Investigating the Capacity of the Urban Spaces and Planning for the Endogenous Development (Case Study of Bojnord)

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1. Introduction

The rapid horizontal expansion of the cities during the previous decades has created numerous problems for the cities and has affected the urban environment's instability. At the end of the 20th century, these problems led to the revision of the urban planning models and the introduction of new ones like the endogenous development. Studies show that third world countries, such as Iran, due to their highly scattered, horizontal model of development, should adopt endogenous development model. The increase in the urban population of the world has created some challenges such as poverty, climate change, congestion, and shortage of housing for the poor which have hindered the sustainable development. In 2008, more than half of the world's population lived in cities. It is expected that the urban population of the world will exceed to 5 billion people by 2030. It is also expected that the urban population of Asia and Africa would be doubled between the years 2000 and 2030. It is estimated that in Asia, by 2010, more than 2.2 billion people will live in cities. The number of megalopolises in the world will exceed to 500, more than half of which will be located in Asia; therefore, location-finding and the development of urban areas for the sake of their citizen's welfare becomes a necessity.

2. Theoretical Framework

In recent decades, urbanism in Iran has increased rapidly. From 1957 up to 2007, the percentage of Iranian urban population has increased from 31.5 percent to 68.5 percent. At the present time71.5 percent of people from the total population of 75 million live in the urban areas. As a result, housing is one of the major issues of

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concern in the Iranian society. The present research aims to describe the development model in Bojnord. To this end, the study aims to answer the following questions: 1. How has Bojnord developed physically in the recent years in terms of being a sprawling or compact city? 2. Are the barren lands and empty urban spaces which are situated inside the city, specifically the unused ones in Bojnord, have the capacity for endogenous development. The research hypotheses are presented in the following answers: a) Bojnord in recent decades, has developed according to the urban sprawl models b) The best model for the sustainable development of Bojnord is the endogenous development and the use of urban spaces with the capacity for such a development.

3. Methodology

The research method in the present study is descriptive-analytical. Before the analysis, the data was gathered through the document analysis and observation. First, using Shannon and Heldren Entropy models, the type of urban development is determined. Then, in line with the findings, some suggestions are made. The case study is the city of Bojnord. The findings reveal that the city has sprawled and that little attention has been paid to the social issues.

4. Discussion

Bojnord with a population of 200 thousand people, is located in North Khorasan, the north-east of Iran. It is estimated that, by 2022, its population will reach to 300 thousand people. According to Bojnord's comprehensive plan, the city spans over the area of 2854.5 hectares785.6 hectares of which is residential. Barren lands comprise 23.4 percent of the city's surface area. Approximately 725 hectares of the land is abandoned. Nearly 380 hectares of the land is used for non-urban purposes. Studies show that barren lands are scattered across the old, inner, and the outer textures of the city. Barren lands account for 7.9 percent of the old texture, 6.8 percent of the inner texture, and 33.4 percent of the outer texture. Of the 725 hectares of barren scattered lands across the city, 620 hectares are located on the outer texture; therefore, barren lands account for nearly twice the area of residential land used on the outer texture. According to the comprehensive plan, 682.5 hectares are barren lands, a figure which reaches 762 hectares once the martial and industrial lands are added to it. These 762 hectares can accommodate 82 thousand more people in the next 10 years. Using the comprehensive plan's data, it is expected that the city's population is in need of 568 hectares of land, which can be supplied from the barren lands. The most ineffective land use is seen in the industrial lands (4.8 hectares), martial lands (78 hectares) and the workshop areas (16.3 hectares).

5. Conclusion and Suggestions

Studies reveal that during the spread of Bojnord from 1957 up to 2007, the rate of the increase in the city's surface area has surpassed that of its population. The two comprehensive plans of the city were incapable of curbing its unseemly growth. According to the researches, the growth of the city has created problems for both the city and its citizens. In order to solve these problems, endogenous development,

as a type of development which is closer to the sustainable development, seems to be a better solution. Studies which applied Shannon and Heldren Entropy models show that in the recent decades the city has sprawled in a way that is inconsistent with the fundamentals of the sustainable development. Finally, it should be mentioned that endogenous urban development is a necessity for the city's future development and the urban management. To this end, in line with the endogenous development in Bojnord, the following suggestions are made: preventing urban sprawl; preserving desirable gardens and arable lands, creating a green belt between the extant texture of the city, Golestan Shahr and Valiasr settlements, using martial and industrial lands for endogenous development, and preventing the spread of the illegal settlements.

Keywords: Shannon entropy model, Heldren entropy model, Scattered sprawl, Endogenous development, Bojnord.

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