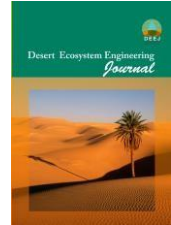




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## Application of network analysis process (ANP) in assessment of combating desertification alternatives

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### Abstract

Selecting appropriate alternatives considering effective criteria are useful to decision making for arid areas managers. The present study tries to present the main desertification strategies based on quantitative method. Other methods of the assessment of desertification strategies do not study the dependency and the relationship between criteria and alternatives in decision-making level. These methods only rank criteria and alternatives with the hierarchical structure, from up to down, and specify their weights. But complex internal relations between criteria and alternatives and their effects to achieve the ultimate goal requires a network analyzer. So, in this study network analysis process (ANP) model were used. For modeling and analysis the data, internal and external dependencies matrix between alternatives and criteria were calculated. Alternatives were weighted using the designed network model and the main alternatives were evaluated and prioritized. The results showed that among 16 criteria and 40 final alternative surveyed, the results showed that the alternative of vegetation cover development and reclamation ( $A_{23}$ ) with general rating ( $D_i= 0.2249$ ) is the most important alternative in combating desertification process in the study area, and alternatives of prevention of unsuitable land use changes ( $A_{18}$ ) and modification of ground water harvesting ( $A_{31}$ ) were in the next priority with general rating of 0.2245 and 0.1852, respectively. Therefore, it was suggested that the results and ranking obtained should be considered in controlling and reducing the effects of desertification and rehabilitating degraded lands plans.

**Key words:** combating desertification, multi-criteria decision making, network analysis process, pairwise comparison.

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