Development of Decision Support System for Resolution of Construction Disputes:
A Systemic Approach

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This paper sets forth a framework for understanding and administratively resolving disputes over time delay and extension in Indian Construction Contracts by means of a Decision Support System. This Decision Support System has been formed based on the primary rules of law that are applied to disputes involving time delay and extension issues. These primary rules are derived from the settled cases of Supreme Court of India and a few cases from High Courts, which again followed the already set rules of Supreme Court. Subsequently Decision Support Systems can be developed for other dispute-prone clauses in Indian Construction Contracts. These Decision Support Systems are also intended to serve as checklist for contract administrators to gather all relevant evidences before taking appropriate decisions that can stand almost all trials in future. Further these can be synthesized and improved to develop a strong Knowledge Based Expert System in future which will serve as an efficient technology for dispute resolution for owners and contractors for all types of construction contract disputes.

In practice, almost all decision support systems are viewed as expediting some part of the problem solving process by improving consistency, accuracy and providing better ways of viewing and solving problems. Also one of the main purposes of decision support systems is to provide a common conceptual basis for decision making that is to combine separate potential decisions of various people by filtering these decisions through a single model that would estimate the total results. In these cases the system becomes an implicit arbiter between differing goals. As a result the issues are clarified and the negotiation process is expedited. On the basis of the above facts, the DSS is formed for resolving construction disputes involving time delay and extension issues which is supported by a narrative containing numerous case citations and synopsis accompanying each inquiry. Outcome of the DSS is the same as the judicial decision in each instance when tested for validation.

Though there are varied reasons for construction disputes but quite a large of them are due to the dispute prone clauses of the construction contracts. As for disputes arising out of time delay and extension clause, it has been established that it is the second most dispute prone clause in Indian Construction Contract next to final and binding power. The reasons of construction disputes on this issue for large percentage of time prove that professionals have limited knowledge about the legal aspects of the clause and their decisions are quite subjective. During the personal interviews of the authors with the professionals, it is found that professionals are of the opinion that there is no uniformity in decisions for similar types of cases. They also opine that each case is of unique nature with no precedence to get a proper reference, no DSS can be developed for resolution of disputes. While looking at the settled court cases, many of them appear not easily comprehensible even to contract administrators besides being confusing. The literature and case laws are difficult to reconcile and can easily lead Engineers and non legal professionals to believe that courts are arbitrary and that the outcome of a court cannot be predicted.

A similar observation was made by Thompson and Portis and Rubin when they discussed construction law of the United States. Main reasons cited by them, about the construction law of the United States is non-uniformity in construction law between Federal Government and various State Governments leading to non uniformity of decisions with many jurisdictions and within the multitude of courts contained within those jurisdictions. However, Thomas, et al showed that consistency of the law could be shown through careful case law research. They also demonstrated consistency and predictability of the law in several cases. Since in India the decision of Supreme Court is final verdict and sets the rule hence this is an attempt to form a Decision Support System for resolving construction disputes over time delay and extensions after studying, understanding and analysing settled court cases of Supreme Court involving time delay and extension issues.

The applicability of "time being the essence of contract" or otherwise is governed by the section 55 of Indian Contract Act, 1872. According to Indian Contract Act, completion of work in time is considered to be a promise made by the promisor to the promisee in the contract. Not adhering to the time schedule will thus be called as "breach of contract" and liable to become voidable at the option of the promisee. Hence time is considered to be essence of most engineering contracts. Still in many cases due to variety of reasons the contractor is not in a position to complete the work in time and seeks extensions. Sometimes the owner levies compensation for delay or contractor asks for extension and compensation for escalation in prices and increase in time dependent overhead charges. A careful review has shown that among these cases only 20% of time the decision given by the owner's representative has been held by Supreme Court or High Courts while remaining 80% of time contractor's claim is justified. This phenomenon proves the lack of proper understanding of contract document and its operation among the professionals. This also strengthens the contractor's assumption that the decisions of the owner's representative or the competent authority are biased. Hence it is required to
understand the causes of time delay and extension thoroughly to facilitate the contract administrators with an efficient tool.

After studying 70 settled court cases regarding time delay and extension issues, the primary guidelines are formulated to evaluate the applicability and acceptability of decisions under time delay and extension clause. These guidelines are presented as decision charts where simple questions are to be asked by the contract administrators or professionals in this field. Each branch of the decision tree is generated from the decision given by the apex court or high court and supporting cases are referred to explain each level of the decision diagram. Legal case study also reveals another very important phenomenon, that is the basic objective of compensation for damage is to put back the owner/contractor in a position, as had the contract been performed properly, he should have been, so far as the monitory situation is concerned. Therefore as a general principle punitive damages cannot be awarded in a purely contractual action, since the object of the court is not to punish one of the contracting parties who have committed breach of contract but to compensate the plaintiff for the loss suffered by him. Based on the legal case study, following reasons for disputes related to time delay and extension and compensation are identified:

- Administrative authority competent to levy compensation has levied compensation after going into the details of the case but the same is not acceptable to the contractor.
- Contractor claims for price escalation when the delay is actually caused by the owner yet he is denied the escalation by the owner.
- Contractor claims for idling of resources when the delay is on the part of the owner and owner refuses to compensate.
- Contractor claims for interest on withheld amount and or delayed payments, which is not admitted by the owner.

For all the above situations the appropriate measures to be taken by the contract administrators are explained in the decision diagrams as developed in the paper.

While the present work aims at identifying and evaluating the primary reasons for disputes arising out of time delay and extension clause and to develop a Decision Support System for resolution of these disputes, the study is considered as a foundation for a broader research work where the final objective is to develop a strong Knowledge Based Expert System through integration for a series of decision support systems developed for other types of disputes. The developed Knowledge Based Expert System (KBES) can provide the professionals with a good legal guide to make appropriate judgements when disputes have arisen. Also the contract administrator can refer this KBES to know the strength and weaknesses of their intended decisions which may give a chance to the decision-maker to change his mind, if required, to prevent likely disputes. Thus after development of the software i.e., KBES, once it is transferred to the professionals, the system can serve as a reference guide to both contract administrators as well as arbitrators in their administrative and legal decisions. For better user accessibility this can also be made an Internet based.