

O. Pourafshar

Department of Civil
Engineering, Rudehen Branch,
Islamic Azad University,
Rudehen, Iran.

e-mail:
o_pourafshar@yahoo.com

B. Barmayehvar *

Faculty of Architecture and
Urban Planning, University of
Art, Tehran, Iran.

e-mail:
b.barmayehvar@art.ac.ir

R. Esmaeilabadi

Department of Civil
Engineering, Rudehen Branch,
Islamic Azad University,
Rudehen, Iran.

e-mail:
esmaeilabadi@riau.ac.ir

E. Asnaashari

School of Architecture, Design
and the Built Environment,
Nottingham Trent University.

e-mail:
asnaashari.ehsan@gmail.com

Contract Risk Analysis in Transportation Infrastructure Projects Based on Public-Private Partnership (PPP) Method

The present paper aimed to assess a comprehensive risk analysis in public-private partnership (PPP) infrastructure projects using library studies and surveys in transportation infrastructure projects. By separating risks through Delphi technique based on expert opinions, 42 structural risks and 41 operational risks in 12 main areas including political, economic, laws (regulations), cultural (social), environmental (natural), preparation (development), investment, Design, construction (completion), operation, revenue (market), management (organizational) were identified. Then, using a questionnaire survey and data analysis in SPSS, screening and determining the preferred risks based on statistical tests including Kolmogorov-Smirnov (K-S) tests, Kendall ranking and factor analysis were performed. Based on the results, 36 risks with lower Kendall mean were eliminated and the remaining 47 risks were analyzed. Also, by factor analysis, the main components affecting the incidence of risk in these projects were identified according to the factor load of the main variables (12 areas of risk). The results of KMO index and Bartlett sphericity test showed that there is a significant relationship and strong correlation between the variables. The five latent factors, including government, financing, operational, social and organizational risks with specific values greater than 1.0, were able to explain 69.817% of the variances. Critical risks were identified by developing an integrated assessment approach based on the Relative Significance Index (RII) and the occurrence-effect intensity (PI) matrix. According to the results, the risks of "interruption of payments by the government", "termination of the contract by the government and cancellation of the contract" and "corruption of the government system in the process of concluding the contract" with a PI of 0.2166, 0.2161 and 0.2003, respectively are among the critical risks were identified.

Keywords: Contract Risk, Public-Private Partnership (PPP), Transportation Infrastructure Projects, Risk Analysis (Probability-Intensity).

* Corresponding author