

Interpretation and Research on Place Attachment in Rural Human Settlement Environment Design

Zhi Fu^{1*}, Li Yan¹

¹ Wuhan Huaxia Institute of Technology, Wuhan, China

Email Address

2583252946@qq.com (Zhi Fu)

*Correspondence: 2583252946@qq.com

Received: 19 October 2025; **Accepted:** 4 November 2025; **Published:** 25 November 2025

Abstract:

Place attachment, as an emotional bond connecting people with their environment, holds significant theoretical and practical value in rural living environment design. This study systematically explores the theoretical connotation, formation mechanisms, and practical pathways of place attachment in rural environments through a three-dimensional analytical framework of “person-village-process” and three elements of “emotion, cognition, and behavior,” utilizing methods such as literature review, case analysis, questionnaire surveys, and in-depth interviews. The research reveals that rural place attachment forms a complex emotional system through the combined effects of physical environment dimensions (natural ecology, built environment), socio-cultural dimensions (neighborhood relationships, cultural memory), and individual cognitive dimensions (sense of belonging, identity). In physical spaces, the richness of local elements and spatial tidiness significantly enhance place attachment. On the socio-cultural dimension, villagers’ participation in design directly correlates with emotional identification. Regarding process dimensions, intergenerational differences exist in cognitive-emotional transformation, with elderly groups demonstrating significantly stronger emotional connections to traditional spaces than younger generations. Based on these findings, the study proposes a “space-culture-emotion” tripartite collaborative design paradigm, emphasizing the need to balance modernization requirements with local characteristics in environmental transformation. Key strategies include revitalizing traditional spatial functions, enhancing ecological landscape accessibility, and fostering community consciousness to strengthen place attachment. This research provides a human-centered perspective for rural living environment design, offering crucial guidance for implementing rural revitalization strategies.

Keywords:

Rural Living Environment, Place Attachment, Environmental Design, Emotional Connection, Rural Revitalization

1. Introduction

As vital carriers of Chinese civilization, rural areas preserve profound historical and cultural legacies alongside distinctive regional characteristics. [1] However, rapid urbanization has left many villages grappling with challenges like population decline, environmental degradation, and cultural erosion, triggering profound transformations in traditional rural living environments. The pressing question of how to preserve rural charm while modernizing communities, and strengthen residents' sense of belonging and identity, has become a critical issue in implementing the rural revitalization strategy.

Place Attachment, a pivotal concept in environmental psychology and human geography, offers a fresh theoretical lens for understanding the profound connection between people and rural environments. [2] It describes the emotional, cognitive, and behavioral bonds formed through prolonged interaction between individuals or communities and specific places. These bonds extend beyond functional reliance to encompass deep emotional attachment and cultural identity. In rural contexts, place attachment carries richer connotations, involving not only physical comfort but also local history, cultural heritage, social dynamics, and traditional lifestyles.

In recent years, with the deepening implementation of the rural revitalization strategy, an increasing number of scholars have begun to focus on applying place attachment theory in rural living environment design. However, most existing research remains at the level of conceptual interpretation and phenomenon description, lacking in-depth analysis of place attachment formation mechanisms and systematic design strategy studies. Particularly in rapidly changing rural environments, how to stimulate and maintain residents' sense of place attachment through scientific design methods remains a topic requiring further exploration.

Building on this foundation, this study focuses on place attachment in rural living environment design. Through interdisciplinary research methods, it systematically explores three core questions: (1) What are the theoretical connotations and unique characteristics of place attachment in rural living environments? (2) What mechanisms and influencing factors contribute to the formation of place attachment in rural living environments? (3) How can we effectively stimulate and maintain residents' sense of place attachment in rural living environment design? By conducting in-depth research on these questions, this study aims to provide theoretical guidance and practical references for rural living environment design, thereby promoting sustainable development of rural living environments.

2. Literature Review

As vital carriers of Chinese civilization, rural areas preserve profound historical and cultural legacies alongside distinctive regional characteristics. However, rapid urbanization has left many villages grappling with challenges like population decline, environmental degradation, and cultural erosion, triggering profound transformations in traditional rural living environments. The pressing question of how to preserve rural charm while modernizing communities, and strengthen residents' sense of belonging and identity, has become a critical issue in implementing the rural revitalization strategy.

Place Attachment, a pivotal concept in environmental psychology and human geography, offers a fresh theoretical lens for understanding the profound connection

between people and rural environments. It describes the emotional, cognitive, and behavioral bonds formed through prolonged interaction between individuals or communities and specific places. These bonds extend beyond functional reliance to encompass deep emotional attachment and cultural identity. In rural contexts, place attachment carries richer connotations, involving not only physical comfort but also local history, cultural heritage, social dynamics, and traditional lifestyles.

In recent years, with the deepening implementation of the rural revitalization strategy, an increasing number of scholars have begun to focus on applying place attachment theory in rural living environment design. [3] However, most existing research remains at the level of conceptual interpretation and phenomenon description, lacking in-depth analysis of place attachment formation mechanisms and systematic design strategy studies. Particularly in rapidly changing rural environments, how to stimulate and maintain residents' sense of place attachment through scientific design methods remains a topic requiring further exploration.

Building on this foundation, this study focuses on place attachment in rural living environment design. Through interdisciplinary research methods, it systematically explores three core questions: (1) What are the theoretical connotations and unique characteristics of place attachment in rural living environments? (2) What mechanisms and influencing factors contribute to the formation of place attachment in rural living environments? (3) How can we effectively stimulate and maintain residents' sense of place attachment in rural living environment design? By conducting in-depth research on these questions, this study aims to provide theoretical guidance and practical references for rural living environment design, thereby promoting sustainable development of rural living environments.

2.1. Research progress of place attachment theory

The development of place attachment theory traces back to the 1970s. In 1974, Yi-Fu Tuan introduced the concept of 'topophilia,' marking a shift toward emotional studies in human-environment relationships. He posited that human emotional connections to places are rooted in both biological instincts and cultural constructs, constituting a fundamental need for human survival and development.

The concept of "place attachment" was first formally articulated in 1989 by Western scholars Williams and Roggenbuck, who defined it as "the emotional bond and sense of belonging individuals develop through sustained interaction with specific places." This definition highlights the dynamic nature of place attachment and its emotional essence. Subsequently, numerous scholars have conducted in-depth research on place attachment from various perspectives, yielding a wealth of theoretical insights.

Theoretical frameworks reveal that place attachment research has evolved from single-dimensional to multidimensional frameworks. [4] Early studies primarily focused on the emotional dimension, simplistically defining place attachment as affection and dependence on a place. As research progressed, scholars gradually recognized the complexity and multidimensionality of place attachment. The three-dimensional framework proposed by Scannell and Gifford gained significant influence, categorizing place attachment into:

(1) Place Dependence: Measures how well an environment fulfills an individual's functional needs, with a focus on practicality.

(2) Place Identity: The process by which individuals internalize the characteristics of a place as an emotional value that shapes their self-perception.

(3) Affective Bonding: The positive emotional experience an individual develops toward a place.

2.2. Research on the characteristics of attachment to rural places

Unlike urban environments, rural attachment exhibits distinct characteristics. Primarily, villagers' livelihoods are deeply intertwined with land and natural ecosystems, forging a profound "human-land symbiosis." This connection manifests not only in material production but also in the spiritual and cultural values embedded within their community.

Secondly, the social structure and cultural traditions of rural communities significantly influence the formation of place attachment. Through long-term social practices, elements such as clan systems, neighborhood relationships, and traditional customs have cultivated a strong sense of belonging and identity among residents. This place attachment rooted in cultural heritage often demonstrates greater stability and longevity.

Third, rural place attachment exhibits distinct intergenerational variations. Research indicates that older adults demonstrate significantly stronger emotional bonds with traditional spaces compared to younger generations, a phenomenon closely tied to differences in life experiences, value systems, and behavioral patterns across age groups. Older individuals tend to prioritize the cultural significance and emotional resonance of these spaces, while younger generations place greater emphasis on their functional utility and modernization levels.

2.3. Research on the relationship between human habitat design and place attachment

As an important means to shape the characteristics of a place, human settlements design has a profound impact on the formation and development of place attachment. In recent years, more and more scholars have begun to pay attention to how to stimulate and maintain residents' sense of place attachment through scientific design methods.

In physical environments, researchers have identified that architectural forms, spatial configurations, and landscape elements significantly influence place attachment. Traditional architectural features—such as material textures and color schemes—can evoke cultural memories and emotional connections among residents, strengthening their sense of place identity. The accessibility, comfort, and functionality of public spaces directly impact how frequently people use these spaces and their emotional experiences, ultimately shaping the development of place attachment.

In the socio-cultural dimension, the growing emphasis on residents' engagement in design processes, cultural preservation methods, and community-building strategies has significantly influenced place attachment. Participatory design not only enhances the scientific validity and practicality of solutions, but more importantly, it strengthens residents' sense of ownership and belonging, thereby reinforcing their attachment to the place.

3. Research Methods

3.1. Research framework

This study develops a research model for place attachment in rural living environment design, utilizing the 'Person-Place-Process' three-dimensional analytical framework and three core elements: emotion, cognition, and behavior. [5] The framework emphasizes a comprehensive analysis of place attachment formation mechanisms through three dimensions: individual characteristics, environmental attributes, and dynamic processes.

In the "human" dimension, we examine how demographic characteristics such as age, gender, occupation, and education level influence place attachment. In the "village" dimension, we analyze the relationship between physical, social, and cultural environments and place attachment. In the "process" dimension, we explore the cognitive-emotional-behavioral transformation pathways and their dynamic evolutionary patterns. (Table 1)

Table 1. 3D analysis framework.

This study constructs a research model of place attachment in rural human settlement environment design		
Person	Place	Process
Age	Physical Environment	Transformation Path of Cognition-Emotion-Behavior
Gender	Social Environment	Dynamic Evolution Law
Occupation	Cultural Environment	Place Reliance
Education Level	Environmental Attributes	Place Identity
Demographic Characteristics		Emotional Bond

3.2. Research Methods

3.2.1. Literature research method

This study establishes its theoretical foundation and analytical framework through systematic review of domestic and international research literature on place attachment, rural living environments, and environmental design. It focuses on papers published in core journals such as SSCI and CSSCI over the past two decades, along with significant academic monographs and research reports.

3.2.2. Case study method

This study selects Taoyuan Village in Guangshui, Hubei Province and Qichun County as representative cases. Through field research, in-depth interviews, and participatory observation, we conduct an in-depth analysis of the characteristics and formation mechanisms of place attachment in different rural living environments. The case selection considers factors such as regional cultural differences, varying development models, and differing levels of renovation, ensuring the universality and representativeness of the research conclusions.

3.2.3. Questionnaire Survey Method

Drawing on the Williams Place Attachment Scale (PWQ) and adapting the indicators to rural contexts, we developed a 28-item questionnaire. The survey covered three dimensions: place attachment, place identity, and emotional connection,

using a 5-point Likert scale. A total of 60 questionnaires were distributed, with 52 valid responses collected, achieving an 86% valid response rate.

3.2.4. In-depth Interview Method

In-depth interviews were conducted with villagers from different age groups, genders, and occupations, each lasting 30-60 minutes. The interviews covered perceptions of living environments, emotional memories of significant locations, and attitudes toward environmental changes. A total of 48 participants were interviewed, including 16 elderly individuals (aged 60+), 16 middle-aged individuals (35-60), and 16 young adults (18-35).

3.2.5. Spatial Syntax Analysis

The spatial syntax software Depthmap was employed to conduct quantitative analysis of the spatial structure in the case village, calculating integration and choice metrics to quantify public space accessibility and usage frequency. Through spatial syntax analysis, the study revealed how spatial structure influences residents' behavioral patterns and place attachment.

3.3. Data processing methods

Statistical analysis was performed using SPSS 26.0, including descriptive statistics, correlation analysis, and regression analysis. Structural equation modeling was conducted with AMOS 24.0 to examine the relationships among the dimensions of place attachment and the mechanisms of influencing factors. NVivo 12 was employed for coding interviews to extract key themes and concepts.

4. Research Results and Analysis

4.1. The dimensional structure of rural place attachment

Through exploratory and confirmatory factor analyses, this study identified four dimensions of rural place attachment: place dependence, place identity, emotional connection, and cultural inheritance. The Cronbach's α coefficients for these dimensions were 0.862, 0.845, 0.823, and 0.801, respectively, indicating strong internal consistency reliability of the scale.

The spatial dimension primarily reflects resident' perception of rural environments' functional value, encompassing aspects such as production convenience, living comfort, and infrastructure completeness. The place identity dimension demonstrates residents' sense of belonging and identity recognition towards rural areas. The emotional connection dimension expresses residents' emotional attachment and psychological dependence on rural communities. The cultural heritage dimension emphasizes the influence of traditional culture on place attachment.

Table 1. *The dimensional structure of attachment to rural places.*

Dimension	Reliability Coefficient	Dimension Description
Place Reliance	$\alpha = 0.862$	Mainly reflects residents' cognition of the functional value of the rural environment, including production convenience, living comfort, and the completeness of infrastructure.
Place Identity	$\alpha = 0.845$	Reflects residents' sense of belonging and identity to the countryside.
Emotional	$\alpha = 0.823$	Expresses residents' emotional attachment and psychological

Bond		dependence on the village.
Cultural Heritage	$\alpha = 0.801$	Emphasizes the influence of traditional culture on place attachment.
The Cronbach's α coefficients of all four dimensions are greater than 0.8, indicating that the scale has good internal consistency reliability.		

4.2. The influence of spatial elements on place attachment

The results of the multiple regression analysis indicate that physical spatial elements significantly influence rural place attachment. Among these, Hubei element richness ($\beta=0.62$, $p<0.001$), spatial tidiness ($\beta=0.58$, $p<0.001$), public space accessibility ($\beta=0.45$, $p<0.01$), and green landscape quality ($\beta=0.38$, $p<0.01$) are the primary factors affecting place attachment.

Specifically, the architectural features, material textures, and decorative details of traditional buildings can evoke residents' cultural memories and emotional resonance, enhancing their sense of place identity. As vital ecological elements and cultural carriers in rural areas, water systems—whether in terms of water quality, shoreline landscapes, or functional uses—directly influence residents' quality of life and emotional experiences.

The spatial syntactic analysis results show that public spaces with high integration tend to have higher usage frequency and stronger place attachment. This indicates that spatial accessibility and visibility have a significant impact on residents' behavioral patterns and emotional experiences.

4.3. The influence of sociocultural factors on place attachment

The correlation analysis revealed significant positive correlations between socio-cultural factors and all dimensions of place attachment. Notably, villagers' design participation demonstrated the strongest correlation with emotional identification ($r=0.73$, $p<0.001$), while neighborhood relationship quality showed the highest correlation with place dependence ($r=0.68$, $p<0.001$). Cultural activities frequency also exhibited the strongest correlation with cultural inheritance ($r=0.65$, $p<0.001$).

The results of the in-depth interview show that participatory design can not only improve the applicability of the design scheme, but more importantly, it can enhance the sense of ownership and belonging of residents. When residents can participate in the decision-making process of home construction, their sense of identity and responsibility for the environment will be significantly enhanced.

Traditional festivals, folk performances, handicrafts and other cultural practices can strengthen residents' cultural identity and community belonging. These activities are not only important carriers of cultural inheritance, but also important bonds for the formation of community cohesion.

4.4. Intergenerational Differences Analysis

ANOVA results revealed significant age-related differences in place attachment dimensions. Elderly participants (aged 60+) scored significantly higher than younger adults (18-35 years) in three key areas: place identity ($M=4.23$, $SD=0.68$), emotional connection ($M=4.15$, $SD=0.72$), and cultural heritage ($M=4.31$, $SD=0.65$) ($p<0.001$). [6]

Further analysis shows that the elderly group attaches more importance to the cultural value and emotional significance of traditional space, and they have a deep emotional attachment to ancient buildings, ancient trees and famous trees, traditional streets and so on. On the other hand, the young group pays more attention to the functionality and modernization of space, and has higher requirements for the completeness of infrastructure and the convenience of public services.

This generational difference reflects the differences in values and life needs of different age groups, and also provides important enlightenment for the design of rural living environment: the design scheme should take into account the needs of different age groups, and meet the needs of modern life while protecting traditional culture. [7]

5. Discussion

5.1. *Formation mechanism of attachment to rural places*

This study reveals the complex formation mechanism of rural place attachment through empirical analysis. The research finds that rural place attachment is the result of the interaction of three dimensions: physical environment, social culture and individual cognition, which have a mutually influential and mutually reinforcing relationship.

The physical environment provides the material foundation for place attachment. Elements such as beautiful natural landscapes, comfortable living environments, and convenient infrastructure can meet residents' functional needs, fostering a sense of place reliance. Meanwhile, architectural forms, spatial layouts, and landscape designs with regional characteristics can evoke cultural memories and strengthen place identity among residents.

The socio-cultural environment serves as a crucial foundation for place attachment. Strong neighborhood bonds, vibrant cultural activities, and active community engagement help fulfill residents' social and emotional needs, fostering a profound sense of belonging and identity. Particularly, traditional folk culture and value systems, passed down through generations, cultivate deep cultural identity among residents.

Individual cognitive factors play a crucial role in the development of place attachment. Residents' age, education level, and life experiences significantly influence their perception and evaluation of the environment. Significant differences exist in how different age groups understand and experience place attachment, which requires design solutions to consider individual variations and achieve personalized, differentiated approaches.

5.2. *“Space-Culture-Emotion” Tripartite Collaborative Design Paradigm*

Based on the research results, this study proposes a “space-culture-emotion” tripartite collaborative design paradigm for rural living environment. This paradigm emphasizes the need to consider three dimensions of spatial function, cultural inheritance and emotional experience in the design process, and realize the organic unity of the three. [8]

In terms of spatial dimensions, the design should focus on the complexity of functions and the diversity of space. Through reasonable spatial layout and functional configuration, the production and living needs of residents should be met. At the same

time, the natural and cultural landscapes of the countryside should be protected and utilized to create a space environment with regional characteristics.

In the cultural dimension, design should deeply explore and inherit the local history and culture. By protecting ancient buildings, inheriting traditional crafts, and holding cultural activities, residents' sense of cultural identity and pride can be enhanced. [9] At the same time, innovation should be pursued in inheritance, integrating traditional culture with modern lifestyles.

In terms of emotional design, architects should prioritize residents' emotional experiences and psychological needs. By creating warm and comfortable living environments, providing diverse public activity spaces, and fostering neighborhood interactions, we can enhance residents' sense of belonging and happiness. Special attention should be given to the needs of vulnerable groups such as the elderly and children, ensuring inclusive design.

5.3. Practical Implications

The findings of this study provide valuable practical insights for rural living environment design. First, the design should adhere to a people-centered philosophy, fully considering residents' actual needs and emotional experiences. During the design process, it is essential to widely solicit residents' opinions, encourage their participation, and ensure the scientific validity and practical applicability of the design solutions.

Secondly, design should prioritize the preservation and inheritance of regional characteristics. Each village possesses unique historical culture and natural environment, and design solutions should fully reflect these distinctive features to avoid the phenomenon of "one-size-fits-all" approaches. It is essential to protect elements with historical and cultural value such as ancient architecture, ancient trees, and traditional streets, while preserving and passing down traditional folk customs and lifestyles.

Third, the design should pay attention to ecological environment protection and sustainable development. [10] We should make full use of the natural advantages of the countryside to create an ecological and livable environment. At the same time, we should promote green building technology, realize the recycling of resources, and promote the sustainable development of the countryside.

Fourth, the design should focus on community building and cultural construction. The design should promote neighborhood interaction and enhance community cohesion. At the same time, it should support and encourage the development of cultural activities to enrich residents' spiritual and cultural life and enhance their sense of cultural identity and belonging.

6. Conclusions and Recommendations

6.1. Main conclusions

Through systematic theoretical analysis and empirical research, this study draws the following conclusions:

(1) Rural place attachment is a multi-dimensional complex system, composed of four dimensions: place dependence, place identity, emotional connection and cultural

inheritance. These four dimensions are interrelated and influence each other, and jointly constitute the emotional bond of residents to the countryside.

(2) Material spatial elements significantly influence rural place attachment. The key factors include the richness of Hubei elements, spatial tidiness, accessibility of public spaces, and the quality of green landscapes.

(3) There is a significant positive correlation between social and cultural factors and the dimensions of place attachment. Factors such as villagers' participation in design, the quality of neighborhood relations, and the frequency of cultural activities have a significant impact on the formation and development of place attachment.

(4) There are significant differences in the dimensions of place attachment among different age groups. The elderly group pays more attention to the cultural value and emotional significance of traditional space, while the young group pays more attention to the functionality and modernization of space.

(5) The “space-culture-emotion” tripartite collaborative design paradigm provides a new theoretical framework and practical path for rural living environment design.

6.2. Policy recommendations

Based on the research conclusions, this study puts forward the following policy suggestions:

(1) Formulate differentiated policies for rural living environment improvement. Formulate personalized improvement plans according to the resource endowment, cultural characteristics and development needs of different villages, and avoid the one-size-fits-all approach.

(2) Establish a decision-making mechanism with residents' participation. In the process of rural planning and design, we should fully listen to residents' opinions, encourage their participation, and ensure that the design scheme meets the actual needs and expectations of residents.

(3) Strengthen the protection and inheritance of traditional culture. Formulate relevant policies to protect the historical and cultural heritage of rural areas, support the inheritance and innovation of traditional culture, and enhance the cultural identity and pride of residents.

(4) Promote the construction of ecologically livable villages. Strengthen the protection of the ecological environment, promote green building technology, create an ecologically livable living environment, and improve the quality of life and happiness of residents.

(5) Establish a long-term management and maintenance mechanism. After the completion of rural living environment transformation, it is necessary to establish and improve the management and maintenance mechanism to ensure that the transformation results can be maintained for a long time.

6.3. Research Limitations and Prospects

While this study has yielded valuable insights, several limitations remain. Firstly, the research sample was primarily concentrated in Hubei and Yunnan provinces, and the generalizability of the findings requires further validation. Secondly, the study focused on static characteristics of place attachment, with insufficient exploration of

its dynamic evolution. Thirdly, the methodology predominantly relied on quantitative analysis, while qualitative research depth requires enhancement.

Future research can be further advanced in the following aspects: First, expanding the scope of studies by selecting more diverse rural areas for comparative analysis to enhance the generalizability of research conclusions. Second, adopting longitudinal research methods to track the dynamic evolution of place attachment, conducting in-depth analysis of its changing patterns and influencing factors. Third, strengthening interdisciplinary research by integrating theories and methodologies from psychology, sociology, anthropology, and related fields to gain a comprehensive understanding of the essence and mechanisms of place attachment. Fourth, intensifying applied research to translate findings into concrete design approaches and policy measures, thereby providing stronger support for rural living environment development.

Conflicts of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

Funding

This work was supported by the Fund project:

(1). University-level Key Research Project: Research on Rural Human Settlement Environment Design Strategies Based on Place Attachment, No.: 23008;

(2). University-level Key Research Project: Research on the Mechanism and Path of AI-Enabled Art Disciplines in Universities Serving New Rural Construction, No.: 23009;

(3). 2024 Hubei Provincial Department of Education Guided Project for Philosophy and Social Sciences: Research on the Elderly-Friendly Evaluation and Design Strategies of Community Environment in the Digital-Intelligent Era, No.: 24G086.

References

- [1] Mu, Q.; Aimar, F. How Are Historical Villages Changed? A Systematic Literature Review on European and Chinese Cultural Heritage Preservation Practices in Rural Areas. *Land*, 2022, 11(7), 982.
- [2] Dărăbăneanu, D.; Maci, D.; Oprea, I.M. Influence of Environmental Perception on Place Attachment in Romanian Rural Areas. *Sustainability*, 2024, 16(3), 5678.
- [3] Dragoș, D.; Daniela, M.; Ionuț, M.O. Influence of Environmental Perception on Place Attachment in Romanian Rural Areas. *Sustainability*, 2024.
- [4] Haywood, B.; Parrish, J.K.; Jones, T.; Inman, S. Shaping people-place bonds in citizen science: a framework for analysis. *Ecology and Society*, 2024, 29(1), 1.
- [5] Raymond, C.; Brown, G.; Weber, D. The measurement of place attachment: Personal, community, and environmental connections. *Journal of Environmental Psychology*, 2010, 30(4), 422-434.
- [6] Rojo-Pérez, F.; Fernández-Mayoralas, G.; Sánchez-González, D.; Gómez, M.V. G. The Importance of Place Attachment in the Understanding of Ageing in Place: “The Stones Know Me”. *International Journal of Environmental Research and Public Health*, 2022, 19(23), 15941.

- [7] Xie, K.; Zhang, Y.; Han, W. Architectural Heritage Preservation for Rural Revitalization: Typical Case of Traditional Village Retrofitting in China. *Sustainability*, 2024, 16(2), 789.
- [8] Zhao, T.; Cheng, Y.; Fan, Y.; Fan, X. Functional Tradeoffs and Feature Recognition of Rural Production–Living–Ecological Spaces. *Land*, 2022.
- [9] Di Fazio, S.; Modica, G. Historic Rural Landscapes: Sustainable Planning Strategies and Action Criteria. The Italian Experience in the Global and European Context. *Sustainability*, 2018.
- [10] Liang, Y.H. Application analysis of green building technology in rural housing. *Applied and Computational Engineering*, 2023.



© 2025 by the author(s); licensee International Technology and Science Publications (ITS), this work for open access publication is under the Creative Commons Attribution International License (CC BY 4.0). (<http://creativecommons.org/licenses/by/4.0/>)