Daily Market Location Using GIS and FUZZY Logic (Case Study: Sirjan)

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Extended Abstract

Objective: Nowadays, the location of urban land uses using GIS is very important in urban planning. Bazaar Rooz is one of the most important social uses in the city, which also affects other important activities. Creating modern markets is actually focusing on business-service activities that facilitate consumer access, save time and increase purchasing power, direct communication between producers and consumers, adjust prices, create a balance between supply and demand, eliminate It becomes unprincipled intermediation and strengthens neighborhood relations. Location of modern markets is based on spatial, social, economic and cultural analysis. In other words, it is necessary to locate based on a detailed and comprehensive analysis and based on the views and models proposed in this field, by going through the following steps. Approaching the geographic information system today is one of the most effective ways to improve policies and improve the planning and implementation of urban plans, so having an advanced and complete geographic information network is the best platform for planning and location. Finds the markets of the day. In this study, the current situation and the appropriate location of the day market of Sirjan have been studied.

Methods: The present article is applied-developmental in terms of purpose and descriptive-analytical in terms of method. According to the collected information, first identify the required criteria of the study area and use ARC GIS software and FUZZY logic to prepare the spacing and fuzzy layers and to weigh the layers according to the analysis process method. Hierarchy with the AHP model, as well as fuzzy fusion of layers from the AND function, and finally using the VIKOR method, the proposed locations were prioritized and ranked.

Results: The findings show that due to the limited number of modern markets in Sirjan and the inappropriate spatial distribution of existing markets using Arc GIS software and the process of hierarchical analysis, fuzzy method and Vikor model, of the 3 proposed locations that are most susceptible to local market location According to the criteria, the proposed location 2 was selected as the first priority.

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Conclusion: Therefore, in order to facilitate access and reduce traffic, as well as reduce environmental pollution, careful planning to create a day market in the best place so that all citizens can use the facilities with the least time and cost. Responsible for the construction of the day market

Keywords: Location, Spatial Analysis, Day Market, VIKOR, FUZZY.

References:

Akbari, B., Barimnejaz, V., Rahimi Badr, B (2016). ***Location of Tareh Bar Fruit Markets in 22 Districts of Tehran Municipality: Using AHP Hierarchy Analysis Model.*** Agricultural Economics, Volume 10, Number 2, 2016, pp. 147-171. (***In Persian***)

Alavi Zadeh, S.M., Alizadeh, S.D., Darwishi, H., Heshmati Jadid, M (2013), ***Spatial distribution of modern markets and their optimal location in Khorramabad using geographic information system***. Geography and Urban-Regional Planning, No. 12, pp. 67-88. (***In Persian***)

Ebrahimi, S.A., Madahi, R (2016). ***Selection of sports venues using GIS and FUZZY logic by AHP adjustment method and VIKOR spatial prioritization (Study study area: District 1 of Tehran Restaurant).*** National Geomatics Conference). (***In Persian***)

Ezatabadi H (2015). ***Extensive evaluation of Sirjan agricultural lands using remote sensing technology***. The first national specialized conference on agricultural sciences and environment in Iran in 2015. (***In Persian***)

Farajzadeh, M (2005). ***Geographic Information System and its Application in Tourism Planning***. Samat Publications. (***In Persian***)

Haidar Ali, M., Karimi, S (2018). ***Location of commercial areas in Tehran's 17th district using fuzzy logic and AHP***. Environmental Science and Technology, Vol. 21, No. 2, pp. 123-138. (***In Persian***)

Hassani, V., Jahanbin, N (2019). ***Spatial-spatial analysis of intra-city traffic accidents using geographic information system and fuzzy model (Case study: Kerman city)***. Quarterly Journal of Urban Social Geography, Vol. 6, No. pp. 57-70. (***In Persian***)

Hossain, M.Sh., Chowdhury, S.R., Das, N.G., Sharifuzzaman, S.M., Sultana, A (2009). ***Integration of GIS and multicriteria decision analysis for urban aquaculture development in Bangladesh***. Landscape and Urban Planning, Vol.90, No. 3-4, pp.119-133. (***In English***)

Kavousi, E., Mecaniki, J (2013). ***Optimal Location of Neighborhood Day Markets Using Hierarchical Analysis Model in Geographical Information System Case Study: Birjand City***. Journal of Geographical Spatial Planning, Golestan University Scientific-Research Quarterly, Vol.3, No.9, pp.1-18. (***In Persian***)

Meshkini, A., Grossi, A., Tavakoli, N (2017). ***Spatial analysis of urban areas of Qom in order to construct a social housing project with emphasis on the method of hierarchical analysis***, two scientific research journals of urban social geography, Vol. 4, No.2, pp. 129-149. (***In Persian***)

Mohammadi, J., Bagheri Kashkoli, A (2017). ***Comparative analysis of the relationship between poverty and urban violence using Vikor model (Case study: Yazd city neighborhoods.*** two quarterly scientific research journals of urban social geography, year 4, number 2, consecutive 11, Payir and winter. 103-128. (***In Persian***)

Normandipour, N., Abbas Nejad A (2015). ***Location of Shahr-e Babak Garbage Sanitary Landfill by Fuzzy Logic and Bolin Method and Using Geographical Information System***. Shahid Bahonar Karman University Urban Studies Study Magazine; Second year, No. 2, ***(In Persian)***

Ruskin Community Development Corporation (2007). ***A Project of the RuskinCommunity Development Fundation***. ***(In English)***

Shahabzadeh, M., Peyvastegar, Y., Heydari, A.A (2016). ***Analysis of spatial distribution of new urban commercial centers and their optimal location using GIS and AHP (Case study: Shiraz metropolis)***. Regional planning. Vol.6, No.23, pp. 99-112. ***(In Persian)***

Sheikh Biglou, R., Nematolahi Bonab, S., Sheikh Biglou, H (2012). ***Planning and location of modern markets in urban areas (Case study: Areas 3 and 4 of Tabriz)***. Journal of Urban Research and Planning, Vol. 3, No. 10, pp. 105-124. ***(In Persian)***

Taqvaee, M., Sheikh Biglou, R., Bandali, M (2010). ***Planning and Location of Isfahan's Modern Markets Using Hierarchical Analysis Model (AHP).*** Geography and Development, No. 19, 2010, pp. 99-126. ***(In Persian)***

Tims, W (2009), ***GIS model for the Land Use and Development Master Plan in Rwand***. ***(In English)***