## عنوان مقاله:

Analyzing the Effects of Critical Risk Occurrence Probability on Time and Cost of Road Construction Projects Using a Schedule Plan

## محل انتشار:

نشریه بین المللی مهندسی حمل و نقل, دوره 10, شماره 3 (سال: 1402)

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## خلاصه مقاله:

Many projects fail to achieve their expected benefit, cost, scope, and time objectives because their related risks and uncertainties reduce the accuracy in properly estimating the objectives and, thus, reduce the project efficiency. Since risks are accompanied with uncertainties and lack of reliability, many of them are irremovable in construction projects and their proper management is the only way to prevent damage. Hence, before a project starts, it is quite necessary that its risks should be identified, quantified, and evaluated to prevent them to occur using proper strategies and prioritization methods. As road construction projects involve numerous activities, and unexpected factors affect their final time and cost, the present study has identified their related risks by reviewing the literature and asking the experts' opinions, prioritized them by the traditional Failure Mode and Effect Analysis (FMEA), selected the critical ones, and used the Monte Carlo simulation technique to quantitatively analyze their effects on the project time/cost scheduling. Also, sensitivity analysis was done by varying the percent occurrence probability of risks to evaluate determine the relationship between the percentage of probability of occurrence of risks and time and cost of road projects. Finally, responses to identified risk provided in order to reduce their effects on the time and cost of road construction projects.

## کلمات کلیدی:

Risk Analysis, Road Project, quantitative, qualitative, Response