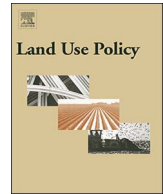




Contents lists available at ScienceDirect

Land Use Policy

journal homepage: www.elsevier.com/locate/landusepol

Shaping or being shaped? Analysis of the locality of landscapes in China's farming-pastoral ecotone, considering the effects of land use

Fang Wang^{a,b,*}, Hao He^c, Ying Dong^c, Wei Xiong^c, Xiaohua Zhu^{d,*}, Jing He^a

^a Sino-German Joint Laboratory on Urbanization and Locality Research (UAL), College of Architecture and Landscape Architecture, Peking University, Beijing, 100871, PR China

^b Key Laboratory for Earth Surface Processes, Ministry of Education, Peking University, Beijing, 100871, PR China

^c Sino-German Joint Laboratory on Urbanization and Locality Research (UAL); College of Urban and Environmental Sciences, Peking University, Beijing, 100871, PR China

^d Institute of Geographic Sciences and Natural Resources Research, Chinese Academy of Sciences, Beijing, 100101, PR China

ARTICLE INFO

Keywords:

Locality
Cultural landscape
Land-use policy
Spatial distribution
Content analysis
China's farming-pastoral ecotone

ABSTRACT

Due to the evolutionary process and cultural context, landscapes in different regions have relevance and heterogeneity. Hence, it is necessary to understand the landscape systematically from a macro perspective. Urbanization in China involves strong land-use policy-making, which further shapes the natural and cultural landscapes of a region. It is constructive to discern the interplay between the landscape and the related land-use policies by examining changes and variations in the regional and trans-regional landscape based on locality. China's farming-pastoral ecotone is one such region that covers a large area of 15 provincial administrative units, representing diverse forms of land use and landscape combinations. Using a comprehensive, real-time user-generated content dataset, as well as software programs, including Matlab, ArcGIS, NVivo and Octopus Collector, 27,613 photographs were coded, translated, combined, reconstructed and analyzed via spatial and content analysis. The primary conclusions are as follows. Locality elements in the farming-pastoral ecotone include nine types of dendriform nodes containing 52 free nodes, showing that the heterogeneity of the landscape is relatively high and that locality elements are abundant. After comparing the spatial distributions of diverse landscape elements, we determined that most elements related to natural landscape are located in the southern section, which presents a mostly pure locality, while elements of cultural landscape are primarily distributed across the central and northern sections, which show a type of constructed locality. The pure-constructed locality differentiation patterns coincide with policies in the south and north, which differ in terms of elasticity and rigidity. This study's results indicate that for better or for worse, strong policies can interfere with locality development.

1. Introduction

The rapid advance of globalization and urbanization has led to drastic changes in land use and further changes in landscape transition. As a result, regional traits that have been passed from generation to generation are gradually withering away. Civic elements such as towns, villages, streets, and architecture possessing local features have been heavily affected by this trend. Urbanization in China involves forceful land-use policy-making, leading to profound land-use changes and further shaping regional natural and cultural landscapes.

Locality refers to existing natural and cultural characteristics of a certain area (Wang et al., 2014), resulting from long-term man-land relationships embedded within a specific locale or region. Meanwhile,

in most cases, landscape expresses the perception of land (James, 1934) and reflects the diverse outcomes of interactions between human cultures and natural elements. Thus, landscape refers not only to general environmental and geographic features but also to folk customs and economic conditions, as well as art and faith. Consequently, landscape serves as one of the best interpretations of locality.

Because of the evolutionary process and cultural context, the landscapes in different regions have relevance and heterogeneity. Therefore, it is necessary to understand landscape systematically from a macro perspective. Locality does not equal the concept of place but is related to the manner of interaction with other places and social processes (Cresswell, 2004). Locality not only differentiates natural conditions but also political and economic integral patterns (Cochrane, 1987). By

* Corresponding authors.

E-mail addresses: wfphd@pku.edu.cn (F. Wang), 1300013257@pku.edu.cn (H. He), dongying89@pku.edu.cn (Y. Dong), 1300013263@pku.edu.cn (W. Xiong), zhuxh@igsnr.ac.cn (X. Zhu), 1601214995@pku.edu.cn (J. He).

<http://dx.doi.org/10.1016/j.landusepol.2017.07.042>

Received 11 January 2017; Received in revised form 21 July 2017; Accepted 22 July 2017
0264-8377/ © 2017 Published by Elsevier Ltd.

examining changes and variations in the regional and trans-regional landscape based on the structure and evolution of the locality, it is helpful to examine the interplay between the landscape and the related land-use policies.

At the same time, technology development makes it possible to research the locality of the trans-regional spatial scale. It is undeniable that traditional media have played a positive role in processes such as local production, and local construction, re-localization (Thomas, 1998). The rise of new media and the application of social software have led media data through a time-stamped, geo-tagged path in which the contents, quantities and qualities of samples have been improved. UGC (user-generated content) reflects a type of locality based on user perspectives (Evaggelos and Phivos, 2016). It is now possible to acquire comprehensive, real-time UGC data including photos, views, and text from Instagram, Flickr, and Panoramio. Based on these open and volunteered datasets, we offer a depiction of content in addition to revealing the space laws of landscape localities on regional and trans-regional scales. The conclusions based on the large data tend to coincide with the official data and have strong reliability, which have been verified in the field of urban land use (Vanessa and Enrique, 2014).

2. Materials and methods

2.1. Research object

In China, the farming-pastoral ecotone is a region that covers a large area of 15 provincial administrative units and represents diverse forms of land use and landscape combinations. It is depicted as an area where the intensive industrial area to the south of the Han Dynasty (202 BCE–220 AD) Great Wall gradually transitions into an extensive agricultural area, a fixed pastoral area, a fixed pastoral-nomadic transition area, and finally a nomadic area where annual precipitation levels reach approximately 400 mm (Zhao, 1953). Zhao (1959) created a complete outline of China's farming-pastoral ecotone for the first time. The outline depicts a banded area that stretches across southern and northern China, starting from the southeastern edge of the Inner Mongolia Plateau, across western Liaoning, northern Hebei, northern Shanxi and Shaanxi, and central Ningxia, and southwest of the Gansu-Qinghai conjunction, ending at the junction of West Szechwan, northwest of Yunnan and southern Tibet. The farming-pastoral ecotone is a typical transitional area with a diverse and complex natural environment that crosses multiple administrative divisions of alternating cultures and diverse landscapes.

From a locality perspective, the farming-pastoral ecotone is a typical region. In terms of land use, this ecotone is a transaction zone between cropping and nomadic areas and an ecotone between arid and humid areas (Shi, 1999). With respect to physical geography, the ecotone crosses multiple terrain units that exhibit a high degree of instability and transitivity. From the perspective of cultural geography, it is a heterogeneous, isomorphic cultural block that includes linear heritage spaces crossing numerous administrative units. The ecotone is also an area where cultural landscapes are on the verge of variation and extinction as a result of the combined effects of natural environments, land use and human activities. Coupled with increasing interference from human activities, land use patterns and landscapes in the area are undergoing considerable changes (Yang et al., 2015). Over the last decade, the Chinese government has mapped out corresponding land development policies to keep pace with the rapid speed of urbanization. The large span of the farming-pastoral ecotone renders it susceptible to various land-use policies; in certain regions, ecological protection strategies have been put in place to ease man-land tensions, while some regions have boomed in the trend of urbanization with the large development of urban construction. Certain regions have still clung onto their traditions, while others can barely stand the shock from modernization.

Previous studies conducted in the farming-pastoral ecotone have

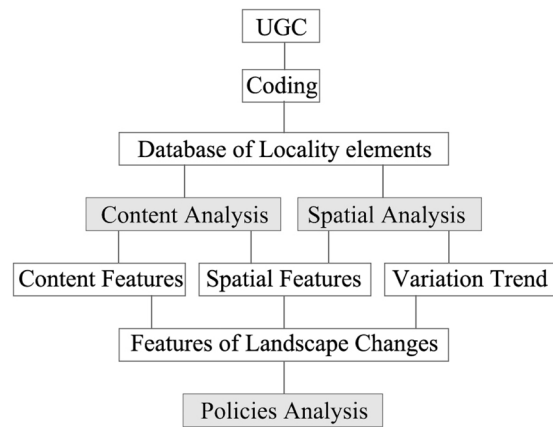


Fig. 1. Data processing and analysis methods. (Source: authors).

mainly focused on principles of ecological environment (Zhao et al., 2002), climatic change (Shi et al., 2017), physical geography (Liu et al., 2002) and land use (Li et al., 2015). However, by taking into consideration the effects of land use, this paper comprehensively studies changing patterns and regional differences in the locality of the farming-pastoral ecotone based on different geographic scales.

2.2. Research methods and data processing

The research aims to study the correlation between land use and regional landscape change. Using a large and open UGC dataset, we evaluated changes and differences in cultural landscapes in the farming-pastoral ecotone from a locality perspective. With these data, the seemingly unrelated data points were coded one by one, acquiring locality elements, and then, the spatial features, inherent correlations, and dynamic changes of locality elements were analyzed. Finally, we studied man-land relationships of the farming-pastoral ecotone with the related land-use policies. The specific operation procedures applied are shown in Fig. 1.

2.2.1. Data source and collection

From a subjective cognitive perspective, as the farming-pastoral ecotone spans multiple provincial administrative units, its boundaries are ambiguous and uncertain, coinciding with the concept of vernacular geography. One feature of vernacular geography is not subject to administrative jurisdictions (O'Sullivan and Unwin, 2010), while from another aspect, it has a vague and ill-defined boundary making it an imprecise region (Grothe and Schaab, 2009) or a vague region (Davies et al., 2009). If a considerable amount of material from people's vague footprint is online, it is possible to outline the scope of the ambiguous space and further extract the elements of cognitive landscape locality.

The presentation of localities can be achieved not only by recording physical properties but also by transcribing and re-constructing geographic realities through the use of texts, images and videos (McCormack, 2004). In this way, geographic conceptions may be obtained. Photos can reflect how photographers view the environment as well as the things they are willing to share with others. Conversely, localities represent the symbolized cultural structures revealed or metaphorized in pictures (Edwards, 1996). García-Palomares et al. (2015) compared three online communities for image sharing and storage, namely, Instagram (www.instagram.com), Flickr (www.flickr.com) and Panoramio (www.panoramio.com). Among them, Panoramio best suits our needs in terms of space locality research for the following three reasons: (1) It offers accurate spatial attributes. Linked with Google Maps and Google Earth, the website can automatically read and classify coordinate information contained in pictures and can match pictures to the corresponding geographic coordinate. (2) Panoramio exhibits distinct features of locality. The website is designed to allow users to pin

Download English Version:

<https://daneshyari.com/en/article/6546369>

Download Persian Version:

<https://daneshyari.com/article/6546369>

[Daneshyari.com](https://daneshyari.com)