

Risk Assessment on Construction Management with “Fuzzy Logy”

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Abstract : Construction projects initiate in complicated dynamic environments and, due to the close relationships between project parameters and the unknown outer environment, they are faced with several uncertainties and risks. Success in time, cost and quality in large scale construction projects is uncertain in consequence of technological constraints, large number of stakeholders, too much time required, great capital requirements and poor definition of the extent and scope of the project. Projects that are faced with such environments and uncertainties can be well managed through utilization of the concept of risk management in project's life cycle. Although the concept of risk is dependent on the opinion and idea of management, it suggests the risks of not achieving the project objectives as well. Furthermore, project's risk analysis discusses the risks of development of inappropriate reactions. Since evaluation and prioritization of construction projects has been a difficult task, the network structure is considered to be an appropriate approach to analyze complex systems; therefore, we have used this structure for analyzing and modeling the issue. On the other hand, we face inadequacy of data in deterministic circumstances, and additionally the expert's opinions are usually mathematically vague and are introduced in the form of linguistic variables instead of numerical expression. Owing to the fact that fuzzy logic is used for expressing the vagueness and uncertainty, formulation of expert's opinion in the form of fuzzy numbers can be an appropriate approach. In other words, the evaluation and prioritization of construction projects on the basis of risk factors in real world is a complicated issue with lots of ambiguous qualitative characteristics. In this study, evaluated and prioritization the risk parameters and factors with fuzzy logy method by combination of three method DEMATEL (Decision Making Trial and Evaluation), ANP (Analytic Network Process) and TOPSIS (Technique for Order-Preference by Similarity Ideal Solution) on Construction Management.

Keywords : fuzzy logy, risk, prioritization, assessment

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