

# Ecological System of Lingnan Ancient Villages Based on Database Construction

**Hao Qi**

Department of Chinese Language and Literature, Guangzhou Xinhua University, Guangzhou, China

**Email address:**

[qihao@jyxyjy999.onexmail.com](mailto:qihao@jyxyjy999.onexmail.com)

**To cite this article:**

Hao Qi. Ecological System of Lingnan Ancient Villages Based on Database Construction. *American Journal of Information Science and Technology*. Vol. 6, No. 4, 2022, pp. 81-85. doi: 10.11648/j.ajist.20220604.11

**Received:** July 5, 2022; **Accepted:** August 1, 2022; **Published:** October 28, 2022

---

**Abstract:** The severe destruction of traditional villages has become a social problem, and this problem must be solved immediately in the context of rapid urbanization in China. As the millennium crystallization of the agricultural culture of various countries, the traditional village has a unique humanistic and natural landscape, with extremely high historical, cultural and economic value, and is an important link in the construction of the ecological culture of various countries. The purpose of this work is to study the ecosystem of Lingnan ancient villages based on the database. This research completely uses bibliographic data method, expert interview method, questionnaire survey method and decision analysis method. From the perspective of the laws of ancient sustainable rural ecosystems, according to the characteristics of modern rural development, the current problems are summarized, the existing problems, their causes, and solutions are proposed, namely, to build an ancient rural ecosystem with a database. This work analyzed in detail the ecosystem of the ancient villages in Lingnan, collected relevant parameters, and created a digital model of the ecosystem of the ancient villages in Lingnan. Combining the factors that affect the construction process of the ancient village ecosystem in Lingnan, it quantitatively translates it into computer language, formulates iteration stopping conditions, and then uses the database platform to establish a multi-factor system to perform its ancient quantitative optimization model. On this basis, the huge database resource utilization rate has increased the scientific utilization rate of nearly 50% of the ancient village ecosystem in Lingnan.

**Keywords:** Ancient Village Ecosystem, Document Method, Questionnaire Survey, Digital Model

---

## 1. Introduction

Database design is to build the best data model for a given application environment, create a database and application system model so that it can store data information and meet the needs of users [1]. The location of the database design in the entire automated office system is also very important. The quality of database design directly affects the performance and efficiency of the system, and will have a serious impact on actual use [2]. After fully understanding the needs of users in all aspects (including the needs that may increase in the future), the system designs the logical structure and entity relationship diagram of the database from two aspects.

But in principle, standardization must be achieved when designing the database. Hebbal B think only in this way can the phenomenon of excess data be eliminated to a greater extent [3]. Among the various examples of databases, it is

generally believed that the examples have achieved performance, scalability, and data integrity. Have a good balance, so in the system design database, all table structures must conform to the third conventional form [4]. Dr. Taffon S said in the article, when designing the database, the system uses the database method to facilitate maintenance, so it is more flexible in strategy changes, and it will be more convenient in future database expansion and maintenance [5]. The system has designed more than 10 arrays and named fields according to their purpose. All these tables conform to the third general format and minimize redundancy. Of course, there are still some necessary redundancies, because these surpluses are necessary from a safety perspective [6]. Database design is to build the best data model for a given application environment, create a database and application system model, so that it can store data information to meet the needs of users [7]. When designing the database, the system starts from the logical structure and entity relationship

diagram of the database, and receives the E-R diagram of the system. According to the obtained figure E-R, create the data structure table of the system part.

The novelty of this article lies in the application of scientific research methods, such as bibliographic research methods, case research methods, subtraction and verification methods, qualitative and quantitative analysis methods, and comprehensive induction methods [8]. The ancient ecosystem of the countryside is the main route. In general, the current development status of urbanization in my country has been summarized, and the existing problems in the ancient village ecosystem have been solved at this stage; secondly, the factors affecting the development of agriculture in my country have been studied [9]. Finally, it proposes a diversified development path for rural urbanization, and uses the convenience of the database to select appropriate methods and paths to follow the correct social development path [10].

## 2. Path Optimization Development of Sports Industry Management Development

### 2.1. Literature Research Method

In-depth understanding of domestic and foreign research status, systematic classification and analysis of related theories, reading related books and academic literature on Chengdu Plain forest settlements, complex adaptive design theory and architectural genetic design to enrich the theoretical foundation.

### 2.2. Case Study Method

Field surveys and cartographic surveys were conducted to assess the current status of the existing forest residential areas in the Chengdu Plain, and then to optimize the design of the survey subjects. Targeted discovery of topics related to research goals, as the basis for raising research questions and setting specific research goals.

### 2.3. Deduction and Verification Methods

Learn to use the relevant building model platform software, try to use these tools to simulate the prototype of the Chengdu Plain forest settlement, redesign and optimize the example, and find the experience of solving the problem through the results to verify the effectiveness of the proposed method.

### 2.4. Qualitative and Quantitative Analysis Methods

When studying optimization problems, not only the necessity and possibility of optimization are proposed theoretically; in optimization verification, the results of the analysis data are exported and imported into Excel to further quantitatively analyze the data. Make full use of the biggest feature of the ontology, namely the structure of trees, establish the relationship between ontology, and use each word to summarize the ontology of the ancient village. For

semantic similarity, the closeness of the relationship between ideas is calculated. This article uses a triple format to represent the ontology of the ancient village, namely.

$$o = \{C, R, Con\} \quad (1)$$

Among them, C represents the concept set in the ontology of ancient villages, R represents the relationship set between C and C, and Con represents the axiom set, that is, the constraint between C and C. The ancient village and the usual ontology are that C in the ancient village is a concept related to the ancient village, and the axioms contained in Con are specific to the ontology of the ancient village.

In the basic triples of the ontology of ancient villages, R is the second part, which is the collection of relations between C and C. In the process of constructing the ontology of ancient villages, the establishment of relationships is a more important part, and it is the basis of the framework and relationship network of ontology construction. The ancient village ontology contains the basic elements of concepts, attributes, and instances. The relationship between the ontology includes the relationship between the concepts of the ontology, the relationship between the attributes and the instance relationship, and the combined relationship of these three. There are four basic relationships in the establishment of the relationship of the ancient village ontology.

$$R = \{\text{is-a, kind-of, instance-of, attribute-of}\} \quad (2)$$

Among them, is-a represents the relationship between a part of the concept and the whole; the inheritance relationship between the concept types, the relationship between the moment of the parent-child relationship concept and the concept, the relationship between the object of the class and the class; the attribute of a concept It is a feature of another concept. The description of the ancient village itself should be professional, which is more in line with the attributes of the ancient village. So these four basic relationships are more detailed. As shown in Table 1.

Table 1. Four basic relationships.

	Is a	Is a
Relationship between the concepts of ancient villages	Kind-of	Class relationship
R	attribute-of	Attributes
	instance-of	Connected

The is-a relationship is divided into two types: "is an instance" and "is a member". In the instance-of relationship, it can be divided into "space related to", "time related to", "physical related to", "concept related to", "function related to" and so on. Physical correlation can be further subdivided into: "is part", "is composition", "includes", "connected to", "internally connected to", "is a branch", "is a carrier" and so on.

### 2.5. Comprehensive Induction

In the example optimization process, mathematical tools must be used to solve the problem. Further analysis found the

incentive mechanism of the existing forms of forest settlements in the Chengdu Plain, and relied on the software to assign the relevant weight parameters of the incentive mechanism, thereby simulating the entire optimization process and proposing corresponding optimization strategies.

### 3. Experiment Ecological System of Ancient Villages in Lingnan Based on Database Construction

#### 3.1. As the Birthplace of Traditional Culture, It Is a Regenerated Cultural Resource

After the fourth census of cultural properties in Guangzhou, ancient villages with rich cultural heritage have been continuously discovered. Among them are old villages with the highest environmental value in Congo. Protecting these ancient villages between modernization and urbanization is very important for the construction of new rural areas. How to correctly understand the construction of new rural areas is an important issue for protecting old villages. This article focuses

on the protection and investigation of ancient Congolese villages, and discusses the development challenges and related obstacles faced by ancient Congolese villages.

#### 3.2. Purpose of Questionnaire Design

The protection of these ancient villages in the construction of modernization and urbanization has become more and more acute in the construction of new rural areas. A correct understanding of the construction of a new countryside is an important factor in protecting ancient villages. The theme of this article is to protect and study the ancient Loyalty Village, and discuss the development problems and solutions faced by the ancient Loyalty Village.

In order to ensure the validity of the questionnaire, we conducted exclusive interviews with 10 experts in ancient villages. The validity of the questionnaire is reflected in the assessment of the overall status, design content and structure of the questionnaire, and many surveys have been conducted based on the questionnaire. In order to make the final questionnaire meet the research needs, the specific status of the questionnaire validity test is shown in Figure 1.

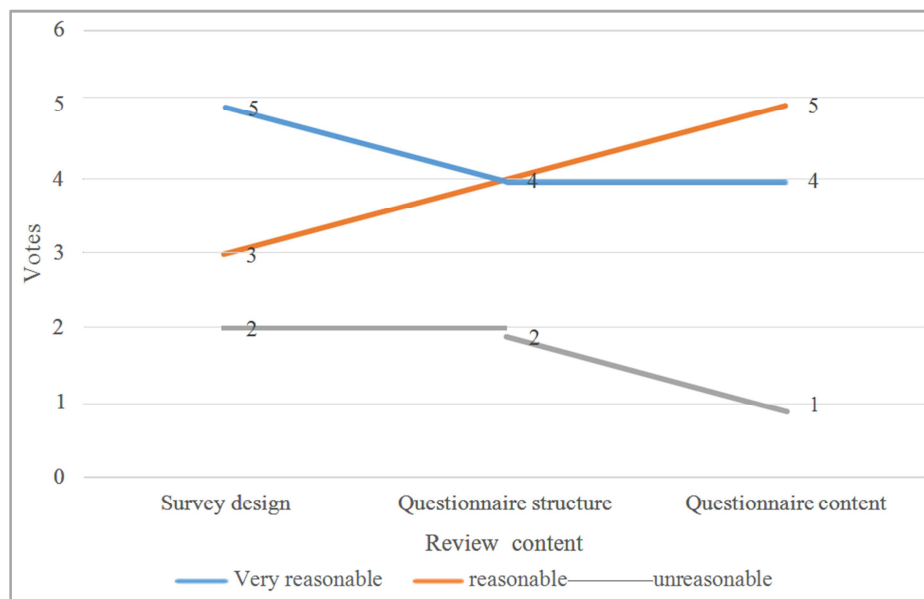


Figure 1. Questionnaire survey report.

#### 3.3. Issuance and Collection of Questionnaires

The data in this article comes from a questionnaire survey of students by the group. Investigation methods include questionnaire surveys, field investigations, interviews and literature surveys. Three universities were randomly selected to distribute online questionnaires. A total of 1,500 copies were collected. There were 1309 valid questionnaires, with

an effective rate of 95.4%. The first university collected 500 copies and 400 valid questionnaires, with an effective rate of 80%. In the second university, 500 points were returned, and 477 valid questionnaires were collected, with an effective rate of 95.4%; in the third university, 500 valid questionnaires were collected, with an effective rate of 86.4%. The results are shown in Figure 2 and Figure 3:

Table 2. University survey questionnaire feedback data.

High school name	Number of copies issued	Effective number of copies	Efficient
Daiichi High School	500	400	80%
Second High school	500	477	95.4%
Third High school	500	432	86.4%

The feedback data from the questionnaire survey proves that the author is more interested in the students' views on ancient villages and is willing to develop the ecosystem of the ancient village with us.

## 4. Experimental Data Analysis

### 4.1. Research Data on the Ecological System of Lingnan Ancient Villages Based on Database Construction

#### 4.1.1. Preservation of Ancient Villages

The original appearance is well preserved. Qiangang Ancient Village, Xuanxing Ancient Village and Bell Tower Ancient Village are representative of many ancient villages preserved in the Congo. Most of these ancient villages are well preserved, with relatively little damage (or traces of repairs in later periods), and have undergone relatively Redesign. Among them, the development of the ancient village of Xuanxing is the best and the oldest heritage of the ancient village in the township. Together with the agricultural park, it forms a unique economic development cycle and forms a new culture such as "Conghua Litchi Cultural Festival". The charm of the old village is well combined.

The original appearance is usually retained. The basic living patterns of Fengyuan Ancient Village, Kumian Ancient Village, Yinjiazhuang Ancient Village and Ancient Villages in the literature are retained, and the concentration of villages is still good. Take Fengyuan Ancient Village as an example. It is adjacent to Fengyuan Primary School. The layout of the village is neat and the structure of the buildings is simple. However, due to the management's rectification and negligence, the whole village was full of weeds, some houses and walls collapsed, but the cultural traces still exist.

The original appearance cannot be properly maintained. Old villages such as Dadun Ancient Village, Pingshanwei Ancient Village, Songbaitang Ancient Village, Qiufeng Ancient Village, and Zhongheli Ancient Village are relatively poorly preserved. Take Zhongheli as an example. Although the ancient villages have some buildings, their ancient villages are very small. The locals built a new building. In

addition, in the ancient village of Songbaitang, there are residents in the ancient buildings, or the residents add other types of floors to the ancient buildings, and there is a mixed architectural phenomenon.

#### 4.1.2. The Degree of Cultural Transmission

From the investigation and research of various ancient villages in Conghua, all ancient villages are filled with sorrow, and the cultural heritage of the ancient villages is not high. The old people in the village should also ask about some memories that have been released and tell the story of the village in a vague way. It is understandable that after the founding of New China, a large-scale loss of civilization began, which was related to the migration activities of the four old people and the Cultural Revolution. Whether it is material or a dog, as long as it is an ancient culture, it cannot be preserved. After two to three generations, it is basically vague. However, most villages still retain some ubiquitous traditional cultures, such as ancestral worship at a fixed time, and villagers' voluntary donations to repair the ancestral hall every year.

### 4.2. Research Data on the Ecological System of Lingnan Ancient Villages Based on Database Construction

In terms of college students, understanding of ancient villages, 146 respondents were surveyed. 38.29% learned about ancient villages through news; 37.82% learned about ancient villages through the Internet; 3.06% learned about ancient villages through newspapers; 10.22% learned about ancient villages through people around them. Explain that the Internet is the main way to understand ancient villages. In terms of the protection status of ancient villages, 4.33% of people think that the protection of ancient villages is in good condition; 57.26% think that the protection is average; 41.33% think that the protection of ancient villages is not good. In terms of the implementation of public safety facilities and measures in ancient villages, 82. 11% of people think that the implementation is fair; 16.33% think that the implementation is not good; only 3. 12% think that the implementation is good.

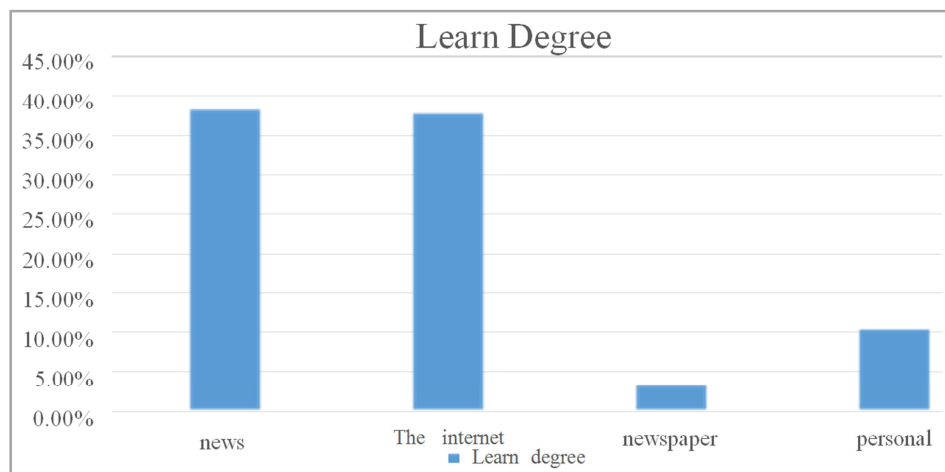


Figure 2. Undergraduates' understanding of ancient villages.

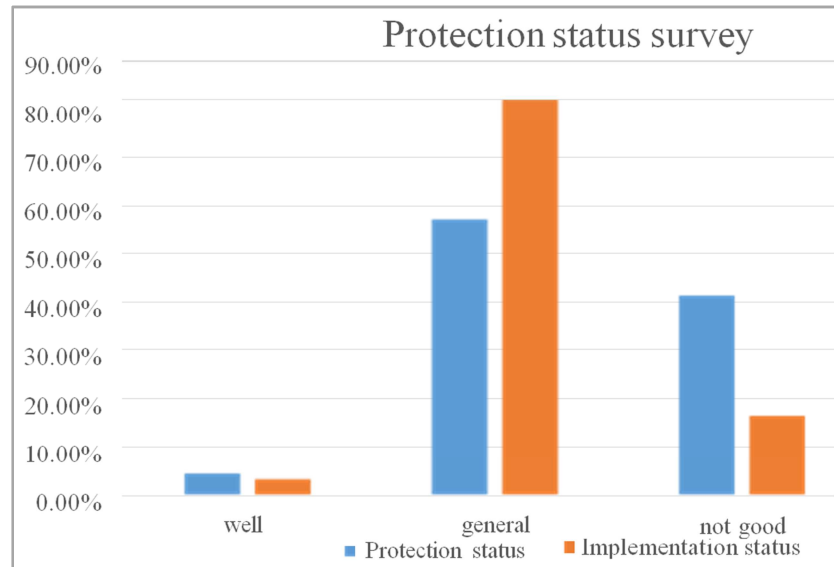


Figure 3. Protection status of ancient villages.

## 5. Conclusions

The group's research object is an ancient village. Due to the wide distribution of ancient villages and different living conditions, the research method of the research team may not be perfect. The systematic collection of the ecosystem of the ancient villages in Lingnan by the database method not only allows the country to have the right direction in the transformation of the countryside, but also protects the ecosystem of the ancient villages. The development of ancient villages requires constant coordination to achieve the desired results. The development of ancient villages is of great strategic significance for creating a new era, respecting the regional development of ancient villages, organizing organically with the government and non-governmental organizations, and understanding the establishment of a new era of contact with them, and is complementary to traditional culture.

## Acknowledgements

Guangdong Provincial Department of Education Innovation Strong School Characteristic Innovation Project in 2019: Research on the inheritance and activation of the Silk Road folk cultural heritage in the South China Sea from the perspective of social memory theory (No. 2020 wtscx131).

## References

- [1] Mr liu, Mr gu. Analysis on the water landscape and safety of Liukeng ancient village [J]. Shanxi Architecture, 2019, 045 (006): 190-192.
- [2] Josep Darbà, Alicia Marsà. Hospital incidence, management and direct cost of osteogenesis imperfecta in Spain: a retrospective database analysis [J]. Journal of Medical Economics, 2020: 1-6.
- [3] Hebbal B, Marif Y, Belhadj M M. Bioclimatic Architecture in the Ancient Village of Southern Algeria [M]// ICREEC 2019. 2020.
- [4] Attal M, Lauwers-Cances V, Hulin C, et al. Lenalidomide, Bortezomib, and Dexamethasone with Transplantation for Myeloma [J]. N Engl J Med, 2017, 376 (14): 1311-1320.
- [5] Chaouch H, Taffon S, Villano U, et al. Naturally Occurring Surface Antigen Variants of Hepatitis B Virus in Tunisian Patients [J]. Intervirology, 2016, 59 (1): 36.
- [6] Baerlocher C, Mccusker L B. Database of Zeolite Structures [J]. Microporous and Mesoporous Materials, 2020, 297: 110000.
- [7] Uri K, William Stafford N. Controlling the FDR in imperfect matches to an incomplete database [J]. Journal of the American Statistical Association, 2019.
- [8] Kim H I, Kim H J, Chang J W. A secure kNN query processing algorithm using homomorphic encryption on outsourced database [J]. Data & Knowledge Engineering, 2019, 123: 101602.
- [9] Schmid E, Leeson K, Xu K T, et al. CT imaging history for patients presenting to the ED with renal colic--evidence from a multi-hospital database [J]. BMC Emergency Medicine, 2019, 19 (1).
- [10] Lin-Wei W, Gui-Fang Y, Jia-Mei C, et al. A clinical database of breast cancer patients reveals distinctive clinico-pathological characteristics: a study from central China [J]. Asian Pacific journal of cancer prevention: APJCP, 2019, 015 (004): 1621-6.