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# Research on Implementation and Management Evaluation System for Protection and Utilization of Traditional Villages: A Case Study of Traditional Chinese Villages in Lingnan Waterfront*

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**ABSTRACT**: The protection and utilization of traditional villages have seen an increase around China since the country issued the catalogue of traditional village protection. However, the effect of the protection and utilization of traditional villages has not been remarkable, as physical decline and constructive failure of traditional villages occur frequently. Consequently, traditional villages are faced with challenges through a lack of evaluation and poor construction management. As an important feedback tool, conducting an evaluation can shed light on achievements in implementation of protection and utilization of traditional villages and effectively reveal problems impeding such implementation. Establishing a scientific evaluation system for traditional village protection and utilization is of great significance to the sustainable protection and utilization of traditional villages. Currently, China has not introduced an evaluation system for the implementation of traditional village protection and utilization, and only limited research has been conducted in this area. Existing studies have emphasized the evaluation of the implementation of protection and utilization but pay only limited attention to the implementation process. Based on a comprehensive analysis of the characteristics of implementation planning and management, and of relevant studies on this topic, the current study examined the methods used to evaluate the effect of protection and utilization, the protection measures and supervision structures from the perspective of achievements and processes around implementation. Moreover, a case study based on the traditional villages in Lingnan Waterfront was used in the current study, with a focus on the local characteristics of the implementation and management of traditional village protection and utilization. On this basis, an evaluation index system is established, which comprises settlement protection and planning implementation, an active utilization degree, new-old settlement collaboration, protection measures, implementation supervision and management. In Lingnan Waterfront, 44 national-level traditional villages are chosen as samples to examine the implementation and management of traditional village protection and utilization. The results shows that the implementation of traditional village protection and utilization in Lingnan Waterfront poses obvious non-equilibrium challenges. Concerning the implementation of traditional village protection and utilization, there are three levels: Good, moderate and poor. Government policy support, urbanization and industrialization represent important factors that influence the implementation and management of traditional village protection and utilization. For traditional villages that are protected, utilized and managed well, the implementation and management of their protection and utilization are aligned with the early attention paid by the Chinese Government to the situation, as well as the impacts of both industrialization and urbanization. Traditional villages which exhibit moderate implementation and management of protection and utilization are often influenced by industrialization and urbanization in rural areas in the Pearl River Delta. Driven by

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demolition of old houses and the construction of new housing sites for villagers facing a land shortage, the rural landscape and appearance of villages have undergone different degrees of damage. For traditional villages with poor implementation and management of protection and utilization, the locations of such villages are significantly influenced by urbanization or industrialization in the Pearl River Delta. As traditional villages are attracted by the economic benefits, protection and utilization encounter severe impacts caused by urbanization and the construction of industrial parks in rural areas, and are stuck in a dilemma. Ultimately, the implementation and management evaluation system of traditional village protection and utilization is established in the current study based on the case study of Lingnan Waterfront. The results of the study not only deepen the existing body of knowledge on the implementation evaluation of traditional villages, but also provide a reference point for action to address the situation.

**KEY WORDS**: traditional village; protection and utilization; evaluation system; Lingnan Waterfront

## 1 Introduction and literature review

Traditional villages reflect the harmonious symbiotic relationship between settlements and the surrounding natural environment, contain rich regional culture and ecological construction wisdom, and possess precious historical and cultural value and inheritance significance[1]. The protection and utilization of traditional villages has received increasing attention of the government and all works of life since the country issued the "Catalogue of Traditional Chinese Villages", but their effect has not been remarkable, as the physical decline and constructive failure of traditional villages occur frequently. Consequently, traditional villages are faced with challenges through a lack of evaluation and poor construction management; the situation of traditional village protection is still very severe[2].

As an important feedback tool in implementation, conducting an evaluation can shed light on achievements in implementation of protection and utilization of traditional villages and effectively uncover problems impeding such implementation.[3] Establishing a scientific evaluation system for traditional village protection and utilization is of great significance to the sustainable protection and utilization of traditional villages.

At present, China has established the "Traditional Village Evaluation and Recognition Index System" for screening and recognition before the implementation of traditional village protection and utilization, but the evaluation system for traditional village protection and utilization after implementation has not yet been introduced. The research on the evaluation of the implementation of traditional village protection and utilization in the academic community is also relatively lacking. The few research results mainly focus on two aspects: the protection status and implementation issues, as well as the evaluation of implementation effectiveness of traditional villages in several typical regions. In terms of the protection status and implementation issues of traditional village, Yin Chao and JiangJinsong [4] discussed the problems of uneven planning and preparation, serious constructive failure, and immature management and maintenance techniques that occurred during the implementation process of traditional village protection in Jiangsu Province. Li Jing[5] took Cuiheng Village, Zhongshan City as an example, and attempted to construct a "goal-oriented research on the protection implementation process" by comparing its protection planning objectives and implementation results. Xu Honggang et al.[6] used Hongcun Village, Anhui Province as an example to reveal the insufficient interpretation of authenticity in planning texts and management documents through event process tracking and in-depth interviews with residents that resulted in a one-sided understanding by the executors. In terms of evaluating the implementation of traditional village protection and utilization, Liu Lulu et al[7]. constructed an evaluation system for the effectiveness of traditional village protection implementation from four aspects: protection effect, social effect, economic effect, and environmental effect. Yang Liguo et al[8]. Evaluated the effectiveness of traditional village protection in Hunan Province from four aspects: authenticity, completeness, active utilization degree, and inheritance. However, the static evaluation method based on implementation effectiveness ignored the mechanism of problems that occurred during the implementation process. Although Chen Yue[9] noticed the dynamic characteristics of the implementation planning process evaluation and established an implementation process evaluation system from the aspects of planning formulation and management, the research method still focuses on subjective descrip-

tions, lacks quantitative analysis, and fails to form a widely applicable evaluation system.

In summary, research on evaluating the implementation of traditional village protection and utilization is still in its infancy, and the existing implementation evaluation systems focus on the evaluation of the implementation effect of protection and utilization, with less attention paid to the implementation process. However, differences in entities, policies, funds, and management levels in the implementation process of protection and utilization all affect the effectiveness of implementation. Therefore, it is necessary to build an implementation evaluation system from the two aspects of implementation effectiveness and implementation process management to judge the implementation and management status of traditional village protection and utilization, and to provide a basis for the subsequent practice of traditional village protection and utilization.

## 2 Research areas and methods

### 2.1 Research areas

This article conducts a case study on traditional villages in the Lingnan Waterfront area, and constructs an evaluation system for the protection, utilization, and management of traditional villages in the Lingnan Waterfront area. At present, there are a large number of traditional villageswithin the Lingnan Waterfront of the Pearl River Delta (Figure 1), including 44 national-level traditional villages in the first to fifth batches. This area is characterized by "villages built near water, and villagers relying on water for their livelihoods", creating a waterfront township style where cultural characteristics, natural forms, and artificial village environments are in utmost harmony, which is of great protection value[10]. Since the promulgation of the "Basic Requirements for the Compilation of Traditional Village Protection and Development Plans (Trial)" by the country, a large number of traditional villages have formulated protection and development plans and taken action, which have been implemented for many years now. It is urgent to evaluate the implementation of their protection and utilization. Therefore, based on the characteristics and implementation of protection and utilization of traditional villages in the Lingnan Waterfront area, this article constructs a protection and utilization implementation and management evaluation system on the basis of field research and interviews of a large number of traditional villages.


**Figure 1 Distribution map of traditional Chinese villages in lingnan waterfront area**

### 2.2 Research methods

Due to the large number and scattered distribution of traditional villages as well as differences in regional environment and management, planning implementation and evaluation focus for traditional villages vary. Accordingly, this article builds an evaluation system for the implementation and management of the protection and utilization of villages in the Lingnan Waterfront area, which is based on a large amount on-site research and interview materials combined with an understanding and recognition of the characteristics of traditional villages in the Lingnan Waterfront area, and draws on relevant evaluation content by other scholars. After establishing the evaluation system, Analytic Hierarchy Process (AHP) and Expert Scoring Method are used to set weights and verify consistency, and the final weights of each indicator are obtained. On top of that, empirical research on traditional villages is conducted to test the effectiveness of the system and explore the implementation status of protection and utilization of tradi-

tional villages in the Lingnan Waterfront Area.

## 3 Ideas guiding the construction of implementation and management evaluation system for the protection and utilization of traditional villages

The protection and utilization of traditional villages refers to the process of protecting, activating, and inheriting their cultural heritage through a series of intervention measures that act on the village itself. Its content involves multiple aspects such as the village environment, culture, and society. Its ultimate goal is to protect the village's value and ensure its sustainable development[11]. Due to the fact that traditional villages, as local settlements with historical and cultural heritage attributes, are nurtured in the local environment and mix with rural life, they have obvious characteristics of "integrity", "lively inheritance" of historical culture, and "coordination" of settlement development. The process of protecting and utilizing traditional villages involves different links, multiple subjects, and different projects, and there are a lot of connection and coordination issues. Therefore, the protection and utilization of traditional villages is not achieved overnight and once and for all, but rather a dynamic process undergoing continuous change. Management is the guarantee for achieving optimal protection and utilization[12]. Therefore, in the evaluation of traditional village protection and utilization, implementation effectiveness and process management are equally important for protection and utilization. Based on this, the traditional village protection and utilization evaluation system in this article is constructed from two perspectives: implementation and management.

### 3.1 The "integrity" of settlement protection

Compared to the value of local architectural relics and historical elements, the overall value of traditional villages appears more prominent[13]. Therefore, the evaluation of the implementation of traditional village protection and utilization should determine whether it has fully preserved the overall space and environment of the settlement that carries ecological and historical value. Firstly, traditional village spaces are interrelated, and the natural environment around the village is the main place for villagers to transform and adapt to nature as well as to engage in production and life. Therefore, based on the correlation between the production and living spaces of villagers, different levels like the overall landscape pattern, environment and settlements, streets and courtyards, buildings and environmental elements can be used to evaluate the overall nature of settlements[14,15]. Secondly, traditional village spaces have regional characteristics, and the evaluation of spatial elements related to regional characteristics should also be incorporated in the evaluation system indicators. In addition, many residential buildings are currently vacant and abandoned, functional transformation and reuse of traditional residential buildings is an effective way to promote the sustainable protection of traditional villages[16]. This requires evaluation from aspects such as spatial activation and utilization.

### 3.2 The "liveliness" of history and culture

Traditional villages are witnesses to local historical changes and the main carriers of agricultural cultural resources such as construction techniques, local customs, social clans, and historical information. Agricultural culture originates from and is practiced in villages, making up an indispensable part of the protection and utilization of traditional villages. It requires comprehensive consideration from the perspectives of protection and inheritance[17]. As an invisible and intangible cultural element, historical culture relies on continuous relay between people in the past and present to achieve continuity[12]69. Its protection and inheritance emphasize "liveliness", which requires the preservation of indigenous villagers as the premise, and continuation and development of production and lifestyle as the foundation[18].

### 3.3 The "coordination" between new and old villages

Traditional villages are limited by factors such as past technological level, insufficient investment, and natural disasters, and most of them have problems such as unsatisfactory living environment, lack of or outdated infrastructure. Villagers have a strong desire to urgently improve their living environment. The protection, utilization, and renovation construction of old villages can certainly be incorporated into the protection planning considerations of traditional villages, but the construction of new villages closely related to traditional villages often has a significant impact on the inheritance of style and ecological wisdom of existing old village settlements. Therefore, it is

necessary to fully evaluate the coordination and construction inheritance issues between new and old settlements, which requires evaluation from the mutual relationship, spatial connection, style and materials, ecological technology inheritance, and other aspects of the new and old villages.

### 3.4 The "effectiveness" of the management system

The protection and utilization of traditional villages is a long-term and complex process involving diverse participation, and the implementation process needs to consider two aspects: protection measures and supervision and management. Firstly, the cultural resources of traditional villages are fragile and nonrenewable. The protection and utilization measures of traditional villages should be fully considered before implementation[19], and a systematic evaluation of the rationality and operability of the protection measures adopted by multiple entities is needed. Secondly, the protection and utilization of traditional villages involve different regulatory processes such as approval, construction, and supervision. The management of traditional villages also needs to ensure the rationality of administrative processes are justifiable.

## 4 The basic characteristics of traditional villages and their protection and utilization in lingnan waterfront

During the long development in history, traditional villages in Lingnan Waterfront have beenstrongly influenced by the geographical environment, natural climate, social economy, clan culture, and other natural and cultural environments in the Lingnan region, forming unique local settlement spaces. Since the reform and opening up, the Pearl River Delta region has taken the lead in rural industrialization and urbanization construction, and the overall environment and local style of traditional villages in Lingnan Waterfront have undergone significant changes. Therefore, the implementation and management evaluation system for the protection and utilization of traditional villages in Lingnan Waterfront needs to fully consider their regional characteristics under the influence of historical development.

### 4.1 The overall environment of "water and village integration"

The water system is the most prominent natural element in the Lingnan Waterfront area, which dominates and limits the formation of settlement space in Lingnan waterfront and develops unique water system spaces that deeply integrate into the production and living spaces of villagers, such as waterfront vernacular buildings built along the water, water branch landscapes on both sides of rivers [20], and clusters of foundation pond spaces[21]. Therefore, the settlement environment represented by the water system is the most regional characteristic and valuable settlement space among the traditional villages in Lingnan Waterfront. The implementation and management evaluation system for the protection and utilization of traditional villages in Lingnan Waterfront should add indicators related to water system protection for focused evaluation.

### 4.2 The increasingly fragmented rural landscape

Rural industrialization and rapid urbanization are the special development background of traditional villages in Lingnan waterfront, which leads to a large occupation of the ecological environment around traditional villages and the rapid disappearance or transformation of traditional pond production space[22]. The landscape and culture of water towns that are born and passed down by water are fragmented without the support of traditional water networks[23]. Therefore, the implementation and management evaluation system for the protection and utilization of traditional villages in Lingnan Waterfront should set corresponding indicators for focused evaluation.

### 4.3 A hybrid space of "juxtaposition of old and new"

In the early stages of reform and opening up, the value of rural cultural heritage has not yet been highlighted. Driven by the export-oriented economy, rural industrialization, rapid growth in demand for rental housing in the Pearl River Delta, as well as other factors such as improving the living environment of villagers, most traditional villages have prematurely carried out new village construction and renovation of old houses. The construction is very common, which is neat and unified modern new villages, demolition of old homesteads and construction of new ones, as well as the updating and upgrading of infrastructure and public service facilities. However, this direct modernization often lacks coordination considerations, resulting in a special scene of a large number of villages

juxtaposing old and new. Therefore, in the implementation and management evaluation system of traditional village protection and utilization in the Lingnan Waterfront, indicators should be set up to measure the "coordination between new and old residential areas" for evaluation.

### 4.4 The insufficiency in"bottom-up" oriented management and control

Traditional villages in Lingnan waterfront are home to strong clan groups. The long-standing tradition of commodity society and the development history of market economy have made local residents have an "innate sensitivity" to land income and spatial monetization. The large amount of collective wealth brought by rural industrialization and urbanization also makes village collectives have strong management efficiency. Compared to other regions, the "bottom-up" actions of clans and village collectives in Lingnan Waterfront have a strong restraining effect on the protection, utilization, and management of traditional villages. There are obvious insufficiencies in government regulation, so it is necessary to add indicators such as "rights and responsibility implementation" and "implementation supervision" for evaluation.

## 5 Construction and measurement of the implementation and management evaluation system for the protection and utilization of traditional villages in the lingnan waterfront area

### 5.1 Construction principles

The construction of the implementation and management evaluation system for traditional village protection and utilization needs to directly and comprehensively reflect the current situation of implementation and management while considering the rationality of the system construction itself. Therefore, the system indicators should be constructed according to the following principles:

(1) Systematization andscientificity: Adopt a systematic concept to fully reflect the overall characteristics of implementation. At the same time, the indicators need to be fully understood by management departments.

(2) Classification and comparability: The implementation activities of protection planning involve multiple factors and relationships, and it is necessary to adopt a classification evaluation method when evaluating. Based on the different attributes and characteristics of the evaluation object, corresponding evaluation standards and methods should be determined.

(3) Operability and convenience: Implementation evaluation, as a phased evaluation, should quickly and accurately reflect the current protection implementation situation and guide future protection practice activities. This requires moderate stratification of indicators and the selection of effective indicators as much as possible.

### 5.2 System construction

Based on this, by dissecting the content of the evaluation object, this article establishes an evaluation system consisting of 32 indicators in four layers of target layer-criterion layer-factor layer-indicator layer", and adopts a quantitative and qualitative to determine the corresponding evaluation standards. The specific indicators are shown in Table 1.

This evaluation system sets and classifies evaluation indicators based on the basic and universal content types in traditional village protection and utilization work, and achieves classification and evaluation of various tasks through differentiated factor and indicator layers. In terms of the implementation of traditional village protection and utilization, the system establishes three sub target levels: settlement protection planning, degree of active utilization, and collaborative construction of new and residential areas. In terms of traditional village protection utilization management, two sub target layers are: implementation path and mode, implementation supervision and management. Among them, the implementation of settlement protection planning mainly evaluates the survival and guarantee conditions of settlement value based on the protection of settlement cultural heritage, and sets corresponding indicators one by one based on protection zoning and settlement spatial elements at different scales; the lively utilization of settlements mainly evaluates the living inheritance conditions from the aspects of settlement space utilization as well as protection and continuation of history and culture, and establishes corresponding indicators such as the improvement of settlement space function, use ratio, and traditional industries, folk crafts, inheritors, etc.; the coordinated development of new and old communities mainly evaluates the conditions for coordina-

ted development from the aspects of community construction and facility updates, and sets corresponding indicators around the community's style, pattern, materials, processes, and functions; in terms of management evaluation, the implementation path and mode, implementation supervision and management are evaluated based on the effectiveness of the corresponding management system in terms of rights and responsibility implementation and regulatory process construction.

**Table 1 Implementation evaluation system for traditional village protection and utilization planning**

| Target layer | Criterion layer | Factor layer | Indicator layer |
|---|---|---|---|
| Implementation evaluation of traditional village protection and utilization (A) | Effectiveness of protection and utilization implementation (B1) | Implementation of settlement protection planning (C1) | D1 Protection situation of overall landscape pattern |
| | | | D2 Control situation of core protected area |
| | | | D3 Control situation of constructive control area |
| | | | D4 Control situation of environmental coordination area |
| | | | D5 Protection and restoration of historic environmental elements |
| | | | D6 Authenticity of the protection and restoration of courtyards and buildings |
| | | | D7 Authenticity restoration of ancient streets and alleys |
| | | | D8 Coordination degree of infrastructure construction style |
| | | | D9 Coordination of overall style and appearance of settlement |
| | | | D10 Preservation of river system |
| | | | D11 Protection of water landscape and water quality |
| | | | D12 Allocation of disaster prevention facilities |
| | | Active utilization degree (C2) | D13 Proportion of indigenous residents |
| | | | D14 Inheritance of folk culture |
| | | | D15 Inheritance of traditional craftsmanship |
| | | | D16 Development of traditional industries |
| | | | D17 Inheritor of folk intangible cultural heritage |
| | | | D18 Idle space area ratio |
| | | | D19 Improvement of traditional building functions |
| | | Collaboration between new and old residential areas (C3) | D20 Collaborative degree of spatial layout in new and old residential areas |
| | | | D21 The collaborative degree of the overall style between new and old residential areas |
| | | | D22 Collaborative degree of infrastructure construction in new and old residential areas |
| | | | D23 Collaborative degree of public service facility construction in new and old residential areas |
| | | | D24 Inheritance and application of rural construction techniques in new and old residential areas |
| | | | D25 Utilization of traditional local materials in new and old residential areas |
| | Protection and utilization process supervision (B2) | Implementation path and mode (C4) | D26 Protection subject and implementation of rights and responsibilities |
| | | | D27 Protection fund raising and investment situation |
| | | | D28 Protection awareness and public participation |
| | | Implementation supervision and management. (C5) | D29 Approval and regulatory process construction |
| | | | D30 Management measures and village regulations |
| | | | D31 Technical support and implementation supervision |
| | | | D32 Historical data preservation and filing |

### 5.3 Measurement and analysis

In the traditional village implementation evaluation system, there are differences in the effectiveness and influence of various indicators, so it is necessary to assign weights to each indicator. Considering the actual situation of traditional villages and the complexity of the indicator system, this article adopts the Analytic Hierarchy Process (AHP) in the subjective weighting method. After constructing the evaluation model, the weights of each layer of indicators were obtained in three steps.① According to 1-9 scale, 30 experts were invited to compare and score the three-level indicators separately; ② The relative importance between two evaluation indicators were determined, and a judgment matrix was constructed; ③ After passing the consistency test, the average of each weight was taken to obtain the final weight. The final weight results of indicators at all levels are shown in Table 2.

Using the above evaluation system and weight coefficients, the characteristic vectors of the current implementation status of traditional village planning in 44 national-level traditional villages in the Lingnan Waterfront area were collected, sorted and analyzed, and their implementation status was measured and clustered. Due to space limitations, only the final scores of factor layers and total scores are listed (Table 3).

**Table 2 Weights of the implementation evaluation system for traditional village protection and utilization planning**

| Target layer | Criterion layer | Weight | Factor layer | Weight | Indicator layer | Weight |
|---|---|---|---|---|---|---|
| Implementationevaluation of traditional village protection and utilization (A) | Effectiveness of protection and utilization implementation (B1) | 0.66 | Implementation of settlement protection planning (C1) | 0.274 | D1Protection situation of overall landscape pattern | 0.0269 |
| | | | | | D2Control situation of core protected area | 0.0375 |
| | | | | | D3Control situation of constructive control areas | 0.0214 |
| | | | | | D4Control situation of environmental coordination area | 0.0158 |
| | | | | | D5 Protection andrestoration of historic environmental elements | 0.0193 |
| | | | | | D6Authenticity of the protection and restoration of courtyards and buildings | 0.0229 |
| | | | | | D7Authenticity restoration of ancient streets and alleys | 0.0303 |
| | | | | | D8Coordination degree of infrastructure construction style | 0.0137 |
| | | | | | D9Coordination of overall style and appearance of settlement | 0.0260 |
| | | | | | D10 Preservation ofriver system | 0.0236 |
| | | | | | D11 Protection ofwater landscape and water quality | 0.0230 |
| | | | | | D12 Allocation of disaster prevention facilities | 0.0136 |
| | | | Degree of liveliness in utilization (C2) | 0.201 | D13 Proportion of Indigenousresidents | 0.0337 |
| | | | | | D14 Inheritance offolk culture | 0.0352 |
| | | | | | D15 Inheritance oftraditional craftsmanship | 0.0271 |
| | | | | | D16 Development oftraditional industries | 0.0231 |
| | | | | | D17 Inheritor offolk intangible cultural heritage | 0.0256 |
| | | | | | D18 Idlespace area ratio | 0.0246 |
| | | | | | D19 Improvement of traditional building functions | 0.0317 |
| | | | Collaboration between new and old residential areas (C3) | 0.185 | D20 Collaborative degree of spatial layout in new and old residential areas. | 0.0296 |
| | | | | | D21 Collaborative degreeof the overall style between new and old residential areas | 0.0352 |
| | | | | | D22Community infrastructure completeness | 0.0352 |
| | | | | | D23Community public service facilities improved | 0.0276 |
| | | | | | D24 Inheritance andapplication of rural construction techniques in new and old residential areas | 0.0287 |
| | | | | | D25 Utilization oftraditional local materials in new and old residential areas | 0.0287 |
| | Protection and utilization process supervision (B2) | 0.34 | Implementation path and mode (C4) | 0.182 | D26 Protectionawareness and public participation | 0.0537 |
| | | | | | D27 Protectionsubject and implementation of rights and responsibilities | 0.0651 |
| | | | | | D28 Protectionfund raising and investment situation | 0.0632 |
| | | | Implementation supervision and management (C5) | 0.158 | D29 Managementmeasures and village regulations | 0.0446 |
| | | | | | D30 Technicalsupport and implementation supervision | 0.0371 |
| | | | | | D31 Approval andregulatory process construction | 0.0407 |
| | | | | | D32 Historicaldata preservation and filing | 0.0356 |

**Table 3 Implementation and management measurement results of 44 traditional Chinese villages in lingnan waterfront area**

| Serial number | Traditional village name | Implementation of settlement protection plan | Degree of liveliness in utilization | Coordination between new and old residential areas | Implementation path and mode | Implementation supervision and management | Total score |
|---|---|---|---|---|---|---|---|
| 1 | Daling Village | 1.78 | 1.18 | 1.20 | 0.98 | 0.95 | 6.08 |
| 2 | Langtou Village | 2.06 | 1.44 | 1.33 | 1.21 | 1.10 | 7.14 |
| 3 | Julong Village | 2.17 | 1.34 | 1.17 | 1.21 | 1.02 | 6.91 |
| 4 | Huangpu Village | 1.62 | 1.27 | 1.37 | 1.34 | 1.02 | 6.62 |
| 5 | Xiaozhou Village | 1.77 | 1.32 | 1.32 | 1.44 | 1.10 | 6.95 |
| 6 | Shawan North Village | 1.82 | 1.31 | 1.36 | 0.98 | 1.06 | 6.42 |
| 7 | Gualing Village | 2.05 | 1.30 | 1.33 | 1.21 | 0.99 | 6.88 |
| 8 | Shenjing Village | 1.91 | 1.34 | 1.16 | 1.38 | 1.10 | 6.88 |
| 9 | Songtang Village | 1.61 | 1.25 | 1.19 | 0.97 | 0.95 | 5.97 |
| 10 | Daqitou Village | 2.26 | 1.42 | 1.42 | 1.64 | 1.26 | 7.90 |
| 11 | Bijiang Village | 1.56 | 0.99 | 1.01 | 0.86 | 0.91 | 5.33 |
| 12 | Chaji Village | 1.61 | 1.13 | 1.04 | 0.79 | 0.91 | 5.48 |
| 13 | Kongjia Village | 2.16 | 1.07 | 1.11 | 1.10 | 0.87 | 6.31 |
| 14 | Yanqiao Village | 1.91 | 1.25 | 1.11 | 1.09 | 0.98 | 6.35 |
| 15 | Shajiao Village | 1.46 | 1.20 | 1.10 | 0.86 | 0.91 | 5.52 |
| 16 | Fengjian Village | 2.18 | 1.56 | 1.50 | 1.22 | 1.10 | 7.57 |
| 17 | Madong Village | 2.11 | 1.46 | 1.33 | 1.09 | 0.98 | 6.98 |

(continued)

| Serial number | Traditional village name | Implementation of settlement protection plan | Degree of liveliness in utilization | Coordination between new and old residential areas | Implementation path and mode | Implementation supervision and management | Total score |
|---|---|---|---|---|---|---|---|
| 18 | Gangtou Village | 1.81 | 1.25 | 1.33 | 1.04 | 0.95 | 6.38 |
| 19 | Changqi Village | 2.26 | 1.38 | 1.41 | 1.38 | 1.22 | 7.65 |
| 20 | Shenshui Village | 1.55 | 1.13 | 1.08 | 0.97 | 0.95 | 5.67 |
| 21 | Xiangang Community | 1.90 | 1.28 | 1.20 | 0.91 | 0.95 | 6.24 |
| 22 | Libian Village | 1.46 | 0.99 | 1.04 | 0.73 | 0.91 | 5.12 |
| 23 | Huangxi Village | 1.56 | 1.16 | 0.88 | 0.86 | 0.91 | 5.37 |
| 24 | Tangnan Village | 2.25 | 1.29 | 1.24 | 0.97 | 0.95 | 6.69 |
| 25 | Chishan Village | 1.49 | 1.12 | 1.13 | 0.96 | 0.98 | 5.69 |
| 26 | Dushugang Village | 2.18 | 1.45 | 1.32 | 1.09 | 0.98 | 7.02 |
| 27 | Ruanyong Village | 1.94 | 1.36 | 1.18 | 0.97 | 0.95 | 6.40 |
| 28 | Liucun Village | 1.85 | 1.29 | 1.14 | 1.04 | 0.95 | 6.26 |
| 29 | Shangwan Village | 1.90 | 1.26 | 1.20 | 1.04 | 0.95 | 6.34 |
| 30 | Jiangbian Village | 2.13 | 1.22 | 1.23 | 1.15 | 1.02 | 6.74 |
| 31 | Tangwei Village | 2.08 | 1.30 | 1.13 | 1.09 | 0.98 | 6.59 |
| 32 | Baishi Village | 1.44 | 1.30 | 1.10 | 0.85 | 0.91 | 5.60 |
| 33 | Licha Village | 2.09 | 1.29 | 1.20 | 1.04 | 0.95 | 6.57 |
| 34 | Cuiheng Village | 2.20 | 1.50 | 1.50 | 1.70 | 1.25 | 8.16 |
| 35 | Guhe Village | 1.78 | 1.25 | 1.24 | 1.04 | 1.00 | 6.30 |
| 36 | Aoshan Village | 1.98 | 1.24 | 1.33 | 1.21 | 1.03 | 6.78 |
| 37 | Longtou Huan Village | 1.63 | 1.13 | 1.01 | 0.91 | 0.95 | 5.62 |
| 38 | Chadong Village | 1.64 | 1.20 | 1.20 | 0.91 | 0.99 | 5.94 |
| 39 | Antang Village | 1.84 | 1.29 | 1.20 | 1.04 | 0.99 | 6.36 |
| 40 | Liangxi Village | 1.77 | 1.21 | 1.11 | 1.09 | 0.95 | 6.13 |
| 41 | Xiaonan Village | 1.78 | 1.14 | 1.01 | 0.91 | 0.95 | 5.78 |
| 42 | Lubian Village | 1.28 | 0.99 | 1.07 | 0.73 | 0.87 | 4.94 |
| 43 | Nanmen Village | 1.77 | 1.22 | 1.20 | 1.04 | 0.91 | 6.13 |
| 44 | Paishan Village | 1.98 | 1.31 | 1.26 | 1.27 | 0.99 | 6.81 |

Through measurement and cluster analysis, based on the evaluation criteria of good implementation (> 7 points), average implementation (6-7 points), and poor implementation (< 6 points), the protection and utilization of traditional villages in the Lingnan Waterfront area shows obvious imbalanced characteristics. There are 6 traditional villages with good implementation, accounting for a relatively small proportion; there are 25 cases of average implementation, accounting for more than half of the total; there are 13 cases with poor implementation, accounting for nearly 30%.

The implementation and management of protection and utilization in six traditional villages with good implementation and management (> 7 points) are related to the earlier attention paid by the government or less affected by industrialization and urbanization.Cuiheng Village has the highest score in the evaluation of protection and utilization implementation, thanks to the early planning and control of the government and the support of various policy funds. Due to being the hometown of Sun Yat-sen, a pioneer of modern revolution, Cuiheng Village has received high attention from the government. Since the late 1990s, Zhongshan City took the lead in establishing Cuiheng Village as a historical and cultural village for overall planning and protection, establishing the Sun Yat-sen Former Residence Memorial Hall. By purchasing, repairing, and utilizing the old residential buildings in the old village, it fully protected the village environment during Sun Yat-sen's early development, and invested special funds annually for protection and utilization[24]. As a result, the protection and utilization of Cuiheng Village has achieved good marks. Fengjian Village was listed as a key tourism resource project in Foshan City in 2005, relying on the highly representative Lingnan Waterfront landscape and cultural resources. It invested 40 million yuan for two years to build the "Fengjian Water Township" brand, carried out envi-

ronmental improvement, utilized village houses, and supported the development of the tourism industry[25], thus timely stopping the erosion of traditional villages by industrial park construction. The other villages with higher scores, Dushugang Village and Changqi Village are located in the outer suburbs of the Pearl River Delta. They have been less affected by the rapid industrialization and urbanization brought about by the export-oriented economic development in the core area of the Pearl River Delta and have preserved a relatively complete village layout and local landscape. After being included in the list of traditional villages, a certain degree of protection, repair, and revitalization was carried out through the intervention of multiple subjects in the later stage.

Traditional villages with average implementation and management of protection, utilization, and management (6-7 points) are often affected by the industrialization and urbanization of rural areas in the Pearl River Delta, as well as driven by the demolition of old homesteads and the construction of new ones due to land scarcity, resulting in varying degrees of damage to the local landscape and village style. Some of these villages have taken certain measures to rejuvenize and utilize their villages in recent years, such asXiaozhou Village. Through the joint effort of the government and tourism developers, artists, young people, and other entrepreneurs were introduced, environmental improvement and facility upgrading was carried out in the core tourism areas, and some residential spaces in the villages were functionally replaced and utilized. However, due to the lack of early management and control, there are a large number of self-built houses and peripheral factories with poor appearance, which have a certain impact on the overall rural landscape of the village. At the same time, the village lacks supervision and management of the renovation and utilization of ancient buildings, and there is a phenomenon of excessive renovation of some residential buildings, which has a negative impact on the overall style of the village. Other villages, under the leadership of the government or village committee, have carried out certain protection and repairs to local areas of the village. For example, in Daling Village, with the support of special funds from the city and district, the Shilou Town government has organized the maintenance and landscape improvement of 8 ancient buildings, some alleys, and ancient trees in the village[26], However, the overall landscape of the villages, which was mixed with old and new due to the transformation of traditional residential buildings by a large number of villagers in the early stage, has not been effectively improved through this local protection and repair project. Moreover, the original ancient buildings in the villages are rarely replaced and developed, and there is a lack of corresponding supporting facilities. The implantation of business formats and cultural promotion efforts are insufficient, facing a continuous protection dilemma of lacking hematopoietic capacity.

For traditional villages with poor implementation and management of protection and utilization (< 6 points), they are usually in a dilemma of ineffective protection and utilization planning. These traditional villages are mainly divided into two categories. One is close to the city center, which is strongly affected by urbanization, and a large number of farmland and rivers are eroded by urban construction, presenting fragmented rural landscapes. Early villages lacked overall construction control and guidance, resulting in overall landscape destruction. Longtou Huan Village is located in the suburbs of Zhongshan City. With the expansion of the city, a large number of urban industrial parks, real estate, and urban public service facilities have begun to occupy farmland on the north and south sides of the village, blocking the connection between the village and the Shijiao River. The village is in the midst of urban construction. Driven by interests, the self-construction behavior of villagers within the village has not been effectively controlled, and a large number of high-rise and new residential buildings are interspersed within the old village, seriously damaging the overall appearance of the old village. The second type is located near the core area of the Pearl River Delta, which was strongly influenced by the industrialization of the Pearl River Delta that led to the construction of village and town industrial parks, causing serious constructive damage. Lubian Village has built a village level industrial park driven by the economy. Influenced by multiple factors such as the rapid demand for rental housing, restrictions on residential land, and impro-

ving the living environment, villagers have extensively demolished and rebuilt their original homesteads, resulting in a mix of new and old buildings in the countryside and serious damage to the traditional layout. Although small-scale repairs were carried out under the guidance of protection planning in later days, the impact on the already popular new buildings was not significant, and the overall style of the village was not coordinated. Under the lure of economic benefits, it is particularly difficult to implement and manage the protection, utilization, and management of traditional villages in these two types of villages.

**Conclusion**

The evaluation of the implementation of traditional village protection and utilization focuses on the implementation process and effectiveness of traditional village protection and utilization. It is an effective means to analyze the effectiveness of traditional village protection and utilization and reveal the problems impending the practice of traditional village protection and utilization. Since the country issued the catalogue of traditional village protection, there has been a widespread wave of protection and utilization of traditional villages in various regions. However, the effectiveness of these practices is not evident, and most traditional villages face challenges such as lack of implementation evaluation and inadequate construction management. Starting from the protection objectives of traditional villages, this article evaluates the effectiveness and process of traditional village implementation from five aspects: the effectiveness of traditional village protection and utilization, the degree of lively utilization, coordination between new and old residential areas, implementation paths and modes, and implementation supervision and management. The authors have constructed a planning and implementation evaluation system for the protection and utilization of traditional villages in the Lingnan Waterfront area. Through empirical measurements of 44 traditional villages in the Lingnan Waterfront area, the article has revealed that there are three levels of implementation status for the protection and utilization of traditional villages in the Lingnan Waterfront area: good, average, and poor. Among them, government policy support, urbanization, and industrialization are important factors that affect the implementation and management of traditional village protection and utilization. This article conducts a case study on traditional villages in the Lingnan Waterfront area and constructs an evaluation system for the implementation and management of traditional village protection and utilization from two aspects: implementation effectiveness and implementation process. It aims at deepening and enriching the existing research on the evaluation of traditional village protection and utilization, as well as providing reference and lessons for the implementation and management practice of traditional village protection and utilization.

**Figure and table sources**

The figures and tables in the text were all drawn by the author.

**References**

[1] WEI Cheng, MIAO Kai, XIAO Dawei, et al. Characteristic Division and Protection Thinking on Infrastructure of Chinese Traditional Villages[J]. Modern Urban Research, 2017(11): 2-9.

[2] Urban Planning Society of China. Revitalization, Traditional Village Protection Enters into the SecondPhase[EB/OL]. (2017-08-04)[2021-06-13]. https: //mp. weixin. qq. Com/s/pjdfZPdQa _ 2pgiFjODNITQ.

[3] DUAN Degang, GAO Li, HUANG Jing. Research on Evaluation of Implementation Effect of Village Construction Planning: Taking the Construction Plan of Minjiazui Village of Changchuan Township in Lintan County as an Example[J]. City Planning Review, 2019, 43(5): 73-86.

[4] YIN Chao, JIANG Jingsong. Analysis on the Protection and Actualization of Ancient Village in Jiangsu Province[J]. Development of Small Cities & Towns, 2010(7): 86-92.

[5] LI Jing. Research on the Implementation Evaluation of Conversation Planning forCuiheng Historic Cultural Villages[D]. Guangzhou: South China University of Technology, 2011.

[6] XU Honggang, WAN Xiaojuan, FAN Xiaojun. Rethinking the Implementation of authenticity in China's Heritage Conservation: A Case Study of Hongcun Village[J]. Human Geography, 2012, 27(1): 107-112.

[7] LIU Lulu, XIAO Dawei, ZHANG Xiao. Implementation Effect Evaluation and Application of Historic and Cultural Village Conservation[J]. City Planning Review, 2016, 40(6): 94-98, 112.

[8] YANG Liguo, LONG Hualou, LIU Peilin, et al. The Protection

and Its Evaluation System of Traditional Village: A Case Study of Traditional Village in Hunan Province[J]. Human Geography, 2018, 33(2): 121-128, 151.

[9] CHEN Yue. Method of Implementation Evaluationof Conservation Plan of Historic and Cultural Villages[J]. Urban Planning Forum, 2019(S1): 124-129.

[10] WEI Cheng, MIAO Kai, HUANG Duo, et al. Research on Comprehensive Evaluation System for Infrastructure of Chinese Traditional Village[J]. Journal of Urban and Regional Planning, 2017(4): 112-126.

[11] CUI Haiyang, GOU Zhihong. Research Progress and Prospect on Protection and Utilization of Traditional Villages[J]. Guizhou Ethnic Studies, 2019, 40(12): 66-73.

[12] SUN Hua. Introduction to Cultural Heritage (Part 2): Conservation and Management of Cultural Heritage[J]. Study on Natural and Cultural Heritage, 2021, 6(1): 66-80.

[13] HU Yan, CHEN Sheng, CAO Wei, et al. The Concept and Cultural Connotation of Traditional Villages[J]. Urban Development Studies, 2014, 21(1): 10-13.

[14] SUN Hua. The Nature and Problems of Traditional Villages: Rumination on the Conservation and Utilization of Rural Cultural Landscape in China[J]. China Cultural Heritage, 2015(4): 50-57.

[15] ZHOU Tiejun, HUANG Yitao, WANG Xuesong. An Analysis of the Conservation Evaluation System of Historic Towns and Villages in Southwest China[J]. Urban Planning Forum, 2011(6): 109-116.

[16] WEI Cheng. Where the Way is: Dilemma and Outlet of Uninhabited Ancient Village's Protection[J]. South Architecture, 2009(4): 21-24.

[17] YANG Liguo, LIU Peilin. The Inheritance and Its Evaluation System of Traditional Village Culture: A Case Study of Traditional Village in Hunan Province[J]. Economic Geography, 2017, 37(12): 203-210.

[18] ZOU Jun, CHEN Han, HUANG Wenrong, et al. Quantitative evaluation on the living state of traditional villages[J]. Scientia GeographicaSinica, 2020, 40(6): 908-917.

[19] FU Quansheng, SHENG Zhaohan. The Identification of the Criteria and Indicators for the Management Performance Appraisal in Chinese Nature & Culture Heritage Sites[J]. Human Geography, 2004(5): 50-54.

[20] XU Zili, HUANG Duo. Living Water: Study on Regional Characteristics of Landscape of Water System in Pearl River Delta [J]. South Architecture, 2015(2): 84-89.

[21] LU Qi, PAN Ying. The Waterfront Settlement Forms of Pearl River Delta Region[J]. South Architecture, 2009(6): 61-67.

[22] LIU Lulu, SU Di, ZHANG Yanling. Empirical Research on Management Measures of Conservation Plan of Traditional Villages [J]. Development of Small Cities & Towns, 2018(6): 76-81.

[23] FAN Jianhong, WEI Cheng, LI Songzhi. Concept and Development of Rural Landscape[J]. Tropical Geography, 2009, 29(2): 285-289, 306.

[24] REN Dong. Conservation Planning Evaluation of Historical and Cultural Towns and Villages[D]. Guangzhou: South China University of Technology, 2012.

[25] YANG Ren, XU Qian, ZHOU Jingdong, et al. Mechanism of Rural Space Transformation in Fengjian Acient Village of Shunde District, Foshan Based on the Actor Network[J]. Scientia Geographica Sinica, 2018, 38(11): 1817-1827.

[26] LUO Yubin, BAN Qiong, HUANG Xiaoying. Evaluation of Conservation Planning Implementation Mode of Historical and Cultural Villages in the Pearl River Delta[J]. Development of Small Cities & Towns, 2018(6): 82-87.