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Land Use Planning with Agro-ecosystem Paradigm Approach in Rural Areas of Arid Regions of Iran

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Abstract

Increasing demand for different land uses and physical changes in the land, can lead to changes in ecosystem functions. This has created an increasing research focus on rural land use planning issues. In this case, it is very important to know the structure of the land, how to use it, and identifying the actual and potential appropriated areas for each land use. Most of planners have a relative understanding of importance of ecosystems and a limited use of methods that lead to sustainable exploitation. Lack of analysis in structure and function of the ecosystem leads to the formation of conflicts between land capabilities and consumers. Therefore, there is an urgent need to identify, quantify and mapping the ecosystem services in order to better understanding of benefit provides. Therefore, accurate assessment of ecological potential and its application in agro-ecosystem plan, can play an important role in rural stability and imbalance elimination. In this study, the evaluation of potential macro land use, was performed by considering the agro-ecosystem plan integration with land use planning, by using the optimal Multi-Objective Land Algorithm (MOLA) in rural areas of Isfahan province. The results show that more than 50 % of the area has ecological potential for arboriculture and extensive recreation. But contrary to the existing procedure, there is no possibility for agriculture, settlement development and industrial development. Also the region has a very good potential in solar energy that is a very important parameter in sustainable development. Based on socio-economic information, policies and opinions of experts and with the aim of developing the use of new energy and reducing the risk of natural and man-made disasters, land use planning was developed based on agro-ecosystem promotion. The results showed that by using the new spatial paradigm, the ability of performing land use planning to achieve sustainable development, has been provided in rural area. Also it can be concluded that by using this paradigm, the spatial organisation of landscape can create a reduction in environmental and human problems and moving towards sustainable development in these unique and valuable areas.

Keywords: Agro-ecosystem paradigm, arid regions of Iran, land use planning, rural area