

Analysis on the Relationship between Urban Ecological Land and Urban Competitiveness in Xi'an

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Abstract: The relationship between urban ecological environment and urban competitiveness is increasingly close. However, the dynamic evolution relationship is often neglected. City is a complex ecosystem with socio-economy-nature dominated by human activities. As an important part of urban complex ecosystem, ecological land has important ecological service function. Under the background of rapid urbanization, in order to meet some development requirements, a large number of ecological land has been converted into construction land for urban development, such as farmland, wetland, water area. There are some problems, such as landscape fragmentation, land ecological services decline. Development practice shows that encroaching on ecological land to promote urban competitiveness is contrary to sustainable urban development. Using the methods of literature research and empirical analysis, this paper discusses the changing characteristics between urban ecological land and urban competitiveness in Xi'an.

1. Introduction

China's rapid urbanization is driven by the deprivation of agriculture, farmers, rural land, labor and capital. These will cause problems such as resource shortage, ecological damage, frequent environmental hazards and worsening social imbalance. With the progress of The Times, this traditional urban growth mode can't be sustained. We urgently need to blaze a trail for the ecological civilization development. At present, the ecological civilization concept has been established as the basic content of the socialist core value system, aiming at promoting the harmony between man and nature. However, the following phenomena often occur in practice.

First, with the rapid expansion of urban land, a large number of non-construction land is transferred blindly for the construction land development. Which will have an irreversible impact and damage on the ecological security of cities and towns. At the same time, urban land ecological and environmental protection will also face great challenges.

Second, most cities expand construction land at the cost of reducing ecological land such as agricultural land, wetland and water area when revising the overall land use planning. Only in this way can it meet its short-term goal of GDP growth and urban competitiveness. It is reported that more than 2 million hectares of wetlands have been lost in China in the past 10 years, with the service value of the wetland ecosystem estimated at about 370 billion per year. This ignores the land ecological function and the ecological services value. It is also detrimental to the maintenance and sustainable development of the land ecosystem.

Third, with the increase of the actual demand for urban ecological land, but its actual supply is developing slowly, the gap between supply and demand is constantly expanding. The relationship between urban ecological environment and urban competitiveness is becoming increasingly close, while the dynamic evolution relationship is often ignored. Therefore, it is of great significance to study the relationship between urban ecological land and urban competitiveness for sustainable urban development.

2. Related concepts of urban ecological land and urban competitiveness

2.1 Urban ecological land concept

Urban basic ecological land is the minimum land for basic ecological service functions, such as supply, support, circulation, regulation and gestation, which are necessary for the urban economy sustainable development and the residents' life quality. It aims to improve the quality of people's life in cities and protect important ecosystems. Urban ecological land is not only related to the geographical location, natural resource types, climate, soil, geology and other natural conditions, but also depends on the level of urban development, development positioning and the life requirements quality.

Ecological land is other urban land that can directly and indirectly provide ecosystem services except artificial hardened surface. It includes green land, water body and non-vegetation land in the city, covering farmland, woodland, pasture and green land system around urban residential area and traffic trunk road.

Construction land is the land completely or mostly replaced by artificial built environment on the natural surface, and it is the area where the surface is most affected by human beings. The main land features types are urban and mining land, including land for artificial construction in towns and villages.

Ecologically staggered land is the land with more than two types of land, each type of land does not exceed 1/3, and the land covered or utilized type cannot be clearly determined.

Table 1: Classification on urban ecological land

| The first level | The second level | The third level |
|-----------------------------|--------------------------------------|--|
| Ecological land | Green space | Agricultural land, forest land, grassland, garden green space, park green space, protection green space, scenic green space, courtyard green space, traffic green space |
| | The water | Waters —— rivers, lakes, marshes Wetlands —— offshore and coastal wetlands, river wetlands, lake wetlands, marsh wetlands, artificial wetlands Other water bodies —— reservoir ditches, aquaculture water body, landscape water body |
| | Vegetation-free land | Salt and alkaline land, sandy land, bare land, idle land, others |
| Construction land | Artificial building | Land for residential use, land for public facilities, industrial and mining storage land, special purposes land |
| | Land for traffic | Railways, highways, streets, rural roads, airports, ports and docks |
| Ecologically staggered land | Combination on urban and rural areas | |
| | Transitional land | Water-land, dry-wet, forest fringe zone agroforestry, agroforestry, forest-grass desert margin, intersections |

2.2 Urban competitiveness concept

Urban competitiveness is the ability for a city to attract, compete, own, control and transform resources to provide residents welfare in the development process compared with other cities. Urban competitiveness can also be divided into comprehensive economic competitiveness and sustainable competitiveness. Sustainable competitive city is a city that develops in the aspects of economy, society and environment, so as to keep its competitive power continuously enhanced for a long time. Eco-environmental competitiveness is one of the important components of urban sustainable competitiveness.

3. Analysis on the relationship between urban ecological land and urban competitiveness in Xi'an

This paper collected and analyzed the data of Xi'an city from 2007 to 2011, such as urban ecological land area, ecological land proportion and urban competitiveness index. Detailed data are shown in table 2. Relevant data were obtained from *China City Statistical Yearbook* and *China City Competitiveness Report*. According to table 2, the change chart and linear prediction of ecological land and urban competitiveness in Xi'an city are obtained, as shown in figure 1.

Table 2: The basic data on urban ecological land and urban competitiveness in Xi'an city

| | 2006 | 2007 | 2008 | 2009 | 2010 |
|--|--------|--------|--------|--------|--------|
| Ecological land area | 330500 | 330500 | 321200 | 330500 | 318700 |
| Percentage of garden green space | 39.82% | 31.11% | 31.89% | 30.42% | 29.18% |
| Comprehensive index of urban competitiveness | 0.478 | 0.517 | 0.563 | 0.553 | 0.697 |
| Percentage of ecological land | 92.27% | 92.27% | 89.67% | 92.27% | 88.70% |

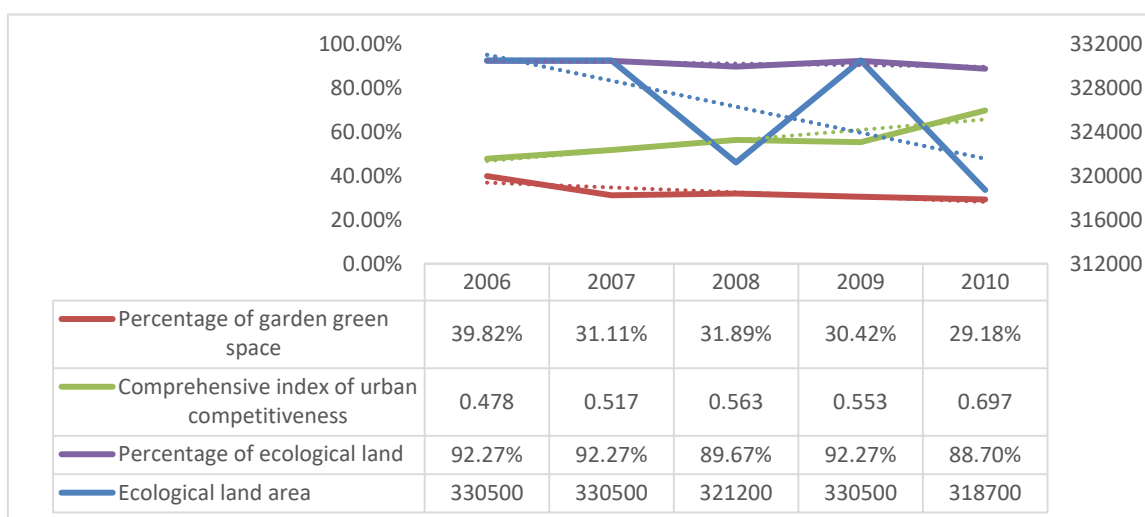


Figure 1: The change chart and linear prediction of ecological land and urban competitiveness in Xi'an city

By observing the changing trend of urban ecological land and urban competitiveness over time, the changing characteristics of urban ecological land and urban competitiveness are summarized as follows.

First, the improvement of China's urban competitiveness is accompanied by urban expansion,

construction land increase, the ecological land reduction and so on.

Second, the relationship between ecological land and urban comprehensive competitiveness is mainly reflected in the significant positive correlation.

4. Conclusion

In the big cities where the urbanization process has not been completed, the agricultural land is reduced and the urban garden green space is increased. At this time, the speed of urban competitiveness is relatively fast, indicating that the agricultural land reduction and the urban garden green space increasing have a positive effect on the improvement of urban competitiveness. Part of the reduced agricultural land is converted into urban construction land, thus improving the city's economic strength and infrastructure competitiveness. However, the urban green space area increasing improves the urban ecological environment competitiveness.

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