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Investigating the Impact of Food Security on Ecosystem Services’ Nexus in Iran Over a 25 Years Period

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Abstract

Food security exists when there is enough, healthy and nutritious food for all people, with a physical and economical access. One way for communities’ achievement to food security, is to increase cultivated areas. In traditional systems, by increasing the area under cultivation, the disadvantage of reducing productivity is covered, because increasing the agricultural land will increase food production and the food security index, but according to ecosystem services’ synergy and trade off relationships, these changes affect other ecosystem services. In this paper, the effects of land cover and change are examined on ecosystem services nexus in Iran, between 1992 up to 2015.

Accordingly, the ecosystem services of food production, soil conservation and carbon storage were evaluated using Invest software. The results show that during this period of increasing food security, agricultural land has increased by 10.3 percent, which has led to an increase in food production services. On the other hand, due to the reduction of forest lands (14.7%) and range lands (13.55%) and the growth of urban areas (142.2), the ecosystem services of carbon storage and soil conservation have decreased sharply and it is a grate threat for food security and land stability in Iran. Therefore, it is necessary that policy-makers considers land use changes in food security process, with other synergistic factors in order to ultimately lead to achieve sustainability in ecosystems. At the end some suggestion will be presented to increase the food security level in all aspects.

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Keywords: Food security, ecosystem services’ Nexus