THE INDIAN INFRASTRUCTURE SECTOR: INVESTMENTS, GROWTH AND PROSPECTS

January 2013
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FOREWORD

The development of a country’s infrastructure is vital to the growth of its sectors and the overall economy. India’s infrastructure facilities, including transport, sanitation and electricity, are still estimated to be inadequate for its population, thereby presenting a challenge for sustainable economic growth in sectors such as heavy manufacturing. This research paper therefore analyses the Government’s focus on infrastructure, and key factors that are expected to ensure a strong growth in years to come.

The infrastructure sector primarily comprises of electricity, roads, telecommunications, railways, irrigation, water supply and sanitation, ports and airports, storing facilities, and oil and gas pipelines.¹

Recognising the adverse implications of poor development in some of these sub-segments, the Indian government has significantly increased its infrastructure spending over the last 10 years. It is also proactively encouraging private sector investment, to speed up development. This move has enabled many private sector companies to intensify their focus on the development of urban infrastructure.²³ In addition, the Indian government has taken up many large scale infrastructure ventures such as the Delhi–Mumbai Industrial Corridor, for which the government has collaborated with Japan for financial and technical support.⁴

This research report aims to analyse the link between public and private investments in the infrastructure sector, and infrastructure projects, vis a vis the performance of the Indian economy. It provides a perspective about the Indian government’s focus on infrastructure development over the last decade, along with policies and initiatives introduced to boost development. The report also provides an analysis of the actual and projected data from the 10th and 11th Five Year plans, and identifies areas that have faced deficits or made investment gains, and the associated reasons.

¹ Planning Commission
² Economic Times – Analyst Views on Infrastructure Sector
³ Economic Times – Union Budget has Potential for Infrastructure
⁴ Delhi Mumbai Industrial Corridor
1. INDIA’S PAST AND CURRENT FOCUS ON INFRASTRUCTURE DEVELOPMENT

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.\(^5\) 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).\(^6\)

Figure 1 represents a simple comparative analysis of both the proposed and actual (or projected) infrastructure investments in the 10th and 11th Five Year plans. The mid term appraisal of the 11th Five Year Plan revealed that some sub sectors, such as telecommunications, will exceed their investment targets by approximately 33 per cent, while other sectors, such as roadways, railways and ports, will see a notable deficit in expected investments.

![Figure 1](image-url)

**Figure 1**
Investments in infrastructure by sector, 10th and 11th plans (in US$ billion at 2006–07 prices)

<table>
<thead>
<tr>
<th>Sector</th>
<th>10th Plan</th>
<th>11th Plan</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oil &amp; Gas</td>
<td>Rs 8,71,445 crore</td>
<td>Rs 9,19,225 crore</td>
</tr>
<tr>
<td>Storage</td>
<td>US$ 164.3 billion</td>
<td>US$ 173.3 billion</td>
</tr>
<tr>
<td>Airports</td>
<td>1.1%</td>
<td>3.5%</td>
</tr>
<tr>
<td>Ports</td>
<td>0.6%</td>
<td>6.5%</td>
</tr>
<tr>
<td>Water Supply</td>
<td>7.4%</td>
<td>13%</td>
</tr>
<tr>
<td>Irrigation</td>
<td>12.8%</td>
<td>11.1%</td>
</tr>
<tr>
<td>Railways</td>
<td>13.7%</td>
<td>11%</td>
</tr>
<tr>
<td>Telecom.</td>
<td>16.9%</td>
<td>2.5%</td>
</tr>
<tr>
<td>Roadways</td>
<td>16.6%</td>
<td>1.6%</td>
</tr>
<tr>
<td>Electricity</td>
<td>35.5%</td>
<td>6.2%</td>
</tr>
</tbody>
</table>

Source: Planning Commission

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\(^5\) The Economic Times – Analysts’ views on the infrastructure sector

\(^6\) Planning Commission
Though high investments were proposed in the 11th Five Year Plan, efficient project execution is the key for infrastructure projects. The average rate of awarding planned projects was about 70 per cent until 2009, with 60 per cent of the projects facing cost over runs.

Taking into account the rapid urbanisation expected in the next two decades, it becomes imperative to analyse bottlenecks to growth in the infrastructure sector, and forming strategies and policies to mitigate them. The next sections include an analysis of each sub sector in the infrastructure sector. The sections also cover the developments and projects initiated or completed during the 11th Five Year Plan. A summary of projects that were either implemented or completed in the central sector as on 31st March 2011 is given below.

<table>
<thead>
<tr>
<th>Sector</th>
<th>Completed</th>
<th>Cost</th>
<th>Implemented</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Highways</td>
<td>55</td>
<td>20,139</td>
<td>127</td>
<td>103,455</td>
</tr>
<tr>
<td>Major Ports</td>
<td>29</td>
<td>9,677</td>
<td>20</td>
<td>34,138</td>
</tr>
<tr>
<td>Airports</td>
<td>3</td>
<td>5,883</td>
<td>2</td>
<td>23,310</td>
</tr>
<tr>
<td>Railways</td>
<td>5</td>
<td>1,166</td>
<td>4</td>
<td>2,363</td>
</tr>
<tr>
<td>Total</td>
<td>92</td>
<td>36,865</td>
<td>153</td>
<td>1,63,266</td>
</tr>
</tbody>
</table>

Source: Secretariat for Infrastructure

1.1 Electricity

As per Figure 1, 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.

1.2 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. 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.

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. 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.

1.3 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.

1.4 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.

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10 Pradhan Mantri Gram Sadak Yojna
11 Planning Commission – Approach to the Twelfth Plan
12 Business Review India
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, Kolkata and Chennai, and launching the High Speed Rail Project in Bengaluru.

1.5 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.

1.6 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.

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13 Indo Italian Chamber of Commerce
14 Planning Commission – Mid term appraisal of the 11th Plan
1.7 Summary Analysis

As per the trends observed during the 10th and 11th Five Year plans, private sector investments are driving the country’s infrastructure growth. Figure 2 shows that private sector investment as a percentage of GDP has increased from 1.7 per cent to 3.3 per cent in the 11th Five Year Plan, to reach approximately Rs 7,42,912 crore (US$ 137 billion).

![Figure 2](image)

**Figure 2**
Investment in infrastructure as a percentage of GDP
(in Rs crore, 2006–07 prices)

CAGR – FY07-FY12F (Private): 19.7%
CAGR – FY07-FY12F (Public): 10.7%

As shown in Figure 3, telecommunications and roadways are performing better in terms of drawing private sector investments, while the electricity sub sector also exhibited a rise.

![Figure 3](image)

**Figure 3**
Percentages of centre, state and private investments in key infrastructure sub sectors

Source: Planning Commission
Note: Total investment is noted in bold
2. WAY FORWARD – 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 4 represents projections data for the 12th Five Year Plan as released during the mid term appraisal of the 11th Five Year Plan.

![Figure 4: Projected investments in infrastructure in the 12th Five Year Plan](source: Planning Commission)

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.

2.1 How 2012–13 Union Budget benefits Indian infrastructure sector

Infrastructure remains a key sector for the Indian economy, which was re-emphasised 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

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15 The Economic Times – India needs to raise infrastructure spend to 10 per cent of GDP
16 OIFC report – Infrastructure sector
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.

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 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.

2.2 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. A 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), Tilaiya (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.

*Source: Planning Commission – Approach to the 12th Plan, PPP India*

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

<table>
<thead>
<tr>
<th>Sector</th>
<th>Pipeline Number</th>
<th>Cost</th>
<th>Total (including completed) Number</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Highways</td>
<td>60</td>
<td>52,573</td>
<td>242</td>
<td>176,167</td>
</tr>
<tr>
<td>Major Ports</td>
<td>24</td>
<td>16,964</td>
<td>73</td>
<td>60,779</td>
</tr>
<tr>
<td>Airports</td>
<td>14</td>
<td>12,387</td>
<td>19</td>
<td>41,580</td>
</tr>
<tr>
<td>Railways</td>
<td>6</td>
<td>95,535</td>
<td>15</td>
<td>99,064</td>
</tr>
</tbody>
</table>
| Total           | 104             | 1,77,439| 349                              | 3,77,590 (

*Source: Secretariat for Infrastructure*
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).24

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 infrastructure**: 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:
  - Approve or disapprove all proposals valued at more than Rs 150 crore (US$ 28 million), covering the infrastructure sector
  - Formulate policies and decide on measures to enhance investments by increasing private sector participation
  - Ensure the progress of ongoing infrastructure projects, and evaluate the performance of infrastructure sub sectors

- **Viability Gap Funding (VGF)**: 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)**: The government set up the EC and the EC in 2005, primarily to support PPPs in the infrastructure sector.
  - **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.
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.

- **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)**: 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:** 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.

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29 Planning Commission – Mid term appraisal of the 11th Plan
30 Planning Commission – Mid term appraisal of the 11th Plan
3. 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.

Rs to US$ conversion rate of 0.01848 (as of 20 September 2012) is used across the report

31 McKinsey report
32 Planning Commission – Approach to the 12th Plan
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