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## GIS Based Ecological Planning and Sustainable Development Model for the Sefidrood Basin, Iran

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### Abstract

Ecological Planning is a process that evaluates the alternative land uses in relation to its environmental and socioeconomic surroundings, with the purpose of manage the natural resources, preserve the ecosystems and solve or diminish possible environmental conflicts. The objective of this work was to generate an ecological planning and sustainable development model by using GIS tools for the Sefidrood basin. The goals of sustainable development in developing countries are not being met, partly because of a lack of access to advanced technology for environmental monitoring and for development of sound and sustainable land management practices. Geographic Information Systems (GIS) are unique and important tools for monitoring the degradation of ecosystems. These tools can help to define priority areas for conservation and development, and can also be used to accurately and efficiently verify the effectiveness of land use planning. Additionally, GIS can play an important role in monitoring natural resources depreciation and loss of essential services provided to mankind by ecosystems.

The project involved four stages: characterisation, diagnosis, forecast and proposals. In the first step both natural and socioeconomic aspects are described and delineated; in the diagnosis stage, the actual conditions are identified and evaluated, the third stage, forecast show the more likely trends in natural resources conditions if the actual use is maintained; finally; in the proposal stage we conformed the existing state of land use map and Land use Plan map and determine the amount of conformity of these two maps and then land capability is defined based upon the diagnostic stage.

Implementation of this model will allow the rational use of the natural resources of the area, keeping in mind its conservation, and its capacity to provide ecological services to both the human and wildlife inhabitants of the area.

**Keywords:** Ecological planning, GIS, land use, sefidrood basin, sustainable development