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Research on Rural Landscape Planning under the Perspective of Resilience

--Taking North China as an Example

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Abstract: In the process of urbanization in China, the problem of the monotony of rural landscapes is becoming increasingly prominent. At the same time, people's activities are becoming more frequent, and the diversified pursuit of a better life requires that the functions of rural landscapes be further enriched and expanded. This study introduces the concept of a multi-functional landscape and, based on the division of the main multi-functional orders, constructs planning strategies suitable for rural landscapes in North China. The planning strategies suitable for the sustainable development of rural landscapes in North China are analyzed using the multi-functional landscape classification method and the ASEB analysis method (Activity, Setting, Experience, Benefit). The research results show that targeted rural landscape planning and design can effectively meet the development and transformation needs of modern villages.

Keywords: Resilience theory, rural landscape, traditional village, multifunctional landscape planning, sustainable development of landscape.

1. Introduction

Resilience theory is an interdisciplinary research field.Initially, the concept originated in physics, and has expanded to encompass ecology, engineering, social sciences, public policy, and many other fields. The resilience of rural landscapes refers to the ability of rural ecosystems and the associated social, economic, and cultural systems to maintain the continuity of structure, function, and services in the face of external pressures and disturbances such as natural disasters, climate change, and socioeconomic changes, and to self-repair and adapt as necessary.

From the perspective of resisting external environmental shocks, landscape research faces the needs and challenges of society, government, and the economy. Future landscape research needs an interdisciplinary approach and, based on the principle of supporting sustainability with landscape multifunctionality, integrates social, economic, and ecological functions to promote sustainable development [1]. Selman pointed out that multifunctional landscape planning is expected to become a mediation and coordination mechanism that can create synergies to solve systemic problems [2]. Brandt et al. pointed out that the development of multifunctional landscapes can be seen as a tool as a landscape planning strategy [3]. Meanwhile, Sadahisa et al. believe that creating a multifunctional

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landscape or making the landscape have multiple uses is the key to sustainable landscape development [4].

The research area of the "resilience" perspective is roughly divided into urban and rural areas. In recent years, with the in-depth implementation of China's rural revitalization strategy, more attention has been paid to resilience research in rural areas. Bao et al. believe that against the background of rapid urbanization and drastic changes in the regional ecological environment, a full understanding of the multiple values of rural landscapes is the basis for meeting social needs and achieving sustainable development of rural areas [5].

Although many scholars have conducted in-depth research on the multiple functional characteristics of multifunctional landscapes, research on the combination of multifunctional landscapes and sustainable development is still insufficient. Therefore, this paper aims to comprehensively analyze the multiple functional characteristics of multifunctional landscapes and their relationship with the core elements of sustainable development, exploring the intrinsic links and synergies between the two. Through this research, it is hoped to provide new perspectives and strategies for the sustainable development of rural landscapes and broader regions.

2. Overview of the research area

2.1. North China

As an economically and demographically crucial agricultural production area in China, the rural development of North China has a unique historical heritage. However, the historical and cultural heritage of the countryside remains under-exploited and undervalued in the process of modernization. Compared with the booming rural development in the south, the development of the countryside in North China has been slightly sluggish. Therefore, it is essential to build the resilience of the rural landscape for promoting sustainable regional development and enhancing the ability of the countryside to cope with external shocks.

North China consists of Beijing, Tianjin, Hebei Province, Shanxi Province and the central part of the Inner Mongolia. For the purposes of this study, Shuiyu Village in the Beijing-Tianjin area, Sanjianling in Hebei Province, Pingyao in Shanxi Province and Hexigten Qi in the Inner Mongolia were selected as the study sites, based on a consideration of the planning layout [6-8]. These four rural settlements are each unique and represent the rural landscape and development models of various regions and cultural backgrounds in North China.

3. Method

3.1. ASEB grid analysis

The ASEB grid analysis method combines the demand hierarchy analysis (i.e., Activity, Setting, Experience, and Benefit) with the different elements of the SWOT analysis (Strength, Weakness, Opportunity, and Threat), forming a matrix with 16 cells, which are sequentially studied and analyzed. The 16 cells are usually studied and analyzed sequentially from SA (Strengths, Activity) to TB (Threats, Benefit) [9].

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Table 1: ASEB grid analysis matrix

	Activity (A)	Setting (S)	Experience (E)	Benefit (B)
Strength (S)	SA	SS	SE	SB
Weakness (W)	WA	WS	WE	WB
Opportunity (O)	OA	OS	OE	OB
Threat (T)	TA	TS	TE	TB

3.2. Multifunctional landscape classification

Rural multifunctional landscapes have social, economic and ecological functions. According to the priority of functions in shaping the rural landscape, the functions of 'society, economy and ecology' are compared and ranked in a primary and secondary relationship to obtain different types of villages with landscape goals[10].

Rural landscapes can be classified according to the order of landscape functions emphasized, and can be divided into four categories: (1) social function-oriented; (2) industry and economy-oriented; (3) nature and ecology-oriented; (4) functionally balanced[11]

Table 2: Multifunctional landscape village classification table

	society	economy	ecology
social function-oriented		society>economy>ecology	society>ecology>economy
industry and economy-oriented	economy>society>ecology		economy>ecology>society
nature and ecology-oriented	ecology>society>economy	ecology>economy>society	
functionally balanced		Society=economy=ecology	

4. Case

4.1. Shuiyu Village in the Beijing

Table 3: ASEB grid analysis table of Shuiyu village

	A	S	E	B
S	Cultural heritage: ancient village exploration, cultural performances, handicraft experiences, etc.	Ancient village and ancient buildings: well-preserved and forming a unique tourist attraction with the natural environment.	The lifestyle and traditional culture of ancient villages enhance a sense of cultural identity and belonging.	Preserves and passes on traditional culture and ancient village architecture. Promotes local economic development
W	Lack of modern entertainment facilities, making it difficult to satisfy the diverse needs of young tourists.	Poor infrastructure: inconvenient transportation and limited accommodation.	Facing modernization, the sense of humanistic experience is weakened.	Overdevelopment damages the ecological environment and cultural heritage of ancient villages.

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Table 3: (continued).

O	Cultural tourism: Historical and cultural value will receive more attention	Invite social capital to develop infrastructure.	Introduce a professional team to plan and manage the project to improve quality and attractiveness.	Sustainable development of the tourism industry can promote the long-term stable growth of the local economy.
T	Homogenized tourism activities	Natural disasters (such as floods and earthquakes) can cause irreversible damage to ancient villages.	Rising visitor expectations require a continuous supply of high-quality travel experiences.	Large investment, long payback period

4.2. Sanjianling in Hebei

Table 4: ASEB grid analysis table of Sanjianling village

	A	S	E	B
S	Combining agriculture and tourism: relying on forestry resources to develop activities such as pear picking, customs and farmhouse tourism.	Environment: The mountainous area is beautiful and close to nature.	Experience farming, explore the natural scenery and taste the local specialties.	Enrich the travel experience; Drive local economic development
W	Lack of innovation; Organizational management needs to be further standardized and improved.	Poor infrastructure, inconvenient transportation, limited accommodation	Single experience program: limited to farming experience; Uneven service quality: affects the overall experience of tourists.	Overdevelopment leads to ecological damage and a decline in land carrying capacity.
O	Growing market demand: the transformation of tourism consumption concepts and the continuous growth of the rural tourism market.	The development of eco-tourism has great potential for development; Increase investment and construction efforts to improve tourism	Innovate experience programs; Improve service quality.	Sustainable development of the tourism industry can promote the long-term stable growth of the local economy.

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Table 4: (continued).

T	Young people were not willing to engage in agricultural and forestry production activities; Competitive pressure: Similar rural tourism projects exist in surrounding areas.	Rising visitor expectations require a continuous supply of high-quality travel experiences.	Rising visitor expectations require a continuous supply of high-quality travel experiences.	Large investment, long payback period

4.3. Pingyao in Shanxi

Table 5: ASEB grid analysis table of Liang village

	A	S	E	B
S	Historic buildings: A large number of Ming and Qing Dynasty buildings have been preserved, providing tourists with a wealth of activities. History and culture: One of the birthplaces of the "Jin traders"	The ancient buildings and streets of Pingyao Ancient City are well preserved, providing visitors with an authentic historical environment; The natural environment is beautiful, the air is fresh, and it is away from the hustle and bustle.	A rich cultural experience, including traditional farming and folk customs; An immersive experience of ancient lifestyles and cultures.	Enrich the travel experience and drive local economic development
W	Lack of innovation: some activities may too traditional to attract young tourists	Poor infrastructure, inconvenient transportation, limited accommodation; Weak environmental awareness: damaging the overall environmental image of the village	Homogenization of travel experiences; Uneven service quality affect tourists' overall experience	Weaken the development of other industries, such as manufacturing, agriculture and forestry; Destroy the local ecological environment

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Table 5: (continued).

O	Further explore the cultural connotations; Apply digital technology, such as VR experiences and intelligent navigation.	Innovative experience programs: introduce tourism elements and technical means; Improve service quality through professional training and management	Innovative experience programs; Digital technology applications such as VR experiences and smart navigation; Improved service quality	Sustainable development of the tourism industry can promote the long-term stable growth of the local economy.
T	Homogeneous competition has led to a shrinking share in the travel market.	Rising visitor expectations require a continuous supply of high-quality travel experiences.	Market competition is intensifying, and the experience needs to be constantly improved.	Large investment, long payback period

4.4. Hexigten Qi in the Inner Mongolia

Table 6: ASEB grid analysis table of Hexigten Banner village

	A	S	E	B
S	The rich tourism resources provide tourists with a wide range of options for tourist activities, such as hiking, sightseeing, and exploration; Ethnic culture: Mongolian Naadam, horse racing, wrestling, etc.	Natural scenery: The unique and beautiful complex and diverse landforms include the remains of Quaternary glaciers, grassland lakes, and river canyons; The ecological environment is good.	A unique cultural experience, Mongolian culture and folk customs; In-depth travel experience: Through hiking, exploration and other activities, tourists can experience the local natural scenery and human history in depth.	Knowledge: It can broaden tourists' horizons and help them understand the local history, culture and customs; Employment: The development of the tourism industry can drive local employment and raise the income level of residents.

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Table 6: (continued).

W	The seasons are distinct, with snow and ice in winter and grasslands in summer, and there are obvious differences between the peak and off-peak tourist seasons. The activities lack innovation	Poor infrastructure, inconvenient transportation, limited accommodation; High pressure on environmental protection.	Homogenization of travel experiences; Uneven service quality affect tourists' overall experience	Destruction of the ecological environment: The influx of large numbers of people reduces the carrying capacity
O	Expanding tourism market Policy support	Ecological tourism has huge potential for development; Increase investment in construction and improve tourism reception capacity.	Innovative travel products; Digital technology applications such as VR experiences and smart navigation; Improve service quality	Sustainable development of the tourism industry can promote the long-term stable growth of the local economy.
T	Competitive pressure: similar tourist resources in surrounding areas; Impact on the sustainable development of tourism activities.	Natural disasters: floods, droughts, etc; Environmental pollution: industrial and agricultural pollution in surrounding areas.	Rising visitor expectations require a continuous supply of high-quality travel experiences.	Large investment, long payback period

5. Rural landscape planning strategies

5.1. Functionally balanced

Functionally balanced rural landscape development pays attention to the balanced development of the three aspects of society, economy, and ecology in the development process, and strives to improve the quality of life of rural residents while promoting rural economic prosperity and ecological environment improvement.

For Shuiyu Village, in terms of social functions, villagers are encouraged to participate in rural landscape planning and management, protect and develop rural historical and cultural resources, enhance villagers' sense of belonging and responsibility, and maintain the status and importance of the social functions of the rural landscape.

In terms of economic functions, it guides the diversified development of the rural production landscape, organically integrates agriculture, tourism, and the cultural industry through scientific planning, promotes villagers' income growth and sustainable rural development, and stabilizes the economic production role of the rural landscape.

In terms of ecological functions, on the basis of protecting the original ecosystem, environmental protection is continuously strengthened, rural tourism resources are developed rationally, and the sustainable development of the ecological functions of the landscape is promoted.

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5.2. Industry and economy-oriented

The rural landscape dominated by industrial economy aims to develop the rural economy and promote industrial prosperity, and achieve the sustainable development of the rural economy by reasonably planning the industrial layout and optimizing the industrial structure.

For Sanjianling, in terms of social functions, the rural infrastructure will be improved, public service spaces and landscape nodes will be increased, and the social functions of the landscape will be enhanced.

In terms of economic functions, leisure and tourism-related facilities will be improved, and agricultural picking parks, modern agricultural sightseeing parks, science popularization bases, etc., will be gradually established relying on agricultural and forestry resources, forming an innovative pastoral landscape integrating appreciation, leisure, experience, etc.

In terms of ecological functions, nodes such as leisure and sightseeing will be created following natural processes, and attention will be paid to the protection of the landscape structure to create a good ecological foundation.

5.3. Social function-oriented

The social function-oriented rural landscape focuses on meeting social needs and improving the quality of life of rural residents, with an emphasis on the construction of rural communities, the creation of public spaces, and the organization of cultural activities.

For Liang village, in terms of social functions, the infrastructure of the village will be further improved to meet the villagers' needs for public service space activities, enhance communication and contact between villagers, and enhance the cohesion of the village.

In terms of economic functions, the historical buildings, traditional dwellings, folk culture, etc. in the village will be protected and passed on to show the historical and cultural heritage of the village. At the same time, relying on the advantages of cultural resources, the tourism function will be creatively introduced to guide the development of the tertiary industry in the village and increase the villagers' income channels.

In terms of ecological functions, attention will be paid to the protection and improvement of the ecological environment and maintaining the ecological foundation of the village.

5.4. Nature and ecology-oriented

The main objective of a natural and ecologically-oriented rural landscape is to protect and restore the natural ecological environment. Through scientific and reasonable planning and design, a harmonious coexistence between the countryside and nature can be achieved.

For Hexigten, in terms of social functions, the rural cultural landscape resources are protected, the infrastructure is improved, some public activity space nodes are added, and social functions are enhanced.

In terms of economic functions, a sustainable development model is advocated. Integrating natural science education into the development of tourism reduces interference with the natural ecological environment while enhancing the sense of experience for tourists.

In terms of ecological functions, ecological protection is always given top priority to ensure that development activities do not cause damage to the natural environment.

6. Conclusion

This study is based on the ASEB grid analysis method, which classifies the development model of some rural areas in North China and divides villages into different landscape target types based on

the order of landscape functions. This classification provides a basis for formulating targeted landscape planning strategies to promote the sustainable development of rural landscapes. However, given the large number of rural settlements in North China, this study only uses a few cases as samples for analysis. In the future, the sample size needs to be expanded for more in-depth research and analysis. In addition, this paper mainly conducts qualitative research based on theories and cases, and lacks quantitative research support. Future research could consider using methods such as model building, quantitative simulation and data analysis to enhance the scientific nature and persuasiveness of the research. In the practice of rural landscape planning, there are often contradictions and conflicts between multiple stakeholders. How to effectively integrate the actions of all parties and formulate feasible plans is an important direction for future research.

References

[1] *A B T , A G T ,Henri Décamps b,et al.Bridging human and natural sciences in landscape research[J].Landscape & Urban Planning, 2016, 57(3–4):137-141.DOI:10.1016/S0169-2046(01)00199-2.*

[2] *Paul,Selman.Multi-function Landscape Plans: A missing link in sustainability planning?[J].Local Environment, 2010.DOI:10.1080/1354983022000001651.*

[3] *Brandt J , Vejre H .'Multifunctional landscapes - motives concepts and perspectives'[J].Multifunctional Landscapes, 2004.*

[4] *Kato S , Ahern J .Multifunctional Landscapes as a Basis for Sustainable Landscape Development[J].Landscape Research Japan Online, 2009, 72(5):799-804.DOI:10.5632/jila.72.799.*

[5] *Bao, Z, Zhou, J. Phenomenon, motivation and coping strategies of the decline of contemporary rural landscapes[J]. City Planning Review,2014,38(10):75-83.*

[6] *Qi,J. Research on rural landscape planning and design based on the concept of sustainable development [D].Master thesis, North China University of Technology,2020.DOI:10.26926/d.cnki.gbfgu.2020.000247.*

[7] *Wang L. Research on the planning of mountain villages in Yi County based on territorial spatial planning [D]. Master thesis, Hebei Agricultural University,2022.DOI:10.27109/d.cnki.ghbnu.2022.000303.*

[8] *Liu H., Ge Q., Xi, J. Disaster risk assessment of regional tourism resources: A case study of Hexigten Qi, Inner Mongolia[J]. Resources Science,2007,(01):118-125.*

[9] *Guo, R. Research on rural landscape design from a resilience perspective[D]. Master thesis, Liaoning University of Science and Technology,2023.DOI:10.26923/d.cnki.gasgc.2023.000242.*

[10] *Zhuo, Y. A preliminary exploration of the planning method for multifunctional rural landscapes under the su stainable development goals[D]. Master thesis, South China Agricultural University,2020.DOI:10.27152/d.cnk i.ghanu.2020.000940.*

[11] *Guo, Y. Research on rural development models based on landscape functional evaluation [D]. Master thesis, Beijing Forestry University,2015.*