

# **Investment in Infrastructure during the Eleventh Five Year Plan**

Published by  
**Secretariat for Infrastructure**  
Planning Commission, Government of India  
Yojana Bhawan, Parliament Street  
New Delhi – 110 001

[www.infrastructure.gov.in](http://www.infrastructure.gov.in)

January 2011

## **Contents**

Foreword

### **Investment in Infrastructure**

|   |    |
|---|----|
| Introduction  | 1  |
| Projections for the Eleventh Plan                               | 2  |
| Sector-wise projections   | 4  |
| Projected Investment in the Twelfth Plan                        | 11 |
| Policy initiatives to promote private participation             | 12 |
| Annex-1: Assumptions underlying the revised Investment Forecast | 17 |

### **List of Tables**

|   |    |
|---|----|
| Table 1: Sector-wise Investments: Tenth Plan and Eleventh Plan                    | 3  |
| Table 2: Revised Projected Investment as Percentage of GDP                        | 4  |
| Table 3: Revised Projections of Investment in Infrastructure during Eleventh Plan | 6  |
| Table 4: Projected Investment in Infrastructure during the Twelfth Five Year Plan | 11 |

### **List of Boxes**

|   |    |
|---|----|
| Box 1: Structuring PPP Projects                     | 13 |
| Box 2: Model Concession Agreements for PPP Projects | 14 |
| Box 3: Model Bidding Documents for PPP Projects     | 14 |
| Box 4: Guidelines and Manuals                       | 15 |
| Box 5: Reports                                      | 15 |

## Foreword

As a part of the Mid-Term Appraisal of the Eleventh Five Year Plan (2007-12), the Planning Commission has assessed the investment in infrastructure during the first two years of the Plan and also revised the projections of investment for the entire Plan period based on available data.

Compared to an investment of Rs. 9,19,225 crore during the Tenth Plan, the revised projection of investment for the Eleventh Plan is Rs.20,54,205 crore, which is almost equal to the initial target. This was possible on account of the larger than anticipated investments in the telecom sector and in oil and gas pipelines. While the revised projections in electricity, irrigation and airport sectors are close to the initial targets, there are significant shortfalls in roads, railways, ports, water supply and sanitation. These estimates are based on the information provided by the respective ministries as well as the available data of the Central Statistical Organisation, which is updated from time to time.

During the Tenth Plan, about 25 per cent of the total investment in infrastructure came from the private sector. This is expected to rise to about 36 per cent during the Eleventh Plan. While there may be a shortfall of about 8.7 per cent (Rs.1,25,266 crore) in public investment as compared to the initial targets for the Eleventh Plan, this is likely to be made good by an increase of about 20 per cent (Rs.1,23,321 crore) in private investment.

The investment in infrastructure is likely to rise from 5.15 per cent of GDP during the Tenth Plan to about 7.55 per cent during the Eleventh Plan, as against a target of 7.60 per cent. This constitutes a significant shift in favour of investment in infrastructure. Except in some sectors, the overall performance of infrastructure during the Eleventh Plan compares well with the initial targets after accounting for the impact of the global financial crisis.

A preliminary assessment suggests that investment in infrastructure during the Twelfth Plan (2012-17) would need to be of the order of about Rs.40,99,240 crore (US \$ 1025 billion) to achieve a share of 9.95 per cent as a proportion of GDP. This would have to be a key priority area in the Twelfth Plan in order to sustain and support the targeted growth in manufacturing, agriculture and services. Provision of world-class infrastructure would not only be necessary

for improving the competitiveness of the Indian economy but also for promoting inclusive growth and improving the quality of life of the common man.

(Montek Singh Ahluwalia)

January 13, 2011

## INVESTMENT IN INFRASTRUCTURE

### Introduction

1. The Eleventh Plan emphasised the importance of investment in infrastructure for achieving a sustainable and inclusive growth of 9 to 10 per cent in GDP over the next decade. In this context, it envisaged an increase in investment in physical infrastructure from the level of about 5 per cent of GDP witnessed during the Tenth Plan to about 9 per cent of GDP by 2011-12 (terminal year of the Eleventh Plan). This was estimated to require an investment of Rs. 20,56,150 crore (US \$ 514.04 billion<sup>1</sup>) during the Eleventh Plan period as compared to an estimated investment of Rs. 8,71,445 crore (US\$ 217.86 billion) during the Tenth Plan. Further, it was estimated that the contribution of the private sector in this investment would rise from about 20 per cent in the Tenth Plan to about 30 per cent in the Eleventh Plan.

2. In this note we review developments in total investment in the major infrastructure sectors (electricity, roads & bridges, telecommunications, railways, ports, airports, irrigation, water

supply & sanitation, storage and oil & gas pipelines).

3. At the time of finalisation of the Eleventh Plan document, the figures of actual investment in the terminal year of the Tenth Plan (2006-07) were not available, and information relating to private investment in infrastructure in the previous years was also not available for some sub-sectors. These figures are now available and indicate that the actual investment in infrastructure during the last two years was comparatively higher than the investment anticipated at the time the Eleventh Plan was formulated. In 2005-06 and 2006-07, the actual investment was Rs. 2,09,634 crore and Rs. 2,44,495 crore respectively as compared to Rs. 1,94,909 crore and Rs. 2,25,246 crore anticipated at the time of formulation of the Eleventh Plan. As a result, the total investment in infrastructure during the Tenth Plan was Rs. 9,19,225 crore i.e. 5.48 per cent higher than the earlier estimates of Rs. 8,71,445 crore.

4. The increase is mainly due to higher investment by the private sector at Rs. 2,25,220 crore as against an anticipated amount of Rs. 1,72,188 crore. This implies that the realised private sector investment in infrastructure during the

---

<sup>1</sup> An exchange rate of \$1=Rs.40 has been used to ensure comparison at 2006-07 price levels

Tenth Plan was almost 24.50 per cent of the total investment as against just below 20 per cent anticipated earlier. This increase was largely due to a higher investment realised in oil & gas pipelines, electricity, irrigation, ports, storage and airports during the Tenth Plan period.

### **Projections for the Eleventh Plan**

5. Starting from a higher base of Rs. 2,44,495 crore in 2006-07, the total investment in infrastructure during the first two years of the Eleventh Plan has risen to Rs. 3,03,807 crore in 2007-08 and Rs. 3,59,192 crore in 2008-09 as against the earlier projected level of Rs. 2,70,273 crore and Rs. 3,21,579 crore respectively.

The contribution of the private sector in the total investment in infrastructure in the first two years of the Eleventh Plan was 34.32 per cent and 33.73 per cent respectively, higher than the Eleventh Plan target of 30 per cent investment by the private sector.

6. Taking account of developments in the first two years, the earlier projections for the entire Eleventh Plan period have been revised and it is now estimated that the total investment in infrastructure in the Eleventh Plan would be Rs. 20,54,205 crore, which is comparable to the earlier estimates. The details are shown in Table 1. The assumptions underlying the projections are given in Annex-1.

**Table 1: Sector-wise Investments: Tenth Plan and Eleventh Plan***(Rs. crore at 2006-07 prices)*

| Sector                         | Tenth Plan           |                     | Eleventh Plan        |                     |
|--------------------------------|----------------------|---------------------|----------------------|---------------------|
|                                | Original Projections | Actual Investments  | Original Projections | Revised Projections |
| Electricity (incl. NCE)        | 2,91,850<br>(33.49)  | 3,40,237<br>(37.01) | 6,66,525<br>(30.42)  | 6,58,630<br>(32.06) |
| Roads & Bridges                | 1,44,892<br>(16.63)  | 1,27,107<br>(13.83) | 3,14,152<br>(15.28)  | 2,78,658<br>(13.57) |
| Telecommunications             | 1,03,365<br>(11.86)  | 1,01,889<br>(11.08) | 2,58,439<br>(12.57)  | 3,45,134<br>(16.80) |
| Railways (incl. MRTS)          | 1,19,658<br>(13.73)  | 1,02,091<br>(11.11) | 2,61,808<br>(12.73)  | 2,00,802<br>(9.78)  |
| Irrigation (incl. Watershed)   | 1,11,503<br>(12.80)  | 1,19,894<br>(13.04) | 2,53,301<br>(12.32)  | 2,46,234<br>(11.99) |
| Water Supply & Sanitation      | 64,803<br>(7.44)     | 60,108<br>(6.54)    | 1,43,730<br>(6.99)   | 1,11,689<br>(5.44)  |
| Ports (incl. Inland waterways) | 14,071<br>(1.61)     | 22,997<br>(2.50)    | 87,995<br>(4.28)     | 40,647<br>(1.98)    |
| Airports                       | 6,771<br>(0.78)      | 6,893<br>(0.75)     | 30,968<br>(1.51)     | 36,138<br>(1.76)    |
| Storage                        | 4,819<br>(0.55)      | 5,643<br>(0.61)     | 22,378<br>(1.09)     | 8,966<br>(0.44)     |
| Oil & gas pipelines            | 9,713<br>(1.11)      | 32,367<br>(3.52)    | 16,855<br>(0.82)     | 1,27,306<br>(6.20)  |
| <b>Total</b>                   | 8,71,445<br>(100)    | 9,19,225<br>(100)   | 20,56,150<br>(100)   | 20,54,205<br>(100)  |

*Note: Figures in brackets indicate sectoral shares compared to total investment in infrastructure.*

*Source: Planning Commission.*

7. Higher level of investments has also been observed in oil & gas pipelines, airports and telecom in the first two years of the Eleventh Plan. In addition, the revised definition of infrastructure now includes investments in oil pipelines (in addition to gas pipelines), which is expected to contribute an additional investment of Rs. 1,08,190 crore during the Eleventh Plan.

8. As shown in Table 2, starting from a higher base of 5.71 per cent of GDP in 2006-07, the Eleventh Plan infrastructure investment has reached 7.18 per cent of GDP in 2008-09. This is expected to increase to 8.37 per cent of GDP in the terminal year of the Eleventh Plan period which would yield an average of 7.55 per cent of GDP for the Eleventh Plan as a whole. The Eleventh Plan, is therefore,

likely to see an increase in infrastructure investment compared to the Tenth Plan by about 2.40 percentage points of GDP.

From the base year to the terminal year of

the Eleventh Plan, this increase would be 2.66 percentage points of GDP. Two-third of this increase is because of higher private sector investment.

**Table 2: Revised projected investment as percentage of GDP**

(Rs. crore at 2006-07 prices)

| Years                                  | Tenth Plan (Actual) | Base year of XI Plan (2006-07) (Actual) | 2007-08 (Actual) | 2008-09 (Actual/Est.) | 2009-10 (RE/BE/Proj.) | 2010-11 (BE/Projected) | 2011-12 (Projected) | Total Eleventh Plan |
|--|---------------------|---|------------------|-----------------------|-----------------------|------------------------|---------------------|---------------------|
| GDP at market prices                   | 1,78,40,877         | 42,83,979                               | 47,17,187        | 50,03,545             | 53,63,800             | 57,92,904              | 63,14,265           | 2,71,91,700         |
| Public Investment                      | 6,94,006            | 1,73,676                                | 1,99,539         | 2,38,054              | 2,62,963              | 2,90,832               | 3,19,904            | 13,11,293           |
| Private Investment                     | 2,25,220            | 70,819                                  | 1,04,268         | 1,21,138              | 1,39,866              | 1,69,227               | 2,08,413            | 7,42,912            |
| Total Investment                       | 9,19,225            | 2,44,495                                | 3,03,807         | 3,59,192              | 4,02,829              | 4,60,059               | 5,28,316            | 20,54,205           |
| <b>Investment as percentage of GDP</b> |                     |   |                  |                       |                       |                        |                     |                     |
| Public Investment                      | 3.89                | 4.05                                    | 4.23             | 4.76                  | 4.90                  | 5.02                   | 5.07                | 4.82                |
| Private Investment                     | 1.26                | 1.65                                    | 2.21             | 2.42                  | 2.61                  | 2.92                   | 3.30                | 2.73                |
| Total Investment                       | 5.15                | 5.71                                    | 6.44             | 7.18                  | 7.51                  | 7.94                   | 8.37                | 7.55                |

Source: GDP data for Tenth Plan, 2007-08, and 2008-09 are from CSO. GDP growth rates for 2009-10, 2010-11 and 2011-12 have been assumed as 7.2%, 8% and 9% respectively.

### Sector-wise Projections

9. The sector-wise projections of investment during the Eleventh Plan, made in accordance with the assumptions stated in Annex-1 are given in Table 3 showing investments by the Centre, the States and the private sector separately. Some important features emerging in each sector are worth noting.

#### Electricity

10. The projected investment of Rs. 6,58,630 crore in the electricity sector is slightly lower than the original projection of Rs. 6,66,525 crore. The figures for private investment in the electricity sector show an increase of 55 per cent as compared to the original projections. The contribution of the public sector investment is likely to decline mainly due to lower than anticipated investments in the Central Sector in the first two years of



the Eleventh Plan. Capacity addition of 62,374 MW is likely to be achieved during the Eleventh Plan as compared to a target of 78,700 MW.

### **Roads**

11. The projected investment in road sector is also significantly lower at Rs. 2,78,658 crore compared with Rs. 3,14,152 crore in the original projections. The investment by the Centre is expected to decline due to award of lower than projected road projects by NHAI during the first three years of the Plan. It is interesting to note that investment in the

road sector by the States is expected to increase on account of higher investments under PMGSY.

12. The investment by the private sector is also expected to go down due to award of a lower number of BOT projects in the first three years of the Eleventh Plan. However, MORTH has decided to speed up the award and implementation of NHDP to achieve a completion rate of 20 kms of highways per day. This is likely to increase the investment during the last two years of the Eleventh Plan, but the major build up in expenditure consequent to this acceleration will be in the Twelfth Plan.

**Table 3: Revised Projections of Investment in Infrastructure during Eleventh Plan**

(Rs. crore at 2006-07 prices)

| <b>Sector</b>                                | <b>X Plan<br/>(Actual)</b> | <b>XI Plan<br/>(Original<br/>Projections)</b> | <b>2007-08<br/>(Actual)</b> | <b>2008-09<br/>(Actual/<br/>Est.)</b> | <b>2009-10<br/>(RE/BE/<br/>Proj.)</b> | <b>2010-11<br/>(BE/<br/>Proj.)</b> | <b>2011-12<br/>(Proj.)</b> | <b>XI Plan<br/>(Revised<br/>Projected)</b> |
|--|----------------------------|---|-----------------------------|---------------------------------------|---------------------------------------|------------------------------------|----------------------------|--|
| <b>Electricity<br/>(incl. NCE)</b>           | <b>3,40,237</b>            | <b>6,66,525</b>                               | <b>1,11,134</b>             | <b>1,17,093</b>                       | <b>1,25,958</b>                       | <b>1,44,974</b>                    | <b>1,59,471</b>            | <b>6,58,630</b>                            |
| Centre                                       | 1,02,665<br>(30.17)        | 2,55,316<br>(38.31)                           | 29,386                      | 36,769                                | 39,528                                | 49,900                             | 54,890                     | 2,10,474<br>(31.96)                        |
| States                                       | 1,00,738<br>(29.61)        | 2,25,697<br>(33.86)                           | 27,252                      | 30,109                                | 31,193                                | 34,313                             | 37,744                     | 1,60,611<br>(24.39)                        |
| Private                                      | 1,36,834<br>(40.22)        | 1,85,512<br>(27.83)                           | 54,497                      | 50,215                                | 55,237                                | 60,760                             | 66,836                     | 2,87,546<br>(43.66)                        |
| <b>Roads &amp;<br/>Bridges</b>               | <b>1,27,107</b>            | <b>3,14,152</b>                               | <b>42,741</b>               | <b>48,108</b>                         | <b>54,638</b>                         | <b>63,183</b>                      | <b>69,988</b>              | <b>2,78,658</b>                            |
| Centre                                       | 50,468<br>(39.71)          | 1,07,359<br>(34.17)                           | 12,963                      | 14,876                                | 17,370                                | 21,765                             | 23,942                     | 90,916<br>(32.63)                          |
| States                                       | 67,416<br>(53.04)          | 1,00,000<br>(31.83)                           | 22,769                      | 25,660                                | 28,225                                | 31,048                             | 34,153                     | 1,41,855<br>(50.91)                        |
| Private                                      | 9,223<br>(7.26)            | 1,06,792<br>(33.99)                           | 7,009                       | 7,572                                 | 9,043                                 | 10,370                             | 11,893                     | 45,887<br>(16.47)                          |
| <b>Telecom</b>                               | <b>1,01,889</b>            | <b>2,58,439</b>                               | <b>31,900</b>               | <b>52,295</b>                         | <b>64,206</b>                         | <b>84,339</b>                      | <b>1,12,394</b>            | <b>3,45,134</b>                            |
| Centre                                       | 48,213<br>(47.32)          | 80,753<br>(31.25)                             | 7,894                       | 11,048                                | 13,186                                | 13,988                             | 15,387                     | 61,503<br>(17.82)                          |
| Private                                      | 53,676<br>(52.68)          | 1,77,686<br>(68.75)                           | 24,007                      | 41,248                                | 51,019                                | 70,351                             | 97,007                     | 2,83,631<br>(82.18)                        |
| <b>Railways<br/>(incl.<br/>MRTS)</b>         | <b>1,02,091</b>            | <b>2,61,808</b>                               | <b>31,182</b>               | <b>39,095</b>                         | <b>42,830</b>                         | <b>40,875</b>                      | <b>46,820</b>              | <b>2,00,802</b>                            |
| Centre                                       | 98,914<br>(96.89)          | 2,01,453<br>(76.95)                           | 29,594                      | 35,863                                | 39,548                                | 36,675                             | 40,343                     | 1,82,024<br>(90.65)                        |
| States                                       | 2,508<br>(2.46)            | 10,000<br>(3.82)                              | 1,128                       | 2,554                                 | 2,048                                 | 2,253                              | 2,479                      | 10,462<br>(5.21)                           |
| Private                                      | 669<br>(0.66)              | 50,354<br>(19.23)                             | 460                         | 677                                   | 1,233                                 | 1,947                              | 3,999                      | 8,316<br>(4.14)                            |
| <b>Irrigation<br/>(incl. WS)</b>             | <b>1,19,894</b>            | <b>2,53,301</b>                               | <b>38,789</b>               | <b>44,858</b>                         | <b>49,093</b>                         | <b>54,045</b>                      | <b>59,449</b>              | <b>2,46,234</b>                            |
| Centre                                       | 8,597<br>(7.17)            | 24,759<br>(9.77)                              | 1,831                       | 2,133                                 | 2,095                                 | 2,348                              | 2,583                      | 10,990<br>(4.46)                           |
| States                                       | 1,11,296<br>(92.83)        | 2,28,543<br>(90.23)                           | 36,958                      | 42,725                                | 46,997                                | 51,697                             | 56,867                     | 2,35,244<br>(95.54)                        |
| <b>Water<br/>Supply &amp;<br/>Sanitation</b> | <b>60,108</b>              | <b>1,43,730</b>                               | <b>19,110</b>               | <b>19,939</b>                         | <b>21,941</b>                         | <b>24,141</b>                      | <b>26,559</b>              | <b>1,11,689</b>                            |
| Centre                                       | 20,261<br>(33.71)          | 42,003<br>(29.22)                             | 7,201                       | 7,764                                 | 8,541                                 | 9,395                              | 10,334                     | 43,235<br>(38.71)                          |
| States                                       | 38,830<br>(64.60)          | 96,306<br>(67.00)                             | 11,845                      | 12,094                                | 13,303                                | 14,633                             | 16,096                     | 67,971<br>(60.86)                          |
| Private                                      | 1,018<br>(1.69)            | 5,421<br>(3.77)                               | 65                          | 81                                    | 97                                    | 113                                | 128                        | 484<br>(0.43)                              |
| <b>Ports</b>                                 | <b>22,997</b>              | <b>87,995</b>                                 | <b>4,942</b>                | <b>7,148</b>                          | <b>8,323</b>                          | <b>9,454</b>                       | <b>10,779</b>              | <b>40,647</b>                              |

| Sector                             | X Plan<br>(Actual)  | XI Plan<br>(Original<br>Projections) | 2007-08<br>(Actual) | 2008-09<br>(Actual/<br>Est.) | 2009-10<br>(RE/BE/<br>Proj.) | 2010-11<br>(BE/<br>Proj.) | 2011-12<br>(Proj.) | XI Plan<br>(Revised<br>Projected) |
|------------------------------------|---------------------|--------------------------------------|---------------------|------------------------------|------------------------------|---------------------------|--------------------|-----------------------------------|
| Centre                             | 4,051<br>(17.62)    | 29,889<br>(33.97)                    | 831                 | 1,040                        | 1,076                        | 1,152                     | 1,268              | 5,366<br>(13.20)                  |
| States                             | 619<br>(2.69)       | 3,627<br>(4.12)                      | 223                 | 375                          | 654                          | 719                       | 791                | 2,763<br>(6.80)                   |
| Private                            | 18,327<br>(79.69)   | 54,479<br>(61.91)                    | 3,888               | 5,733                        | 6,593                        | 7,582                     | 8,720              | 32,517<br>(80.00)                 |
| <b>Airports</b>                    | <b>6,893</b>        | <b>30,968</b>                        | <b>6,912</b>        | <b>7,522</b>                 | <b>7,092</b>                 | <b>7,178</b>              | <b>7,434</b>       | <b>36,138</b>                     |
| Centre                             | 3,811<br>(55.29)    | 9,288<br>(29.99)                     | 1,888               | 2,287                        | 2,386                        | 2,463                     | 2,709              | 11,732<br>(32.46)                 |
| States                             | 712<br>(10.33)      | 50<br>(0.16)                         | 424                 | 525                          | 91                           | 100                       | 110                | 1,251<br>(3.46)                   |
| Private                            | 2,370<br>(34.38)    | 21,630<br>(69.85)                    | 4,600               | 4,711                        | 4,615                        | 4,615                     | 4,615              | 23,155<br>(64.07)                 |
| <b>Storage</b>                     | <b>5,643</b>        | <b>22,378</b>                        | <b>906</b>          | <b>1,281</b>                 | <b>1,669</b>                 | <b>2,199</b>              | <b>2,911</b>       | <b>8,966</b>                      |
| Centre                             | 1,416<br>(25.09)    | 4,476<br>(20.00)                     | 0                   | 0                            | 47                           | 47                        | 47                 | 141<br>(1.57)                     |
| States                             | 2,124<br>(37.64)    | 6,713<br>(30.00)                     | 0                   | 0                            | 70                           | 70                        | 70                 | 210<br>(2.34)                     |
| Private                            | 2,104<br>(37.27)    | 11,189<br>(50.00)                    | 906                 | 1,281                        | 1,552                        | 2,082                     | 2,794              | 8,615<br>(96.09)                  |
| <b>Oil &amp; Gas<br/>Pipelines</b> | <b>32,367</b>       | <b>16,855</b>                        | <b>16,190</b>       | <b>21,854</b>                | <b>27,080</b>                | <b>29,671</b>             | <b>32,511</b>      | <b>1,27,306</b>                   |
| Centre                             | 31,367<br>(96.91)   | 10,327<br>(61.27)                    | 7,354               | 12,234                       | 16,603                       | 18,264                    | 20,090             | 74,545<br>(58.56)                 |
| Private                            | 1,000<br>(3.09)     | 6,528<br>(38.73)                     | 8,836               | 9,620                        | 10,476                       | 11,407                    | 12,421             | 52,761<br>(41.44)                 |
| <b>Total</b>                       | <b>9,19,225</b>     | <b>20,56,150</b>                     | <b>3,03,807</b>     | <b>3,59,192</b>              | <b>4,02,829</b>              | <b>4,60,059</b>           | <b>5,28,316</b>    | <b>20,54,205</b>                  |
| Centre                             | 3,69,763<br>(40.23) | 7,65,622<br>(37.24)                  | 98,941              | 1,24,013                     | 1,40,381                     | 1,55,998                  | 1,71,593           | 6,90,926<br>(33.63)               |
| States                             | 3,24,242<br>(35.27) | 6,70,937<br>(32.63)                  | 1,00,598            | 1,14,041                     | 1,22,583                     | 1,34,834                  | 1,48,311           | 6,20,367<br>(30.20)               |
| Private                            | 2,25,220<br>(24.50) | 6,19,591<br>(30.13)                  | 1,04,268            | 1,21,138                     | 1,39,866                     | 1,69,227                  | 2,08,413           | 7,42,912<br>(36.17)               |
| <b>Total</b>                       | <b>9,19,225</b>     | <b>2,056,150</b>                     | <b>3,03,807</b>     | <b>3,59,192</b>              | <b>4,02,829</b>              | <b>4,60,059</b>           | <b>5,28,316</b>    | <b>20,54,205</b>                  |
| Public                             | 6,94,006<br>(75.50) | 1,436,559<br>(69.87)                 | 1,99,539            | 2,38,054                     | 2,62,963                     | 2,90,832                  | 3,19,904           | 13,11,293<br>(63.83)              |
| Private                            | 2,25,220<br>(24.50) | 6,19,591<br>(30.13)                  | 1,04,268            | 1,21,138                     | 1,39,866                     | 1,69,227                  | 2,08,413           | 7,42,912<br>(36.17)               |
| <b>GDP</b>                         | <b>17,840,877</b>   | <b>27,044,506</b>                    | <b>4,717,187</b>    | <b>5,003,545</b>             | <b>5,363,800</b>             | <b>5,792,904</b>          | <b>6,314,265</b>   | <b>27,191,700</b>                 |
| Investment<br>% of GDP             | 5.15                | 7.60                                 | 6.44                | 7.18                         | 7.51                         | 7.94                      | 8.37               | 7.55                              |

Note: Figures in brackets indicate percentage share.

### Telecom

13. The growth in the telecom sector has been phenomenal and the investment

is expected to be Rs. 3,45,134 crore which is 1.3 times higher than the originally estimated figure of Rs. 2,58,439 crore at the time of the formulation of the Eleventh Plan. This is due to increase in investment by the private sector to a level 1.59 times higher than the investment envisaged at the time of formulation of the Eleventh Plan. Competition in this sector has been quite intense, as a result of which the economy and the users have benefitted through increased investments and improved quality of service at competitive costs.

14. In contrast, investment by the Centre in telecommunications is expected to be 23.84 per cent lower than projected when the Eleventh Plan was formulated.

### *Railways*

15. The projected investment in railways, including metro railways, in the Eleventh Plan is now expected to be about Rs. 2,00,802 crore which is 23.3 per cent lower than the earlier projection of Rs. 2,61,808 crore. Both Central sector investment and private investment are lower than the original projections. As per latest estimates only Rs. 8,316 crore is expected by way of private investment which is only 16.5 per cent of original projections.

16. Railways have opened up container

movement to competition and 16 entities have been granted concessions for operating container trains. However, in other areas progress in pushing PPP investment has been slow. The Ministry has identified 50 stations for development as world class stations through the PPP route but no concessions have been awarded. It has also invited expressions of interest for the development of logistic parks through PPP. A 60 km elevated fully air-conditioned rail system in Mumbai is also proposed to be implemented through PPP. These projects need to be speeded up to tap the full potential.

17. Several PPP initiatives have been taken up for provision of metro rail systems in different cities. The Delhi Metro Rail Corporation has awarded the work of installation of systems, including supply of rolling stock and operation of the Airport Express Line on PPP basis. Two lines in the Mumbai Metro project have been awarded on PPP basis. The Hyderabad Metro Rail project has been awarded on PPP basis while the Bangalore High Speed Rail Project is also being structured on the PPP mode.

### *Ports*

18. Progress in this sector has been much below expectations. The investments

during the Eleventh Plan are now projected at a level of Rs. 40,647 crore which is less than half of the original projection of Rs. 87,995 crore. Private investment in the port sector is also expected to be almost 40.31 per cent lower as compared to the projections made at the beginning of the Plan. This is because very few PPP projects have been awarded by the respective Port Trusts in the first two years of the Eleventh Plan. Ministry of Shipping has revised the original target of 545 MMT of additional capacity for the major ports downwards and now proposes to develop only 48 projects with a capacity of 393.27 MMT costing Rs. 29,905 crore over the Eleventh Plan period.

19. Compared to the slow progress in capacity addition in major ports, the private sector ports in the state sector have done relative well. Out of the total private investment of Rs.32,517 crore projected for the Eleventh Plan, the share of private investment in the state sector is Rs. 26,370 crore.

### *Airports*

20. The investment in Eleventh Plan is now projected at Rs. 36,138 crore as against the original estimate of Rs. 30,968 crore and both public and private investments in airports are likely to

increase compared to the investment projected at the beginning of the Eleventh Plan. Private investment is expected to contribute Rs. 23,155 crore which is 64.07 per cent of the total investment in airport infrastructure. The investment in state sector airports has taken a dip from 2009-10 onwards because of the completion of the Hyderabad and Bangalore projects.

### *Oil and Gas pipelines*

21. The investment in oil and gas pipelines in the Eleventh Plan is expected to increase to Rs. 1,27,306 crore as against the original figure of Rs. 16,855 crore. The much larger figure is primarily because the data include investment in oil pipelines whereas the earlier data only included gas pipelines. The investment in oil pipelines alone during the Eleventh Plan is projected at Rs. 1,08,190 crore. This category includes large investment by the Centre also.

### *Water Supply*

22. The total investment in water supply and sanitation in the Eleventh Plan is now estimated at Rs. 1,11,689 crore, about 22 per cent lower than the original projection of Rs. 1,43,730 crore. The Eleventh Five Year Plan strategy for urban development includes departure from the

exclusive public sector monopoly over urban infrastructure opening up the possibility of investment in this area. However, private sector investment in water supply and sanitation is likely to be small initially and may not exceed 2 per cent of the total investment in this sector.

### ***Irrigation***

23. Investment in irrigation and watershed management is a critical part of rural infrastructure. It remains a public sector activity only because the sector is nowhere near being commercially viable since water charges account for only about 20 per cent of operating costs. The total investment in this sector is expected to be about Rs. 2,46,234 crore in the Eleventh Plan which is 7.52 per cent higher than earlier anticipated and it will be more than double the investment of Rs. 1,19,894 crore realised in the Tenth Plan.

### ***Rural Infrastructure***

24. The sectoral projections presented in Table 3 cover investments in both urban and rural areas. The rural investment component is important in keeping with the Eleventh Plan which emphasises broad based inclusive growth of the economy with a special effort at bridging the rural-urban divide.

25. Bharat Nirman, which was launched in 2005, for upgradation of rural infrastructure comprehensively across its sub-sectors, aims to provide electricity to 1,25,000 villages and to 23 million households; to connect the remaining 66,802 habitations with all weather roads and construct 1,46,185 km of new rural roads network; to provide drinking water to 55,067 uncovered habitations; to provide irrigation to an additional 10 million hectares; and connect the remaining 66,822 villages with telephones. It is estimated that out of the total projected investment of Rs. 13,11,293 crore to be incurred by the Centre and the States on all infrastructure sectors during the Eleventh Plan, about Rs 3,93,388 crore (or 30%) would be spent exclusively towards improvement of rural infrastructure.

### ***Projected Investment in the Twelfth Plan***

26. The projections presented in Table 4 suggest that the economy will enter the Twelfth Plan in a much stronger position as far as infrastructure is concerned than existed at the start of the Eleventh Plan. Investment in infrastructure will be around 8.37 per cent of GDP in the base year of the Twelfth Plan. If GDP in the Twelfth Plan period grows at a rate above 9 per

cent, it should be possible to increase the rate of investment in infrastructure to around 10.70 per cent in the terminal year of the Twelfth Plan period as indicated in Table 4. These projections imply that the investment in the infrastructure sector during the Twelfth Plan would be of the order of Rs. 40,99,240 crore or US \$ 1,024.81 billion. At least 50 per cent of

this should come from the private sector. This would imply that public sector investment in infrastructure would increase from Rs. 13,11,293 crore in the Eleventh Plan to around Rs. 20,49,620 crore in the Twelfth Plan at 2006-07 prices. This requires an annual increase of about 9.34 per cent in real terms.

**Table 4: Projected Investment in Infrastructure during the Twelfth Five Year Plan**

*(Rs. crore at 2006-07 prices)*

| Year   | Base Year (2011-12) | 2012-13   | 2013-14   | 2014-15   | 2015-16   | 2016-17   | Total 12th Plan |
|--|---------------------|-----------|-----------|-----------|-----------|-----------|-----------------|
| GDP at market prices (Rs. crore)                     | 63,14,265           | 68,82,549 | 75,01,978 | 81,77,156 | 89,13,100 | 97,15,280 | 4,11,90,064     |
| Rate of growth of GDP (%)                            | 9.00                | 9.00      | 9.00      | 9.00      | 9.00      | 9.00      | 9.00            |
| Infrastructure investment as % of GDP                | 8.37                | 9.00      | 9.50      | 9.90      | 10.30     | 10.70     | 9.95            |
| Infrastructure investment (Rs. crore)                | 5,28,316            | 6,19,429  | 7,12,688  | 8,09,538  | 9,18,049  | 10,39,535 | 40,99,240       |
| Infrastructure investment (US \$ billion) @ Rs.40/\$ | 132.08              | 154.86    | 178.17    | 202.38    | 229.51    | 259.88    | 1,024.81        |

### **Policy initiatives to promote private participation**

27. A number of initiatives were taken in the course of the Eleventh Plan to accelerate the pace of investment in infrastructure. In particular, the government has taken several initiatives for standardizing the documents and processes for structuring and award of PPP projects in

a transparent and competitive manner (see Box-1).

### **Committee on Infrastructure (COI)**

28. The Committee on Infrastructure (COI) was constituted on August 31, 2004 under the chairmanship of the Prime Minister. Its members included the Finance

Minister, the Deputy Chairman, Planning Commission and the Ministers-in-charge of infrastructure ministries. The objective of COI was to initiate policies that would ensure time-bound creation of world class infrastructure, develop structures that maximise the role of PPPs, and monitor the progress of key infrastructure projects to ensure that established targets are realised.

#### ***Cabinet Committee on Infrastructure (CCI)***

29. In July 2009 the COI was replaced by a Cabinet Committee on Infrastructure chaired by the Prime Minister to give further impetus to initiatives for development of infrastructure. CCI approves and reviews policies and projects across infrastructure sectors. It considers and decides financial, institutional and legal measures required to enhance investment in infrastructure sectors.

#### ***Public-Private Partnership Appraisal Committee (PPPAC)***

30. With a view to streamlining and simplifying the appraisal and approval process for PPP projects, a Public Private Partnership Appraisal Committee had been constituted under the chairmanship of Secretary, Department of Economic Affairs with Secretary, Planning Commission as one of the members. PPP proposals are

appraised by the Planning Commission and approved by the PPPAC. The PPPAC conducts a thorough scrutiny and due diligence in the formulation, appraisal and approval of PPP projects. It has approved 192 projects with estimated project cost of Rs. 1,62,550 crore by May 2010.

#### ***Empowered Committee/ Institution (EC/EI)***

31. An institutional framework comprising an inter-ministerial Empowered Committee has been established for the purpose of appraising and approving projects for availing the VGF grant of up to 20 per cent of the cost of infrastructure projects undertaken through PPP. Until May 2010, it has approved 63 projects in the State sector involving a total capital investment of Rs. 41,422 crore.

#### ***Viability Gap Funding (VGF)***

32. Recognising that the externalities engendered by infrastructure projects cannot always be captured by project sponsors, a Viability Gap Funding (VGF) Scheme was notified in 2006 to enhance the financial viability of competitively bid infrastructure projects. Under the scheme, grant assistance of upto 20 per cent of capital cost is provided by the Central Government to PPP projects undertaken by any Central Ministry, State Government,



statutory entity or local body. An additional grant of up to 20 per cent of project costs can be provided by the sponsoring Ministry, State Government or project authority. Up to May 2010, 255 projects had been approved by the PPPAC and EC/EI with a capital investment of Rs. 2,03,972 crore.

**Box-1**  
**Structuring PPP Projects**

PPP projects are based on long-term contracts and may involve delegation of governmental authority such as for toll collection, besides enabling private control over monopolistic services. The structuring of PPP contracts requires due diligence of a high order because of the complex nature of the partnerships and the need to protect the interests of the users as well as the exchequer. Inadequacies in the contracts/concessions can severely compromise the public exchequer and user interests besides leading to rent seeking and exposing PPP projects to public criticism. Badly structured contracts and inadequate regulation can often lead to windfall gains and rent seeking by the private investors. It is, therefore, important to ensure that PPPs are carefully structured for safeguarding user and government interests with a view to ensuring efficient services at competitive costs.

**India Infrastructure Finance Company Ltd (IIFCL)**

33. IIFCL, was established by the Central Government for providing long-term loans for financing infrastructure projects that typically involve long gestation periods, provides financial assistance of up to 20 per cent of the project costs, both through direct lending to project companies and by refinancing banks and financial institutions. It has raised Rs. 20,569 crore and approved 139 projects involving total investment of Rs. 2,00,884 crore by May 2010. Out of these 139 projects, financial closure has been achieved in 126 projects with investment of Rs. 1,74,446 crore.

***Model Documents***

34. Recognising the need for a standardised framework for PPPs, the COI encouraged the creation of standard documents for bidding and also for award of concessions. Creation of a standardised framework ensures transparency in the allocation of risk, clarity in the obligation of the concessionaire and minimisation of possibilities of disputes arising from the agreement. It enables robust competitive bidding for individual projects with a reasonable commonality in approach across projects, which is an important aspect of good governance.

35. To underpin this approach, a large

number of standardised documents have been developed based on extensive inter-Ministerial consultations. These have been published by the Planning Commission to promote and facilitate development of infrastructure. In several cases e.g., roads and ports, the Planning Commission has published model concession agreements that would be used by state governments for State PPPs. The Commission has been involved in consultations with state governments on PPP initiatives and stands ready to give advice when asked.

given in Box-3 below:

36. A list of the Model Concession Agreements published by the Planning Commission is given in Box-2.

*Box-2*  
**Model Concession Agreements for PPP Projects**

- *National Highways*
- *State Highways*
- *Operation & Maintenance of Highways*
- *National Highways (Six Laning)*
- *Urban Rail Transit Systems*
- *Non-Metro Airports*
- *Greenfield Airports*
- *Port Terminals*
- *Operation of Container Trains*
- *Re-development of Railway Stations*
- *Procurement-cum-Maintenance Agreement for Locomotives*
- *Transmission of Electricity*

37. A list of model bidding documents published by the Planning Commission is

*Box-3*  
**Model Bidding Documents for PPP**

38. A number of Guidelines, Reports and Manuals have been issued in pursuance of the initiatives described above. The Guidelines and Manuals published by the Planning Commission are listed in Box-4.

| <i>Box-4</i><br><b>Guidelines and Manuals</b>   |
|---|
| <ul style="list-style-type: none"> <li>▪ <i>Guidelines for Financial Support to PPPs in Infrastructure (VGF Scheme)</i></li> <li>▪ <i>Guidelines on Formulation, Appraisal and Approval of PPP Projects (PPPAC)</i></li> <li>▪ <i>Guidelines for Establishing Joint Ventures in Infrastructure</i></li> <li>▪ <i>Guidelines for Monitoring of PPP Projects</i></li> <li>▪ <i>Scheme for Financing Infrastructure Projects through IIFCL</i></li> <li>▪ <i>Manual of Specifications &amp; Standards for Two-laning of Highways</i></li> <li>▪ <i>Manual of Specifications &amp; Standards for Four-laning of Highways</i></li> </ul> |

39. The government has identified several areas for reform of policy and processes. Based on inter-Ministerial deliberations, a number of Reports have been prepared and their recommendations adopted. These are listed in Box-5.

| <i>Box-5</i><br><b>Reports</b>  |
|---|
| <ul style="list-style-type: none"> <li>▪ <i>Financing of the National Highways Development Programme</i></li> <li>▪ <i>Financing Plan for Airports.</i></li> <li>▪ <i>Financing Plan for Ports</i></li> <li>▪ <i>Restructuring of NHAI</i></li> <li>▪ <i>Monitoring of PPP Projects</i></li> <li>▪ <i>Projections of the Eleventh Five Year Plan: Investment in Infrastructure</i></li> <li>▪ <i>Delhi-Mumbai and Delhi-Howrah Freight Corridors</i></li> <li>▪ <i>Road Rail Connectivity of Major Ports</i></li> <li>▪ <i>Customs Procedures of Container Freight Stations and Ports</i></li> <li>▪ <i>Simplification of Customs Procedures in Air Cargo and Airports</i></li> <li>▪ <i>Measures for Operationalising Open Access in the Power Sector</i></li> <li>▪ <i>Tariff Setting for PPP Projects in Major Ports</i></li> <li>▪ <i>Toll Policy for National Highways</i></li> <li>▪ <i>Road Safety and Traffic Management</i></li> <li>▪ <i>Reducing Dwell Time of Cargo at Ports</i></li> <li>▪ <i>Norms &amp; Standards for Capacity of Airport Terminals</i></li> <li>▪ <i>Approach to Regulation of Infrastructure</i></li> <li>▪ <i>Private Participation in Infrastructure</i></li> <li>▪ <i>Selection of Consultants: Best Practices</i></li> <li>▪ <i>Compendium of PPP Projects in Infrastructure</i></li> <li>▪ <i>Compendium of PPP Projects in State Highways</i></li> <li>▪ <i>Frequently Asked Questions (FAQs) on Model RFQ Document</i></li> </ul> |

40. The Planning Commission has initiated an exercise to revise the financing plans in various infrastructures sectors after taking into account the progress made so far and the likely investment during the remaining years of the Eleventh Plan and the entire Twelfth Plan period.

### **Participation of State Governments**

41. In a federal country like India, participation and support of the State Governments is essential for development of world class infrastructure. The State Governments' support in maintenance of law and order, land acquisition, rehabilitation and settlement of displaced persons, shifting of utilities and obtaining environmental clearances is necessary for the projects undertaken by the Central Government or the private sector. Many State Governments have also initiated

several PPP projects for improving infrastructure. The participation of states has been improving steadily over the years.

### **Way Forward**

42. Against the backdrop of the financial crisis, the performance of the infrastructure sector has shown the resilience of the economy and its capacity to shield itself from such external influences. Although the projections for the Eleventh Plan have been downsized for some sectors keeping in mind the targets achieved in the first two years of the Plan, however, it is expected that with the revival of the economy and the upbeat investment sentiment prevailing, the actual performance may turn out to be better than the revised projections of the Eleventh Plan contained in this note.

### Assumptions underlying the revised Investment Forecast

1. In making the projections for the Central sector, RE figures for the year 2009-10 and BE figures for 2010-11 have been adopted and thereafter, a growth rate of 10 per cent has been assumed for the terminal year of the Plan. For the State sector, the actual expenditure for 2008-09 has been taken into account and an annual growth rate of 10 per cent over the 2009-10 BE data has been assumed for making projections for the subsequent years of the Eleventh Plan.

2. For making projections for the private sector, actual GCF data has been taken from CSO in respect of the electricity, telecom and storage sectors for the period from 2002-03 to 2008-09. While projections in respect of the telecom and storage sectors for the years 2009-10 onwards are based on log linear method using the time series data of past five years, projections in electricity sector are based on an anticipated growth rate of 10 per cent per annum over the 2008-09 data to reflect the current pace of accelerated capacity addition.

3. For making projections of private investment in roads, railways, ports and airports, the time series data from 2002-03 to 2008-09 has been provided by the

respective ministries. Projections in roads and ports for the years 2009-10 onwards are based on a growth rate of 15 per cent per annum over 2008-09 in view of the accelerated programmes in these sectors. Projections in railways from 2009-10 onwards are based on the log linear method using a time series of the past five years. In airports, no growth in private investment has been assumed over the 2009-10 data as some of the PPP projects have been completed and no new projects have been awarded.

4. In the case of oil & gas pipelines, the data relating to private investment has been provided by the Ministry of Petroleum and Natural Gas for 2008-09 and 2009-10 only. Investment in the year 2009-10 is higher by about 15 per cent as compared to the investment in 2008-09. Estimated investment in the remaining two years of the Plan has been assumed by projecting an annual increase of 15 per cent. Similarly, the investment in 2007-08 has been estimated by reducing the investment by a corresponding rate. Private sector projections for water supply and sanitation during the Eleventh Plan are based on the total estimated investment indicated by the Ministry of

Urban Development, which has been suitably phased out over the Plan period.

5. In case of storage, due to negative gross capital formation of public sector in the years 2007-08 and 2008-09, the data has been taken as zero and projections for the remaining three years have been retained at the level of 2006-07. Public sector GCF for Centre and States has been assumed in the ratio of 40:60.