Decision Support Model for Sustainable Gilan Saravan Sylvan Park Management

Abstract

Forests have important role in growth and development of the country as a renewable natural resources. Compilation and correct performance of exploitation plans that need sufficient recognition of this natural resource can activate the potential abilities of forest and appear its share in sustainable development of the country. In the current study, sustainable management of Saravan Park of Gilan was planned using Deterministic and Stochastic Programming with Fuzzy Analytic Hierarchy Programming (FAHP). The model was considered in a Decision Support System pattern in 3 time period for different states of park and considering the economical, ecological and social goals. Data were obtained from completion of questionnaires using clustered-stratified sampling and current information Natural Resources office of Gilan province and professional view points. Results showed that decision support system is an appropriate approach for sustainable management of Saravan park of Gilan. Also, achieving to desirable level of economical, ecological and social goals in their composite utility value case in different time periods, decisions and states of park was attained using fuzzy analytic hierarchy programming, simultaneously. Results of this method showed that for achieving optimal level of goals simultaneously, in the beginning of first 10 periods, the performance of ecological decision in the beginning of second 10 years in three considered states for park, performance of social, ecological and ecological decisions attain the maximum composite utility value of goals, respectively. In the beginning of third 10 years, performance of social and ecological decisions has achieved maximum composite utility value of goals in first and second considered states of park. Composite utility value was used as a park of entry data in dynamic programming model. Results of model showed that in the beginning of first 10 years duration, ecological decision performance, in the beginning of second 10 years duration, the considered second and planned state of park, ecological decision performance, in the beginning of third 10 years duration, the performance of social decision with establishing the first considered, state for park was optimal for gaining the sustainable management in Saravan park. Additionally, results of comparison between two approaches of deterministic and stochastic programming that the obtained value of the stochastic approach was greater than the deterministic one for different durations. However, the two approaches presented similar states and optimal decisions. Considering to the results for attaining sustainable management of Saravan park of Gilan, it is essential for responsible to pay more attention to ecological goal toward social and economical ones in futures planning.

Key words: Dynamic Programming, Analytic Hierarchy Process Fuzziness, Decision Support Model, Gilan Saravan Sylvan Park.

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