Analysis of the Evolution and Driving Forces of Main Functional Land Use in Zhangye City (Post-print)

Authors: Liang Feng, Li Qianguo, Shi Peiji, Zhang Xuebin, Chen Jiayin

Date: 2019-03-07T00:00:00+00:00

Abstract

Studying the evolution of urban functional land use can reveal the characteristics, trends, and formation mechanisms of urban functional spatial evolution in China in the new era, providing a theoretical basis for urban management. This paper takes the central urban area of Zhangye as the study area, employs GIS tools and methods to quantitatively analyze the spatial evolution characteristics and driving factors of three major functional land uses—residential land, industrial land, and public service land—in Zhangye City since 1981, thereby providing guidance for the sustainable development of oasis urban space. The study finds that urban residential land and public service land in Zhangye exhibit a gradual increasing trend, spatially demonstrating an "agglomeration→dispersion" evolution pattern, with both spreading outward from the old city area. In contrast, industrial land first increased and then decreased, spatially showing a "mixed→concentrated" transformation characteristic, overall concentrating within the northeastern industrial park. The evolution of urban functional land use in Zhangye is the result of the combined effects of population-economic drivers, macro-policy regulation, the game between urban development and ecological environment, transportation line traction, and urban planning guidance.

Full Text

Preamble

DOI: 10.12118/j.issn.1000-6060.2019.02.21
Journal: Arid Land Geography (ChinaXiv Cooperative Journal)
ISSN: 1000-6060 (2019) 02-0414-09 (0414-0422)

Authors

LIANG Feng, LI Qianguo, SHI Peiji, ZHANG Xuebin, CHEN Jiayin
College of Geography and Environment Science, Northwest Normal University, Lanzhou 730070, Gansu, China

Abstract

China is facing a critical period of rapid urbanization and urban spatial reconstruction. Studying the evolution of urban functional land can reveal the features, trends, and formation mechanisms of urban functional space in the new era and provide theoretical guidance for urban management. This paper takes downtown Zhangye City as the research object and uses nuclear density estimation and circle analysis to quantitatively analyze characteristics of the spatial evolution and its driving forces of residential land, industrial land, and public service land since 1981, which will provide guidance for the sustainable development of oasis cities. The results show that urban residential land and public service land are gradually increasing, and it appears a trend of "cohesion→external dispersion" in space. They spread from the central to the surrounding area. While the industrial land increases in the beginning and decreases then, and it appears the changing of "mixed→concentration" in space. Overall, the three functional lands together push the urban space expanding out. In addition, the evolution of urban functional land is the result of the combined effects of population, economy, policy control, gameplaying between urban development and eco-environment protection, traffic traction, and urban planning.

Keywords

urban functional land; urban spatial structure; evolution; downtown of Zhangye City

Note: Figure translations are in progress. See original paper for figures.