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Spatial modelling of food product ecosystem service for evaluated food security in Iran (case study: Qazvin province)

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Abstract

Food security exists when all people always have adequate, healthy, and nutritious food along with physical and economic access to food. However, population growth and change in the pattern of Food consumption, Lead to increased consumption and greater demand than food production levels. security food monitoring along population growth Cultivation restrictions are essential but a Lack of spatial indicators for evaluating balance and parity and heterogeneity of economic and social systems leads to estimates with high uncertainty. In this research for solving this problem, the development of a spatial model for evaluating food security indicators is investigated. Food security indicators used for this research are protein supply average, crop production, average adequacy of dietary calorie supply, and the average value of food production that in pixel scale and political boundary Qazvin province investigated. By field survey, landuse data was prepared and crop yield modelling information for each section of land use was calculated. By using the spatial model and Python, food security for tree strategic crop: wheat, barley, and rice was modeled. Results of this research show that Qazvin province has a high level of food security in terms of food availability indicators. With Comparing to cities, most measure of food security is in BoeinZahra city and less measure in Avag city. The location of Qazvin province on a national scale necessitates the province to support the food security of the capital, but the water crisis and population growth will threaten the food security of this region. The results of this research show that using spatial patterns evaluating food security, in addition of recognise hotspot and coldspot points, prepared the cognition of overflow sites that can utilise in spatial scenario compilation

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