAI) to award an adequate number of projects during the first half of the 11th Five Year Plan period.⁸ In addition, many PPP projects did not find bidders due to concerns regarding feasibility and unreasonable eligibility criteria. For example, companies selected for eight or more projects were not allowed to bid for the third phase of the National Highway Development Project.⁷ Despite these shortfalls, the central government launched a scheme, Pradhan Mantri Gram Sadak Yojna, to invest in the roadways sector, at the beginning of the last decade. The scheme aims to connect all villages with a population of more than 500 and 250 persons in plain and hilly areas, respectively.^{8,10} During the 11th Five Year Plan, the government completed the Golden Quadrilateral project and the East-West-North-South Links, started in the 10th Five Year Plan.

Telecommunications: The telecommunications sector performed fairly well during the 11th Five Year Plan, and is expected to reach Rs 344,921 crore (US\$ 63.7 billion) by the end of 2012, at a yoy growth rate of over 26 per cent. The projected investment in the 11th Five Year Plan increased 34 per cent from the original projection. This increase was primarily because of huge cash inflow from the private sector and stiff competition, which brought down costs and improved quality.

Railways: Investments in railways are expected to exhibit a deficit of more than 23 per cent from the original projections by the end of the 11th Five Year Plan. However, the government is taking significant initiatives, such as PPP projects in the railways sectors, some of which have already materialised or are in the pipeline.

Examples of PPP projects in railways are as follows:

- Modernising 50 identified train stations
- Developing a 60 kilometre long elevated rail system in Mumbai
- Constructing metro rail systems in Delhi, Mumbai, Hyderabad, Kolkata¹³ and Chennai¹³, and launching the High Speed Rail Project in Bengaluru.

Airports and Ports: Investment in the airports sector has marginally exceeded expectations, with the private sector accounting for 64 per cent of the investments. These investments received a significant boost due to the Bengaluru, Delhi and Hyderabad airport projects.

Additional initiatives for development are as follows:

- Upgrade 35 city airports through PPP initiatives.
- Upgrade airports in metro and non metro cities in collaboration with Airports Authority of India, which is investing approximately Rs 15,673.5 crore (US\$ 2.9 billion)
- Inaugurated India's first aerospace SEZ, costing Rs 165.7 crore (US\$ 30.6 million), in Belgaum, Karnataka. In case of the ports sector, actual investment is 50 per cent less than the expected investment, primarily because there were few PPP projects in the sector.

Water Supply and Irrigation: Irrigation solely remains under the control of the public sector; however, the 11th Five Year Plan has considered drawing private investments of up to 2 per cent in water supply.

2012-13 Union Budget and Approach to 12th Five Year Plan: According to experts, spending on the sector needs to increase to more than 10 per cent of GDP by 2017 to achieve and sustain 8 to 9 per cent economic growth. Figure 1 represents projections data for the 12th Five

Year Plan as released during the mid term appraisal of the 11th Five Year Plan.

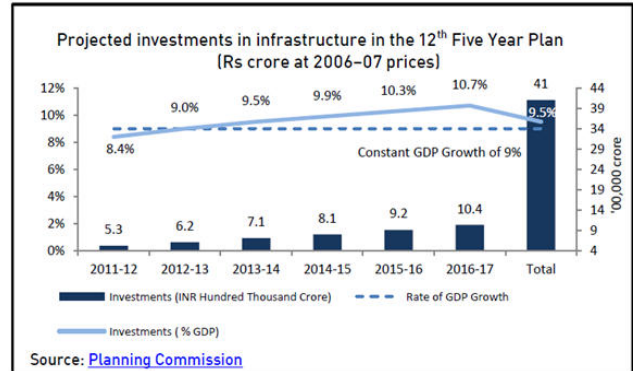


Figure 1:

As shown in Figure 2, telecommunications and roadways are performing better in terms of drawing private sector investments, while the electricity sub sector also exhibited a rise.

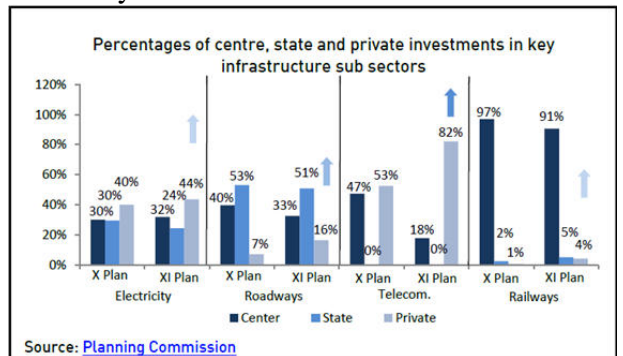


Figure 2

In line with the 10th and 11th plans, infrastructure continues to be a focus area for the government, and experts envisage a total investment of approximately US\$ 1 trillion in India's infrastructure sector during the 12th Five Year Plan. Of this amount, 50 per cent is expected to come from the private sector in the form of both debt and equity. Since such large scale investments are expected to come from the private sector, the Indian government's 2012-13 Union Budget strives to make the environment more investor friendly.

How 2012-13 Union Budget benefits Indian infrastructure sector: Infrastructure remains a key sector for the Indian economy, which was reemphasized by the former Finance Minister,

Mr Pranab Mukherjee, when he stated that the country needs to focus on a domestic demand driven growth recovery, which can be achieved through infrastructure and industrial development.17,18,19. For this purpose, the 2012–13 Union Budget allowed financial institutions to raise Rs 60,000 crore (US\$ 11 billion) from tax free bonds, up Rs 30,000 crore (US\$ 5.5 billion) from the previous year’s budget, to invest in the infrastructure sector.

Structure of investments proposed in the 2012–13 Union Budget

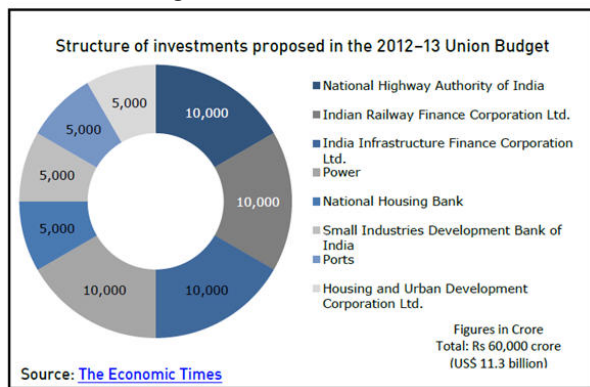


Figure 3

To encourage more private players to invest in the sub sectors, the government added irrigation, terminal markets, and oil and gas storage facilities to the list of sectors eligible for Viability Gap Funding (VGF). Also, the government launched the first Infrastructure Debt Fund, valued at Rs 8,000 crore (US\$ 1.5 billion). The fund was formed in 21 partnership with ICICI Bank, Bank of Baroda, Citibank and Life Insurance Corporation of India, to invest in PPP infrastructure projects that are operational for more than one year.

Approach to 12th Five Year Plan and other government initiatives: The government plans to draw an even mix of public and private sector investments in the 12th Five Year Plan through PPP and other initiatives. number of PPP projects were initiated at both the centre and state levels during the 10th and 11th Five Year Plans, most of which are already completed.

Public Private Partnerships (PPPs): PPPs have traditionally been formed to enhance the productivity and efficiency of infrastructure

development activates. This is an instrument to draw significant private sector investments. The primary advantage of PPPs over traditional public procurement is efficiency gains in terms of both time, and cost.

The transportation sector sees the maximum number of PPPs at both the centre and state levels. The major PPP projects, completed or undertaken, include four airport projects in Delhi, Mumbai (Maharashtra), Bengaluru (Karnataka) and Hyderabad (Andhra Pradesh); four major power projects in Sasan (Madhya Pradesh), Mundra (Gujarat), Krishnapatnap (Andhra Pradesh), Talaiya (Jharkhand); a power transmission project in Jhajjar(Haryana); and 298 national and state highway projects, including the four laning of 10,000 kilometres of high density highways.

These projects are normally awarded through the build, operate and transfer (BOT) model.

Table 1 represents information obtained from the secretariat for infrastructure on PPP projects in the central sector, as on 31 March 2011.

PPP projects in the pipeline in the central sector (cost in Rs crore)				
Sector	Pipeline		Total (including completed)	
	Number	Cost	Number	Cost
National Highways	60	52,573	242	176,167
Major Ports	24	16,964	73	60,779
Airports	14	12,387	19	41,580
Railways	6	95,535	15	99,064
Total	104	1,77,439 crore (US\$ 33.4 billion)	349	3,77,590 crore (US\$ 71.2 billion)

The central government focuses on the development of national highways, while the state government focuses on the development of roads and urban infrastructure. With the help of PPPs, the state government has completed 340 projects, with 432 in the implementation stage and about 850 in the pipeline, at a net project cost of Rs 7,20,597 crore (US\$ 133 billion). The government has launched many policy initiatives to standardise processes and streamline the awarding of PPP projects, thereby making private participation easier. Some of these initiatives are as follows:

- Cabinet committee on infrastructure²⁵: The Cabinet Committee on Infrastructure was formed in 2009, with the Prime Minister as its chairman.

The primary objectives of this committee are as follows:

- a) Approve or disapprove all proposals valued at more than Rs 150 crore (US\$ 28 million), covering the infrastructure sector.
 - b) Formulate policies and decide on measures to enhance investments by increasing private sector participation
 - c) Ensure the progress of ongoing infrastructure projects, and evaluate the performance of infrastructure sub sectors
- Viability Gap Funding (VGF)^{26,27}: Some projects are beneficial for the economy and promote trade but are non profitable for private companies. VGF is a scheme under which the government invests up to 40 per cent (of which, up to 20 per cent comes from the central government and 20 per cent from the state government and associated ministries) of the total project cost to make these projects viable for the private sector under the PPP route. The government also encourages competitive bids in such projects and awards projects to companies that require the least VGF support. This scheme helps the government leverage public and private resources to fund large scale infrastructure projects, thereby speeding up development.
 - Empowered Committee/Institution (EC/EI)²⁸: The government set up the EC and the EC in 2005, primarily to support PPPs in the infrastructure sector.
 - a. Empowered Committee (EC): The EC is constituted by secretaries from the Department of Economic Affairs, the Planning Commission, Expenditure, and the line Ministry dealing with the particular project.
 - b. The EC is authorised to sanction VGF of up to Rs 200 crore (US\$ 37 million), with the permission of the Finance Ministry.

The committee can also sanction budgets exceeding Rs 200 crore (US\$ 37 million), after seeking the Finance Minister's approval. Additionally, the EC efficiently and fairly distributes funds across all infrastructure sub sectors.

- c. Empowered Institution (EI): The EI is authorised to sanction VGF projects of up to Rs 100 crore (US\$ 18 million), with the permission of the Finance Ministry. The EI also reviews proposals before presenting them to the EC.
- India Infrastructure Finance Company Ltd. (IIFCL)²⁹: The central government set up IIFCL to provide loans of up to 20 per cent of the total project cost to fund long term infrastructure projects.
 - Model Concession Agreements, and other documents:³⁰ The Model Concession Agreements and other documents comprise a standardised list of frameworks, such as Model Request for Qualifications (RFQs), Model Request for Proposals (RFPs), and guidelines and manuals, which makes the bidding and awarding of PPP projects more transparent and competitive.

This also helps the state and central governments to perform due diligence before awarding projects. Initiatives such as doubling the permitted investments to be raised from tax free bonds along with the incorporation of irrigation, terminal markets and oil and gas storage facilities in the sectors eligible for VGF, and the numerous policies devised to streamline the awarding of PPP projects set the stage for sustainable infrastructure growth in the 12th Five Year Plan.

Conclusion: Development of the infrastructure sector is crucial to the growth of the Indian economy. Sustainable development can only be attained through a careful analysis of the factors that have mitigated growth in the past, and thereafter, taking the appropriate corrective measures. Over the last decade, the Indian government has made significant efforts to eliminate bottlenecks in these areas. It has

initiated policies and schemes such as ECs/EIs and Model Concession Agreements to increase the inflow of private sector investments and make the bidding process for projects more transparent. Some factors that could be a key enabler for future growth are:

- Awarding a higher number of projects: This can be achieved through efficiently awarding projects as required in each of infrastructure's sub sectors, especially through the PPP mode, and by easing the selection criteria for private investors.
- Efficient implementation of tendered projects: Successful infrastructure projects demand efficient implementation for curbing cost and time overruns of 20–25 per cent.
- Assessing the viability of PPP projects: The viability of PPP projects should be carefully assessed in terms of availability of sufficient VGF and cost estimates, while minimising the liability to be borne by the private sector enterprises, thereby making the investment a profitable option. In the 12th Five Year Plan, a sizeable share of investments will be drawn through PPPs. As per the analysis in this report, the sub sectors with more private

investments are growing faster than the others. In fact, the Indian government is also focusing on increasing private sector investment to 50 per cent in the 12th Five Year Plan. The roadways and other transportation domains reported the maximum number of PPP projects. The government plans to introduce PPPs in the utilities sector, with focus on power transmission, water supply, health and education. The country's investment in infrastructure should increase to at least 10 per cent of its GDP by 2017 to achieve and sustain 8 to 9 per cent GDP growth over the next five years.

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