ABSTRACT

The construction industry plays a major role in the development of Indian economy. This industry consumes about 65 percent of the eleventh year plan outlay, and contributes nearly 11 per cent of the GDP. However, the performance record in successfully implementing infrastructure projects in India has not been very encouraging. Most of the construction projects in India are exposed to time overrun. This phenomenon may affect the progress of the construction industry in India, as well as cause many organizations of construction to be destroyed.

This study focuses on the identification and evaluation of factors affecting the time overrun, in the Indian construction projects. The objectives of the study were achieved through two approaches; the first one was a mixed approach of interviews, structured questionnaire surveys, and case studies and the second one was development of the time overrun model. An all-India questionnaire survey has been administered among three major participants in Government, public and private projects. One hundred and fifty five questionnaires were administered through personal contact to public and private organizations.

The survey responses were statistically analyzed. The Relative Important Index (RII) was used to rank the significant factors causing time overrun in construction projects in India. The most significant time overrun
factors were identified by the overall ranking: materials selection and changes in types and specifications during construction, poor maintenance of equipment, shortage in construction materials, financing between the owner and contractor, shortage of labour, poor procurement of materials, lack of skilled labour, availability of equipment, poor quality of materials, and imported, ordered materials and plant items. The values of the Spearman’s rank correlation coefficients method were used to show, that there is relatively good agreement between each two groups of parties in the ranking of the importance of the delay causes. Although some slightly contrary opinions exist between the owner and contractor, the highest degree of agreement belongs to this pair (81.5%). The lowest degree of agreement is between the consultant and contractor (55.5%).

The factor reduction test was conducted to reduce the selected thirty three factors (time overrun), to a small number of underlying factors. Five factors extracted using the analysis are resource availability, resource supply related, labour involvement, finance issues, and labour shortages.

The structural equation modeling method was used to develop the time overrun model in construction projects in India. The time overrun index has been derived from the case study with strength of 68%. Among the percentage contributions of the factors to the construction time overrun, that of labour shortages is 32%, resource availability 23%, finance issues 16%, resource supply related 15%, and labour involvement 14%.
The study recommended to the owners, contractors, and consultants to hold their responsibilities to avoid any delay or cost overrun which could be achieved by the good management of the project and finding new methods for time overrun, from the beginning of the project. By knowing the expected deviation in advance, the planners can prepare the schedule of the project, accommodating the expected deviation. Making the planning and scheduling of activities a continuous process during construction, and also tracking the project with time and resources, will minimize the time and cost overrun. Finally, it is recommended that the time overrun in construction projects can be minimized by strengthening the Project Implementation Unit (PIU) and Project Management Unit (PMU). This study provides a good guidance for managerial intervention and some guidelines and actionable information that managers can utilize to manage their projects.