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A PRACTICAL APPROACH TO ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT OF HIGHWAY CONSTRUCTION

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Abstract

Urban development requires projects, and all projects embarked upon to increase the well-being of urbanities are associated with numerous environmental and social effects, resulting in positive and negative impacts of these measures. This study aims to appraise the environmental and social impacts of the Imam Ali highway. An innovative matrix-based ICOLD (International Commission on Large Dams) and modified Leopold matrix were presented using the ANP (Analysis Network Process) to introduce three effective coefficients and the Delphi method to achieve the goal. The result is revealed by coefficients of impact, social preference, and the environmental preference coefficient for all environmental and social parameters. The average percentage of effects (>-3.1) for the Imam Ali highway in the construction phase has changed to 16% (compared to 0% obtained from the base matrix). It means that the employers were obliged to modify and improve the project instead of its full approval. This point's importance becomes clear when we know if 50% of the effects' average values have values less than -3.1, the project is completely rejected. Based on the findings, all the environmental effects and social interaction impacts of the project in the construction and operation phase can be presented quantitatively or prevented different perceptions and actions of the qualitative results for the impact assessment to take a step towards sustainable urban development.

Key words: analytic network process, environmental impact, Imam Ali highway, impact assessment matrix, sustainable urban development

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