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ASSESSING THE SUSTAINABILITY OF CONSTRUCTION PROJECTS USING DEMPSTER SHAFER (DS) EVIDENCE THEORY

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Abstract

The construction industry provides the basic conditions of life for sustainability and development, so there is a need to examine construction activities from the perspective of sustainable development. In general, construction activities to deal with the ever-increasing population growth and economic activities have a great impact on human life and different ecosystems. Sustainability assessment is always associated with uncertainty, uncertainty is caused by lack of knowledge and lack of accurate and sufficient information. "Shafer Dempster's theory of evidence" (DS) is an efficient tool for examining ambiguous and insufficient information, this method can be used when there is uncertainty in a subject and due to insufficient information, it is not possible to determine the most favorable situation. The aim of the current research is to investigate the stability of the building in order to achieve sustainable development in the urban environment of Isfahan province. In the current research, "Dempster Shaffer's theory of evidence" was used to evaluate the sustainability performance of six construction projects in the "Commercial, Tourism, and Recreational Complex of Isfahan Province" based on the dimensions of sustainable development (economic dimension, social dimension, and environmental dimension). Based on the obtained results, the theory of evidence is considered a suitable method to evaluate the performance of sustainability criteria for the review of these six projects. The final result showed that among the six investigated projects, the Negin Chahar Bagh project has been ranked first based on the dimensions of sustainable development.

Key words: construction projects, evaluation, Shafer Dempster evidence theory, sustainability

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