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MEGA PROJECTS IN INDIA

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Abstract

Infrastructure projects are classified into two types namely major infrastructure projects and mega infrastructure projects. This study analyses the time overrun and cost overrun in 30 mega infrastructure projects in India using the quarterly reports available at the Ministry of Statistics and Program Implementation web portal. These projects represent different sectors such as the road transport and highways, power, atomic energy, metro and urban development, petroleum and petrochemicals. Road projects are found to have largest amount of time and cost overruns. Most common causes of time and cost overruns are identified as delay in land acquisition, delay in forest clearance, law and order problems, general price escalation, high capital cost, poor performance of contractor and delay in the supply of equipment. The relation between time overrun and cost overrun is studied in different sectors.

Introduction

Power sector in India is one of the largest and most crucial basic sectors. It fulfills the energy requirements of various other industries. It is one of the most critical components of infrastructure that affects economic growth and the prosperity of India. The consumption pattern follows Industrial consumption (38%), domestic consumption (22%), agricultural consumption (22%), commercial consumption (8%) and other (10%). GDP growth rate and growth in Power generation are positively related to each other. In order to sustain the growth in GDP, India needs to add power generation capacity commensurate with this pace.

There is a huge power deficit in India at present. Peak deficit in the last decade was around 11-13%. Besides this the quality of power is also an issue. Cumulative losses of state electricity boards were 70,000 core in 2010-11 which crossed 1 lakh core in FY 2012. Micro Small and medium enterprises are the most important part of Indian economy which is also the sector hardest affected by inadequate power access as they don't possess the financial ability to set up captive power plants and don't have access to adequate credit or they can get past other infrastructure bottlenecks.

Need for the projects

1. In order to meet the growing gap between supply and demand in power sector, GOI came up with the concept of UMPPs to build large capacity at low cost so as to sell power at low tariffs to consumers.
2. The public sector didn't have adequate resources to add such a huge amount of capacity on its own and so private parties were involved.
3. Some of the UMPP were based on domestic coal at areas located close to coal mines while for the locations which were not close to coal mines projects based on imported coal were planned.
4. This would provide a balance in terms of capacity addition in the fuel rich areas as well as the areas which may not be rich in coal resources.

Key Problems

- Availability of coal: In FY 2015 there was a 100 MN ton gap between demand and supply which is likely to increase to 170 mn tons by FY 2017 as demand goes up.
- Coal India limited has refused to sign agreements with plants those which were commissioned after March 2012 as they cannot ensure the coal supply
- It all started when an Indonesian Govt. made retrospective regulations in 2010 that barred any Indonesian mine from exporting coal at prices below global benchmark. This changed the economics of the Indian firms that owned mines in Indonesia as they cannot import coal at cost which they had earlier anticipated.
- Tata and Reliance were looking for 35-40\$/ tonne but the price went upto 80-90 \$/ton, making the agreement which they had signed untenable.
- Another problem is delay in land acquisition and environmental clearances.
- Thus these two issues are largely unresolved and are the reason for the halt of these UMPPs.

Need of a swift policy amendment in the current UMPP norms to introduce full pass through of fuel cost to the end consumer which may expedite the progress of other 12 UMPPs that are currently stuck.

Roads and Highways

Role of Sector

Road infrastructure is the backbone of transportation system. Transportation is a key facilitator to sustainable economic growth of the country. An efficient transportation system expands the productivity of the country, by increasing the mobilization of available resources and by enhancing the productivity of those resources. Furthermore a well-oiled transport infrastructure attracts resources from other regions and thus provides regional economic growth. In India, there are less than 4 kilometres of roads per 1000 people. Currently transportation sector contributes about 4.7% to country's GDP in 2009-10. Indian roads carry over 65 percent of its freight and about 85 percent of passenger traffic. National Highways account for only 2% of the total network but accounts for 40% of the total traffic. Of the total 65,000 kms of national highways, only 9% are four-lane, 56% are two-lane, and 35% are single-lane

Mega Road Projects

1. Kishangarh-Udaipur-Ahmedabad project- 7,700 crore- GMR
2. Shivpuri-Dewas project in Madhya Pradesh- 3000 crore- GVK
3. Delhi-Jaipur expressway

Kishangarh-Udaipur-Ahmedabad Project

- Cost: 7,700 crore
- Parties involved: GMR and NHAI
- BOT Basis, 555 km
- Need of the project: This project provides connectivity to many important towns and villages of Gujrat and Rajasthan. It is the vital link of NH-8 for traffic coming from Mumbai going towards Haryana, Punjab, Himachal, Delhi, Uttar Pradesh & Uttaranchal. NH-8 is one of the most important and busiest national highways of the country.
- Concession period: 26 years
- Issues and challenges: Environmental clearance held up due forest clearance by Ministry of environment and forests.

Shivpuri-Dewas project in Madhya Pradesh

- Cost: 3000 crore
- Parties involved: NHAI and GVK
- BOT Basis, 330 km
- Need: the road passes entirely through Madhya Pradesh; carrying predominantly long distance freight traffic and is expected to offer high growth potential for commercial traffic.
- Concession period: 30 years including a construction period of 2.5 years
- Issues and challenges: Environmental clearance held up due forest clearance by Ministry of environment and forests

Delhi-Jaipur expressway

- Cost: INR 14,000 Crore
- Status: 60% complete
- Parties involved: NHAI, Pink City Expressway ltd, State Government
- Need: The idea is to construct a highway with the development of township alongside, as a part of the Delhi-Mumbai Industrial Corridor a new city is being built in Neemrana . There will be another half-a-dozen new towns that will spring up along the way. Development of real estate is being done alongside the expressway which will make the project financially more viable.
- Concession Period: 12 years from Appointed Date (Including Construction Period)
- Issues and challenges: Delays due to Land acquisition problem

Bankers have stopped giving loans as the project is frozen due to non-availability of land

A Macro Picture

The Ministry of Statistics and Programme Implementation (MOSPI) monitors all the mega projects in India which have an outlay of Rs. 1000 crs. or more. The latest report of MOSPI says that as on May 2013, 48% of the 207 Mega Projects have been delayed due to various reasons. These projects under 12 sectors had an initial outlay of Rs. 6,55,662 crs. which have now increased to Rs. 7,81,504 crs. due to these delays such as land acquisition, legal issues, environmental clearances, award of contract, etc. Though a Cabinet Committee on Investment (CCI) has been formed to fast track such projects nothing seems to be moving on the ground. Given below is the status of various mega projects and subsequent cost escalation.

| Sector | Mega Projects | Stalled Projects | Original Projections (Rs. Crs.) | New Projections (Rs. Crs.) | Cost Overruns (%) |
|--------------------|---------------|------------------|---------------------------------|----------------------------|-------------------|
| Atomic Energy | 4 | 2 | 45,324 | 115,176 | 154.12% |
| Civil Aviation | 2 | 0 | 542 | 1,187 | 119.00% |
| Water Resources | 1 | 0 | 49,716 | 50,896 | 2.37% |
| Power | 62 | 30 | 44,131 | 49,345 | 11.81% |
| Petroleum | 36 | 22 | 40,442 | 46,726 | 15.54% |
| Petrochemicals | 1 | 1 | 3,750 | 4,340 | 15.73% |
| Coal | 9 | 5 | 5,460 | 8,920 | 63.37% |
| Steel | 6 | 6 | 9,865 | 11,479 | 16.36% |
| Railways | 45 | 19 | 22,363 | 24,788 | 10.84% |
| Road and Highways | 32 | 13 | 147,984 | 162,059 | 9.51% |
| Shipping and Ports | 6 | 2 | 61,412 | 66,976 | 9.06% |
| Urban Development | 3 | 0 | 224,668 | 239,606 | 6.65% |
| Overall | 207 | 100 | 655,657 | 781,498 | 19.19% |

Source: MOSPI

“Reference Class Forecasting” Methodology

Megaprojects typically results in high overrun cost, time delay. It's difficult to accurately forecast the project cost due to complexity involved and biasing from promoters side. Reference class forecasting method bypass this kind of bias by taking “outside view” on prospects being forecasted and at the same time taking traditional forecasting method as “inside view”. Here reference class refers to similar past projects. This class should contain sufficient number of similar past project to be statistically significant. After that, it establishes the probability distribution of selected reference class through empirical data for a sufficient number of projects within the reference class in order to have statistically significant conclusion. Comparison of specific project is done with reference class distribution to establish the most likely outcome for the planned project. This method was used for the first time by UK department of Transport for the evaluation of their large transportation project. This methodology has also been applied in many other infrastructure projects in countries like Denmark, UK, South Africa, Switzerland etc.

In Indian context, this methodology will help to reduce forecasting error in terms of cost and resources. In India, most of the project faces delay due to various issues like cost, time, resources, political issues, protest from people etc. Though some of the issues can be quantified in this context, however the parameters like cost, time and resources can be quantified using this methodology and project can be planned accordingly

Conclusion

Marquette Interchange Project in Wisconsin, USA is an example of mega project which involved efficient planning at every stage of the project. This project was completed ahead of deadline and also with cost of \$ 810 million much below the projected cost of \$ 1 Billion. Project was funded through Federal Funds (\$386 million) and State Funds (\$424 million) and Design Bid Build model was adopted for this project. A detailed study and assessment of existing condition was done before the start of the project. A Context Sensitive Solution process was adopted during the process through meeting local officials and public to get their input regarding the design of input. Context Sensitive Solution is described as the art of creating highways that are safe, efficient, and visually pleasing. This involves taking inputs from local community, people who will use the highway and the concerned local authorities.

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