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A Study on Exploring and Prioritizing Critical Risks in Construction Project Assessment

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Abstract : This study aims to prioritize and explore critical risks in construction project assessment, employing the Weighted Average Index method and Principal Component Analysis (PCA). Through extensive literature review and expert interviews, project assessment risk factors were identified across Budget and Cost Management Risk, Schedule and Time Management Risk, Scope and Planning Risk, Safety and Regulatory Compliance Risk, Resource Management Risk, Communication and Stakeholder Management Risk, and Environmental and Sustainability Risk domains. A questionnaire was distributed to stakeholders involved in construction activities in Hyderabad, India, with 180 completed responses analyzed using the Weighted Average Index method to prioritize risk factors. Subsequently, PCA was used to understand relationships between these factors and uncover underlying patterns. Results highlighted dependencies on critical resources, inadequate risk assessment, cash flow constraints, and safety concerns as top priorities, while factors like currency exchange rate fluctuations and delayed information dissemination ranked lower but remained significant. These insights offer valuable guidance for stakeholders to mitigate risks effectively and enhance project outcomes. By adopting systematic risk assessment and management approaches, construction projects in Hyderabad and beyond can navigate challenges more efficiently, ensuring long-term viability and resilience.

Keywords : construction project assessment risk factor, risk prioritization, weighted average index, principal component analysis, project risk factors
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