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**Analitical Evaluation of Urban Spatio-physical Expansion and its Effects Over Land use Changes Based on GIS and RS (The Case of Shiraz between 1987-2013)**

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**Introduction**

Nowadays Physical and unplanned expansion of cities, especially in developing countries as one of the problems and challenges facing governments and planners are raised. This growth is the result of economic growth, rural-urban migration problems and risks with environmental, economic and social changes have brought about. The loss of green spaces, gardens and agricultural lands, rapid changes in land uses, pollution of air, soil and water resources, pressure on ecosystems and the environment, including the most obvious and most important problems of growth and physical development of cities. Growth and development of not only damage the surrounding areas, but also disqualifies the city from its symmetrical shape. Conflict between residents in the amount of land cultivated areas around the city and residents of urban areas of obvious result of this problem. On the other hand

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uneven development and the increased spread of cities, including problems of modern cities in the field of integrated management it provides. Urban sprawl (horizontal distribution) is the term used in the past half-century texts in terms of urban studies (spiral) is entered, and today most central issue in developed countries is urban seminars.

The history of the use of the term dates back to the mid-twentieth century, when the automobile as a result of over-exploitation and development of highways, development of urban spaces flourished in the United States. The term is meant sprawl or horizontal distribution areas of rapid growth and spread of large cities and even small towns, which in some cases has been extended to rural areas.

Growing population in cities is one of the inevitable; the populations in need of urban spaces that result in big cities have been faced with space constraints. Nowadays the city of cities can be found that is not involved with the problems of physical development. Non principles of land use, particularly in urban areas are one of the problems in Iran. As the most important population centers and metropolitan city of Shiraz in southern Iran in recent years has led to the uncontrolled growth of urban; Orchards and farmland land use around Shiraz in this many decades have changed and resulted in the growth of the city. The end result is ecological imbalance.

Literature Review

Pourmohammadi and others (2009), in an article entitled "Assessing the physical space of the city with an emphasis on changes in land use during 1977- 2006; A framework for mapping and analyzing the predictable patterns of urban growth in the scale of the space - frame using linear regression models were developed cross-tab. The results show that the correlation between the severity, extent and
mechanism conversion and land use changes as a result of Zanjan and visualize the spatial expansion - is physical.

Shyrklayy, AJob (2009), in their study titled "Assessment of city development and the impact of land use changes on the southern shores of the Caspian Sea using GIS Case study: Chalus-light axis between the years (1989 to 2007)". This study show that in these period urban sprawl phenomena are growing very fast and in a uncontrolled processing.

Materials and methods

The descriptive and analytical method is used in this study. In this paper, the land use changes during 1366-1392 was assessed analytically by the use of Landsat 8 and 5 Multi temporal satellite pictures and also by process techniques of satellite pictures with emphasis on physical and spatial expansion of Shiraz. And by the use of predicting techniques of land use changes like consolidated method of automatic cells and Markov chain, the Probable expansion trend of Shiraz Township until 1402 was predicted.

Results

Shiraz Township as the most populated city in the south of Iran in the recent years has faced with unbalanced growth. The results of this research showed that land use area of Shiraz has increased from 7327 acres in 1366 to 19451.61 acres in 1392. The results of Shannon entropy and

Conclusion and Implications

Heldern models showed that the entropy amount of Shiraz in 1366 was 2.4777, while the amount of Ln (9) was 2.1972. This amount was 2.6957 in 1392. According
to Markov chain-automatic cells model, land use would be increased about 23096.61 acres in 1402, that in comparison with 1392 will increase about 3645 acres. The results of this paper showed that the spatial-skeletal expansion of Shiraz is mostly in South East- North West directions.