

## **“MONITORING OF BUILT OPERATE TRANSFER (B.O.T.) CONTRACTING”**

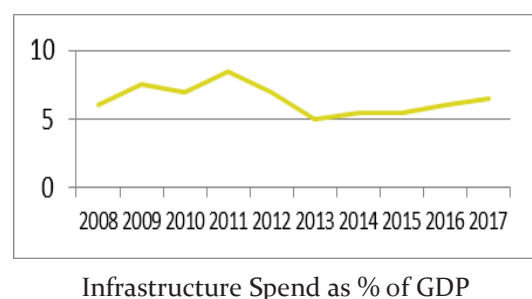
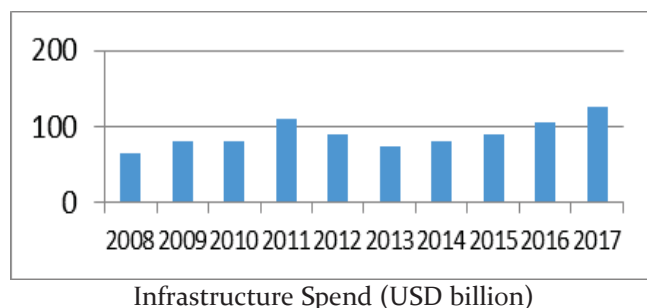
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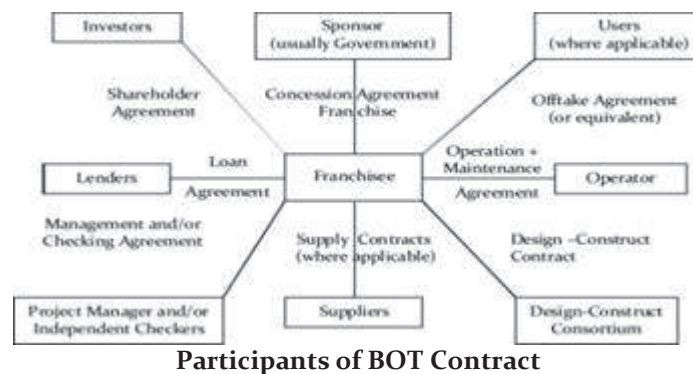
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**Abstract:** Infrastructure development is the key driver for the economy of any country. But as the infrastructure development has limitations due to scarcity of funds and scarce budgetary resources Indian government has allowed participation of private firms in public beneficial programmes with the help of non-conventional contracting. In BOT, the private sector designs, finances, constructs and operates the facility and transfers the ownership of the facility to the government after a specified concession period. Hence BOT can be seen as technique for infrastructure development and service provision by merging the private and public resources. However the success of BOT can be judged only after the completion of concession period. Anticipation, timely measures and avoidance of problem leading to time and cost overruns becomes critical to the success of the project. Hence monitoring system is mandatory to keep a check on all the various construction activities as well as financial outlay of a project.

**Keywords:** Infrastructure development, BOT contracts, Monitoring of construction, Private Sector Participation

**Introduction:** Infrastructure plays an important role in improving standard of living, productivity of nation, industrial development and over all economy of the country. In a resource scarce country like India, government promotes Infrastructure development through non-conventional contracts like BOT. BOT is a type of contracting for infrastructure project which is based on granting of concession by principal, usually a government, to a promoter / concessionaire who is responsible for Construction financing, operation and maintenance of a facility over the period of the concession before finally transferring the facility, at no cost to the Government in a fully operational condition. Therefore, BOT can be seen as a developing technique for infrastructure projects by employing private initiative and funding over a period of time. For a BOT project to be successful its proposals and objectives needs to be set out initially. Also construction projects are initiated in a complex and dynamic environments resulting in circumstances of high uncertainty and risk, which are compounded by demanding time constraints. Hence a monitoring system should be worked out to keep check on all the various activities including finance. This not only will help project shareholders to know how things are going on, as well as giving early warning of possible risks and difficulties.



**Infrastructure Spend in India:**

From the above figure it is clear that BOT frame work is complex due to multiplicity of parties and their interrelated contractual agreements. Following are some of the critical issues associated with BOT contracting.

1. Interdependency – BOT infrastructure projects normally require many contracts. Each contract evidences an internal allocation of the underlying risks between the parties to the agreement. The government agency will want to review the documents to ensure that the obligations of the sponsor's co-contracting parties are consistent with the obligations under the off take agreement.
2. Mismatching of Risks – All project documents will contain an allocation of risks to the contracting parties. Each document must clearly define each party's obligations and their commencement and end.
3. Force Majeure – Typically, a force majeure clause will provide that in the event of a party being unable to perform its obligations due to the occurrence of a force majeure event, then that party's obligations shall be suspended for the duration of the force majeure event.
4. Sharing of Security – The interests of the Government agency and the financiers may conflict in circumstances of default. For example, the government agency may want the right to terminate agreements for prolonged default while the financiers will want the ability to remedy defaults once the sponsor has failed to do so.
5. Unforeseen Circumstances – It seems the best that can be done is to insert into long term contracts a provision which requires the parties to resolve the disputes & difficulties amicably and in good faith to tackle unforeseen circumstances.
6. Liquidate damages – To protect against financial loss, the government agency may require liquidated damages to be paid in the event of default.
7. Long term contracts – Each of the core documents evidencing an infrastructure projects are of a long term nature, normally for a period of 20 yrs. – 25 yrs. These will includes the off take agreement, the operating & maintenance agreement and fuel supply agreement.
8. Land laws issues – The law issues that can arise, and need to be taken care of are –
  - a) Long term Leases
  - b) Easements / Rights of way
  - c) Resumption
  - d) Power of the Govt. to grant long term lease

**Components of an Effective Contract Monitoring System:** State agencies can mitigate the risks associated with contracting out services by developing an effective contract monitoring system. While not all contracts are monitored using the same components, a number of components are universal and should be a part of every agency's contract monitoring system. Following are the components:

1. Training employees in contract monitoring
2. Written policies and procedures for contract monitoring
3. Contingency plans and Contract administration plan
4. Clearly communicating expectations to the concerned parties

5. Organized contract files (concession agreement)
6. Payments lined to satisfactory performance
7. Regular reporting and on site training
8. Use of incentives and consequences for poor performance
9. Access to records and rights to audit
10. Measuring customer satisfaction
11. Close out procedure and Post Contract review
12. Dispute resolution procedure

**Methods of Monitoring BOT Contracting:** Contract monitoring is a process of monitoring of Contractor's performance against the specific targets and milestones laid down in the contract. Monitoring also includes inspection of completed work and random sample checks.

Monitoring at Construction, operation and maintenance stage includes:

1. Monthly progress report
2. Inspection of ongoing construction activity and O and M inspection report
3. Tests and Video recording
4. Checking for possible delays
5. Monthly Revenue / Toll Statement

**Research Methodology:** The purpose of this Research is to find out whether monitoring of BOT contracting plays an important role in avoiding and mitigating risks which can give rise to time and cost overruns and also affect the quality of construction.

The theoretical frame work of BOT project is derived from literature including previous studies and research, the publications of the related agencies, social institutions and academic organizations. The other method adopted for data attainment is consultation with experts, project consultants and people who worked in the involved organizations by email contact, telephonic and face to face interviews. Also various books and websites are referred to for up to date information.

#### **Case Study – Integrated Road Development Project at Kolhapur, Maharashtra:**

- Four laning of carriageway = 49.99 Kms
- Improvement and widening of major bridge = 1 no.
- Improvement and widening of minor bridge = 8 nos.
- Reconstruction widening of culverts = 54 nos.
- Construction of R.O.B. = 1 no.
- Improvement of major & minor junctions = 18 nos.
- Providing bus shelter = 19 nos.
- Toll Plaza complex = 9 nos.
- Landscaping of spots = 5 nos. and Seat outs = 130 nos.
- Sculptures in traffic islands with decorative railing = 10 nos.
- Providing Highway Lighting and adequate road furniture
- Operation and Maintenance till end of concession period.

**Problems Occurred in Above Project Due To Inadequate and Insufficient Monitoring System and Remedial Measures:** After analyzing these problems the following remedial measures are provided for below mentioned problems.

1. **Land Acquisition Delay:** In this project, due to dispute over compensation package of land between concessionaire and local population, process of land acquisition got delayed. To avoid above problem, preliminary survey should have been done considering the local issues such as land acquisition. Compensation should have been given on time so that delay in project would have been avoided.
2. **Tree Cutting Objection:** In the IRDP project development portion width of roads is not same throughout. The trees alongside the road obstructed the development project. So concessionaire decided to demolish the trees. Some social organization filed the case against demolition of trees.

Hence, the project was delayed for 7 months. This issue was resolved by court order and concessionaire was permitted to demolish the trees. To avoid above mentioned problem concessionaire should have done preliminary survey and should have convinced social organization that tree will be transplanted.

3. **Change in Scope of Work:** When drainage lines were laid at that time, Municipal Corporation did heavy excavation. After which backfilling was not done properly. IRDP project includes widening and strengthening of the road in which rigid pavement has to be laid. But if concreting is done over the drainage line then panels might be get cracked. Also in future, maintenance of drainage line might be difficult. To overcome this issue concessionaire decided to use asphalt road. The scope of work changed. To resolve above problem water line, drainage line etc. the concessionaire should communicate with their respective departments. The concessionaire should check all maps of water line, drainage line etc. Government should have communicated their expectation to sponsor. This includes detailed statement of work, performance measure and goal and meeting with vendor to clarify the work. Steering committee and Project Review Committee has to be appointed for better monitoring.
4. **Sudden Increase in Cost:** At some sections electrical LT line were obstructing development portion width. So, line had to be shifted alongside the road. The line was laid underground. This lead to increase in cost. To avoid above problem, government if possible should negotiate with owners for shifting electricity poles into their private property or government should consider the reduction of development portion width wherever required.
5. **Delay Due to Miscommunication between Concessionaire and Government:** Corporation started laying sewer line in the same region where the IRDP project was in process, without giving prior information to concessionaire. It was not feasible to continue two projects at a same time in the same region. To avoid above problem clear communication between corporation and concessionaire is necessary. If any project has to be planned during active period of another project, then such information should have been mentioned in tender document and in case of emergency concessionaire should be informed well in advance.

**Conclusion:** According to the various literature reviews and the case study it can be concluded that monitoring of BOT contracts is essential and if it is not done properly it creates problems like delay in construction leading to financial losses. Also monitoring system should check on all the construction activities according to the project phases i.e. initiation, construction, operation and maintenance, as well as financial outlays which should incorporate contingencies for the mitigation purposes.

The major problem faced in the case study was due to change in scope of work. This occurred due to inadequate site survey and lack of communication between two parties, inadequate & insufficient monitoring, utility shifting and demolishing of trees. Also there was unique problem faced during this project that, two projects were in process at same time at the same site. Also it was observed that the quality of Roads & Pavement Construction was poor. This could have been avoided by proper monitoring, project management and communication between the respective authorities. Hence we can summarize that to complete the project successfully and in scheduled time monthly progress reports, inspection and test reports, monthly toll statements are necessary. Along with this, on site monitoring during construction and operation and maintenance phase, dispute resolution procedure, clear communication with parties proper training to employees, contingency plans are also necessary. These factors help us to reduce the impact of problem if not completely avoid it also we know that prevention is better than cure, in the same way it is better to monitor the project properly to reduce the hurdles than to solve them.

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