Development Model and Spatial Reconstruction of Rural Tourism in Hainan from the Perspective of Agricultural Sustainable Development

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Abstract

Rural tourism projects are mainly concentrated in rural areas, and its core factors and unique selling points are rural, that is, rural unique local flavor and rural customs. In view of the current situation of rural tourism development in Hainan, this paper makes a concrete analysis of the existing problems in the development of rural tourism in Hainan, and puts forward corresponding countermeasures, with a view to benefiting the continuous development of rural tourism in Hainan. Furthermore, it provides a good reference for contemporary rural space, planning and design, avoids the waste and excessive development of resource elements in the process of rural space construction and development, and promotes the optimal utilization of tourism resources.

Hainan's rural tourism began to upgrade and rural tourism promoted the adjustment of Hainan's industrial structure. Design corresponding development models, business models, provide policy support, strengthen human resources training, upgrade market demand, accelerate industrial integration based on civilized ecological construction, and promote rural tourism to a formal, orderly and sustainable development path.

Agricultural multi-function refers to the economic function of agriculture in addition to providing food and other commodity output, but also has the environmental and social functions related to rural environment, rural agricultural landscape, Rural Agricultural Cultural Inheritance and another non-commodity output. It emphasizes the sustainable development of agriculture, which is the inevitable trend of agricultural development in the post-industrial era. Rural tourism is a kind of tourism development which combines agricultural production, rural life and ecological environment. In recent years, rural tourism has brought opportunities for rural development and promoted the development of rural economy, but most products lack innovative consciousness and humanistic care. It does not meet the needs of the times to develop multi-functional agriculture.

Key words: Spatial Perspective; Hainan; Rural Tourism; Sustainable Development of Agriculture.

1. Introduction

1.1. Research Background

Rural tourism embodies the core attraction of rural tourism, and from the perspective of industrial development, to tap the core attraction of rural tourism, we must adhere to the “two lands” principle, namely, local resources and local characteristics [1]. In addition, special rural tourism lines should be built to facilitate the effective selection of tourist destinations for tourists; public health and tourist signs should be improved in rural tourism destinations, and health standards and service quality of basic implementation of tourist destinations should be continuously improved [2]. Hainan rural tourism sprouted in the mid-1990s. Haikou, Sanya, Wenchang, Qionghai and other urban areas [3]. The scale of tourist attractions is small, mainly for the “farm happy” rural tourism of “eating farm food, doing farm work, living in farm houses” [4]. The development of tourism has shown a stage. After the development stage of scenic tourism and tourism, which has been widely participated by the public, ecotourism, rural tourism, adventure tourism and other new tourism formats have mushroomed [5]. Rural tourism development should be equal to ecological environment protection, and rural tourism must not be developed at the expense of ecological environment. Supply urban residents with organic food; enable urban residents to gain a strong local flavor. People sweat in the vast world of suburbs and experience the process of farming activities. It is also the process of urban residents' bodybuilding and fitness [6].

Hainan rural tourism sprouted in the mid-1990s. Haikou, Sanya, Wenchang, Qionghai and other cities and counties have taken the lead in the development of rural tourism. Among them, Xinglong Tropical Botanical Garden and Chengmai Wanjia Orchard have been listed as national agricultural tourism demonstration sites [7]. The weak economic foundation and poor infrastructure conditions in Hainan's rural areas affect the design of rural landscape and the development of rural tourism products, and the optimization of accessibility and
reception conditions in rural areas [8]. On the basis of traditional rural leisure tours and agricultural experience tours, we will develop new tourism activities such as sightseeing, leisure and entertainment projects [9]. In addition, the concept of modern tourism has been continuously extended to the tourist space of the vast number of tourists. After continuous improvement and development, Hainan's unique rural tourism mode has gradually formed. There is no scientific and standardized management method for the reasonable distribution of income from rural tourism and the handling of complaints about service quality, and there is a lack of corresponding management and operation capabilities [10]. Faced with the violent momentum of various interest groups and individual interests in rural tourism development, how do we propose a holistic and unified space environment for rural tourism development [11, 13]. As a result, Hainan rural tourism is obviously different from other parts of the country in terms of market operation, product development and industrial development. It is necessary to construct a unique development model in order to get out of the current development dilemma [14]. It is necessary to use these advantages and maintain a beautiful living environment, not to destroy nature and ecology, to live in harmony with nature, and to build a harmonious and healthy development of civilized ecological villages. It is an important issue for Hainan rural, Hainan and even the whole country [15].

In rural areas, there are some developments that do not conform to the original ecological agricultural farming environment and village morphology, which destroy the original rural landscape texture and regional context, resulting in the gardening of agricultural farming gardens and the urbanization of settled villages [16]. Traditional rural tourism is difficult for tourists to feel and experience the image of rural tourism destination. Tourists pay more attention to the cultural connotation of rural tourism products [17]. In this regard, Hainan's rural tourism has been constantly innovating in the process of development, and successfully designed a unique road for the development of rural tourism in Hainan. Spatial settlements often enclosed ponds or farmland in a fan-shaped structure. The overall layout of rural space landscape in a fan-shaped layout is more regular. The building units are arranged regularly and longitudinally along the internal roadways of the settlements, and rearranged horizontally after rearranging the vertical arrangement to a certain scale [18]. The demand for leisure and ecological experience of urban residents is also growing stronger. In addition to busy daily work, it is often necessary to find an environment where the environment is elegant and suitable for leisure time, so as to alleviate their physical and mental fatigue [19]. Hainan's rural tourism has developed rapidly, and tourist attractions have gradually increased. A large number of tourists are based on the return to nature, and travel from all parts of the country to Hainan to experience the customs and customs of Hainan and feel the rural ecological resources of Hainan [20]. Rural tourism is a close integration of the city and the countryside. Through economic exchanges and cultural exchanges, the city and the countryside are mutually integrated and progress together, which indirectly shows the economic development model of “getting rich first and then enriching the road” [21]. Under the existing conditions in Hainan, using favorable conditions within the scope permitted by natural ecology, overcoming difficulties and building a civilized ecological village and continuously embarking on a new development stage, in order to build a harmonious Hainan rural tourism [22].

1.2 Research Status at Home and Abroad

Amelung et al. argued in 2014 that there is no strict distinction between urban and rural areas. Rural areas themselves are not leisure resources, but a continuum bounded by urban and wilderness mountains. Rural areas themselves have no characteristics that make rural areas become tourism resources. On the contrary, the countryside is charming because of the cultural characteristics of people living in this continuum [23]. Woods M and others made a survey on community integration in Peru in the same year. At present, it seems that community integration plays a guiding role in research, management and development of some tourism projects involving community participation. Community integration includes many contents, which can be summarized as the number of local people employed in the tourism sector, the distribution of employment types, the structure of decision-making rights [24]. In 2015, Kline C and others considered rural tourism to be a multifaceted and complex tourism activity. Moreover, some cities and scenic spots are not limited to urban areas, but have been brought to the countryside and still have the atmosphere of the city, such as some villages. Newly built leisure hotels and unique theme parks, etc., have different forms of rural tourism in different countries and regions, making rural tourism complex and varied, with different forms [25].

Carneiro M J and others studied the concept of SLA in tourism in the same year. It represents the sustainable livelihood method, whether SLA or tourism, and they are seeking the sustainability of development. So there is a link between the two. If the two can be combined, the tourism industry will have sustainability in the future development [26]. Badulescu D, et al. believe that different regional and contextual conditions should adopt different development strategies. The success of the development strategy depends mainly on whether it is suitable for the actual situation of tourism, whether it can promote the economic and social development of tourism, and whether it can solve the actual problems of farmers. There is no absolutely correct strategy in the world, only the right strategy. It is a correct, good strategy [27]. Chen X. A conducted a comparative study on different types of rural settlements in 2017, pointing out that the distribution of rural settlements is affected by...
the combined effects of transportation and land, and the spatial pattern of villages is subject to the topographical environment [28].

2. Spatial Types of Rural Tourism for Sustainable Agricultural Development in Hainan

2.1 Classification According to the Characteristics of Rural Tourism Resources

Hainan’s tourism has been highly valued as a pillar industry in Hainan. With the continuous development of tourism, some rural areas in Hainan carry out tourism development, highlighting some characteristics of the region and relying on local resources. Travel to help farmers, urban-rural interaction. Many of Hainan's national customs and cultures have been integrated into the pastoral scenery. With the development of rural tourism, although the minority agglomeration areas in central Hainan, such as Li and Miao nationalities, are backward due to their closure, their unique culture has strong attraction for tourists, such as Nankun National Customs Tourist Area and Southeast Asian Customs Village. There are coastal villages with blue sky, blue sea and coconut forest, mountain villages with green seasons and tropical rainforest, and plain villages with rugged scenery and idyllic landscapes. Eco-economy and farmers' quality have been significantly improved, which has promoted the coordinated development of human and nature, economy and society, urban and rural areas, and laid the foundation for the development and development of rural tourism in Hainan. It is the representation and mechanism of the system engineering of rural tourism development, which concisely shows the environmental conditions, development mode, development process, development products and development benefits of rural tourism development. Basically, it can meet the needs of modern tourism development and domestic and foreign tourists, and initially formed a coordinated and fully functional tourism facility supply system. Cities such as Haikou and Sanya have also won the title of National Excellent Tourism City. Through investigation, the tourism market of Hainan rural tourism is also very large. The citizens of the province have the characteristics of high economic level, high population quality, high tourist desire and high revisit rate. They are the main force of Hainan rural tourism.

The construction of rural tourism culture is a major event involving the vital interests of the broad masses of farmers. Therefore, the government should fully mobilize the enthusiasm of the broad masses of farmers in the process of building rural tourism culture. Mainland and overseas tourists, who stay in Hainan for a short time and are mostly in the form of teams, mostly decide on temporary tourist attractions according to the temporary arrangements of tour guides. This group has a higher level of consumption and a higher cultural requirement for suburban rural tourist attractions. Visitors are enjoying some big scenic spots. Having a taste of local dishes in Hainan and picking some fresh fruits in the orchard also bring them endless pleasure. In order to better meet the needs of tourists, enhance the experience of tourists, and in response to the construction of Hainan International Tourism Island, Hainan Province actively promotes the reform of planning and management. The leading tourism project in Hainan Province should be the project that best reflects the characteristics of the times, regional characteristics and historical context, and has relatively large scale, strong attracting ability and advantages in market competition. The thematic theme model is mainly concerned with the pattern of the content of the special event elements of a development element or process, usually a single factor or a causal pattern of a topic. In fact, as an important carrier of the tourist experience, tourism products bear the future of rural tourism development, and the current single types of tourism products cannot meet the differentiated needs of tourists. It is necessary to embed regional folk culture into the development of rural tourism products, fully demonstrating the unique charm of the local rural culture.

In addition, in the process of rural tourism development, there is a further clarification of the relevant organizational management criteria, which makes the rural tourism development and management model more standardized, orderly and institutionalized. The statistical results of the expert scoring method defined by "tourist related persons" are shown in Table 1 and Figure 1.

| Table 1. Statistical Result of Expert Scoring Method for Definition of "Tourism Relevant Person" |
|-----------------------------------------------|-------------------------------|
| **Frequency**                                  | **Standard deviation**        |
| Tourist                                       | 10.24                         | 16.4                         |
| General public                                | 9.41                          | 15.8                         |
| Foreign investors                              | 9.41                          | 15.3                         |
| Special interest groups                        | 9.56                          | 15.5                         |

2.2 According to the Geographical Location of Rural Tourism Activities

Diversified ethnic groups moved in, and their mutual precautions resulted in the scattered distribution of rural settlements in Hainan Island, with a small scale. Small-scale rural settlements and large settlement spacing close the relationship between villages and the natural environment. The development of rural space, because of
its different scale, location, resources, environment and regional culture, forms different combinations of spatial elements structure. Rural spatial form is the physical form and state of the whole formed by spatial elements through a certain structural relationship. There are still some imperfections in the method of dividing rural settlements according to their geographical distribution. For example, some villages are located in the estuary plain of the middle and lower reaches of the river. It is inaccurate to divide them into plain type and coastal type or riverside type spatial landscape, and only the rural settlements near the river and sea can be defined as riverside or coastal type rural settlements.

Figure 1. Statistical Result of Expert Scoring Method for Definition of “Tourism Relevant Person”

The water elements play an important role in human settlements and leisure recreation activities. They are not limited to landscape elements, but penetrate into all levels of rural tourism activities, forming a strong waterfront recreation feature. The rural area is regarded as a complex social system composed of multiple elements. Through the connection of various elements, the local phenomenon of rural society is revealed, and the nature and laws of rural society as a whole are discussed on the basis of the interaction of local phenomena. The assignment of spatial landscape influencing factors is shown in Table 2. The rural public market space plane is different from the rural space landscape. The relaxed atmosphere created by leisure labor often triggers a diversified crowd activity as shown in Figure 2.

<table>
<thead>
<tr>
<th>Factor</th>
<th>Optimization</th>
<th>Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eixample</td>
<td>9.08</td>
<td>5.32</td>
</tr>
<tr>
<td>Reserve area</td>
<td>12.50</td>
<td>6.92</td>
</tr>
<tr>
<td>Merge zone</td>
<td>11.20</td>
<td>6.51</td>
</tr>
</tbody>
</table>

Table 2. Valuation of Influencing Factors of Rural Spatial Landscape

Figure 2. Spatial Plane Map of Rural Public Wells
Hainan Island is rich in natural resources and has a rich natural rural base. There are many types of landscape space in rural life combined with nature. Most of Haikou City, Wenchang City, Qionghai City, Danzhou City and Chengmai County. The main characteristics of rural space landscape are: the village is clumped, the layout is relatively centralized, and the residential houses are compact and regular; the village has obvious boundaries, and the village has obvious core areas. Regional space is not invariable. When the unit of measurement changes, the volume of space also changes. But the biggest difference between the countryside and the city lies in its original ecology and its wildness. Therefore, no matter how fast urbanization develops, the rural style always has its own basic characteristics. Accelerating the circulation of idle land and increasing the income of circulation also provides a reliable basis for the local government to plan construction land such as residential land. Through the planning and design of guiding investment in capital construction, improve public infrastructure, accelerate the pace of rural tourism development. At the same time, the diversified tourism resources should be investigated, demonstrated and planned scientifically. Rural scenic spots scattered throughout Hainan Island, did not form a tourism industry chain, resulting in rich tourism resources, but there is a "lack of tourists in the island, outside the island tourists do not know" phenomenon. The development of rural tourism in Hainan is different from that in the mainland. It must be innovative in the development model, and it should be developed in line with the development of Hainan and the development of rural tourism that reflects Hainan's characteristics. Relying on Hainan's rich and colorful folk culture, relying on unique landscapes, humanities and folk culture, it provides ethnic restaurants, traditional festivals, celebrations and entertainment services to provide visitors with an understanding of Hainan folk customs and folk culture opportunities. Fully transform local resource advantages into economic advantages. It is expressed through the self-growth characteristics of rural settlements, forming a regular and symbolic spatial structure. The rural spatial pattern reflects the relationship between various functional elements and resource elements. The parameters of rural tourism spatial layout evaluation indicators are shown in Table 3.

| Table 3. Evaluation Index Parameters of Spatial Distribution of Rural Tourism |
|-----------------------------|------------------|
|                             | level | Proportion |
| space structure             | 32.05 | 0.62       |
| Multifunctionality          | 51.05 | 0.31       |

Rural settlements should break through the restrictions between villages and the whole natural space, open the space environment of villages to the natural environment, and construct an open network space system between nature and villages. Let rural settlements make effective use of the surrounding natural landscape resources. The analysis of spatial open development is shown in Figure 3.

![Figure 3. Space Open Development Analysis Map](image)

In the construction of spatial pattern, rural tourism should be considered in coordination with the construction of scenic spots. Functional positioning and complementary functions of scenic spots, rational allocation of resource structure, improvement of ecological environmental protection mechanism, and gradually form a regional and networked development pattern. The sequence analysis of rural spatial pattern is shown in Table 4. The sketch map of spatial change of rural tourism resources development is shown in Figure 4.

| Table 4. Sequence Analysis of Rural Spatial Patterns |
|-----------------------------|------------------|
|                             | Relation | Coordinate |
| Development Stage of Tourism Resources | 32.01   | 29.71       |
| Radiation stage of resource advantage        | 26.34   | 15.02       |
| Coordination Coupling Phase              | 19.75   | 16.31       |
| Integration Development Stage          | 17.42   | 19.20       |
Figure 4. Sketch Map of Spatial Change of Rural Tourism Resources Development

3. Hainan Rural Tourism Development Model System

3.1 Influencing Factors on the Construction of Rural Tourism Development Model

Extracting and using these landscape elements from Hainan rural landscape environment has strong regional characteristics. To ensure smooth interaction between industries. The coordinating role of resource optimal allocation is mainly reflected in the tourism industry cluster, which not only needs to coordinate the utilization of resources among industries through resource optimal allocation. Initially established the image of rural tourism, most areas have not yet formed a brand, there is no systematic marketing strategy, tourists are mostly spontaneous groups. To break the disorder of rural management in Hainan, we have launched a brochure for rural tourism in Hainan, produced and continuously updated promotional films, product albums and tour guides, and effectively utilized the four major media of television, radio, internet, newspapers and periodicals for publicity. Rural tourism development criteria are shown in Table 5 and Figure 5. By using local resources to carry out rural tourism, local farmers can participate in the tourism service industry, such as providing catering, accommodation, transportation and other services, or planting, processing, and selling local native products, directly or indirectly serving tourists. Relying on unique landscapes, humanities and folk culture, it provides ethnic restaurants, traditional festivals, celebrations and entertainment services to provide visitors with an opportunity to learn about Hainan folk customs and folk culture. The great significance of building a rural tourism culture allows them to gain benefits in construction and stimulate their enthusiasm so that they can better participate in the construction of rural tourism culture. In a limited space, with the help of special technology, the atmosphere of the vast and innocent sea is created; through the strange time and space interlacing, easy and pleasant interaction, the audience is conveyed the idea of close to the sea, relax the soul and embrace the beauty of life. Standardized and efficient management of rural tourism, rural tourism development evaluation system is shown in Table 6 and Figure 6.

<table>
<thead>
<tr>
<th>Table 5. Rural Tourism Development Standards</th>
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</thead>
<tbody>
<tr>
<td>Establish</td>
</tr>
<tr>
<td>------------------</td>
</tr>
<tr>
<td>Standardized management</td>
</tr>
<tr>
<td>Quality certification</td>
</tr>
<tr>
<td>Industrial convergence</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 6. Evaluation System of Rural Tourism Development</th>
</tr>
</thead>
<tbody>
<tr>
<td>Index level</td>
</tr>
<tr>
<td>-------------</td>
</tr>
<tr>
<td>Rural tourism resources</td>
</tr>
<tr>
<td>Environmental protection status</td>
</tr>
<tr>
<td>Development of Rural Tourism</td>
</tr>
</tbody>
</table>

Continuous development, continuous development of new tourism products and appropriate marketing, so as to consolidate its tourist market; Continuous innovation is to develop a number of distinctive rural tourism products in line with local conditions. The tourist market of rural tourism is mainly positioned as the surrounding urban residents. Although the charming sea scenery such as seawater and beach is the natural attraction for urban residents to choose rural tourism, participatory tourism activities are the driving force for them to make their choice. It wastes resources and does not attract tourists. Therefore, in the process of
developing rural tourism culture, we should pay attention to rational planning and high-quality development as a whole, so as to form the attraction for tourists.

Figure 5. Rural Tourism Development Standards

Figure 6. Evaluation System of Rural Tourism Development

In order to make a great progress in rural tourism, we must first adhere to the concept of sustainable development, develop in protection, and prevent the destruction of natural resources and cultural environment. Secondly, we should protect the primitive rural landscape. The core of building a new socialist countryside is to change the mode of rural economic growth through the adjustment of industry and employment structure, so as to transfer agricultural labor to non-agricultural industries. Develop rural tourism, transform and process agricultural production processes, rural customs and peasants' labor life as tourism resources, and form tourism products and market them. The purpose of resource optimization configuration is to make the resource allocation in economic activities tend to be reasonable, to allocate limited resources reasonably, to make various resource elements fully function, and to pursue the goal to achieve optimal resource allocation mode. The spatial orientation planning of rural tourism prioritizes some spatial areas with superior spatial environment, agricultural activities and labor characteristics as the development of rural tourism, and on the basis of completing agricultural production, carrying out tourism activities to obtain a win-win situation between agricultural production and rural tourism.

The research of tourism development demand forecasting has formed a set of forecasting method system mainly based on quantitative analysis. Past values of variables are related to past random perturbation terms. Its focus is to make full use of the information of the past value of the variable and to predict the future value of the variable by complex extrapolation technology:

\[
(\alpha_{MMSR}, \beta_{MMSR}) = \left( \frac{M}{k}, \frac{M}{k(d-k+1)} \right)
\]  

(1)

Use the average of observations from past periods as the N prediction for the forecast period:

\[
2k \leq n, k \leq a, 2k - 1 \leq d \leq n - r
\]

(2)
Travel demand has a fixed percentage change over time:

\[
G^m = [G^T_1, G^T_2, \ldots, G^T_k]^T
\]

The closer the time index to the forecast period, the greater the weight that should be given, because the recent forecast has stronger predictive power and accuracy:

\[
A^T G = \sum_i A^T_i G_i
\]

The weighted average of the observed value \( i \) and the predicted value \( M \) in the previous period is used as the predicted value of the next period \( S \):

\[
G_i^{(m)} = \begin{cases} 1, & i = m \\ 0, & i \neq m \end{cases}
\]

\[
S_i = R_i = \left[ G^1_i, G^2_i, \ldots, G^k_i \right]
\]

In the case of learning with the input mode \( n \) and the ideal output mode \( D \), the integrated error often uses the error squared formula:

\[
S^* = \arg \min \{ f(S) \} = \sum_{j=1}^n \max \left\{ \left( T_{n,j,m} - D_{n,j} \right) \right\} \rightarrow \min
\]

### 3.2 Construction of Rural Tourism Development Model

Leadership is the key to accelerate the development of rural tourism. It is suggested that the leading group and organization of rural tourism in our province be set up to undertake the organizational promotion, work guidance, service coordination, standardized management, and typical promotion of rural tourism development, and to strengthen overall coordination. It is necessary to strengthen the organization and leadership of rural tourism culture construction, clarify the responsibilities of Party committees and governments at all levels, and bring rural tourism culture construction into the agenda of Party committees and governments at all levels. Descriptive statistics of government interest requirements are shown in Table 7 and Figure 7. Rural tourism is an important way to promote the construction of a new socialist countryside and help farmers become rich. It has attracted the attention of local governments and formulated a series of supporting policies. The success of product management depends on the success of tourism project planning. At present, the development of rural tourism in Hainan Province is relatively lagging behind. Scientific planning of rural tourism projects is conducive to the sustainable development of rural tourism. Professionals in tourism product development, market information analysis, customer source market analysis, enterprise management, farm dishes research and other aspects can ensure high-quality service and high-level management, and lay a good foundation for the long-term development of rural tourism. The adjustment of product structure has been accelerated, the planting area of various high-quality agricultural products has increased, while the relatively low production capacity and low-efficiency crops have been eliminated. The rural planting industry has moved towards a high-quality and efficient development path, and the economic benefits have been continuously improved. Promote mutual complementation and coordination between systems, so as to optimize the state of resource utilization, consolidate the tourism industry's cohesive force, and optimize the rural spatial form. The optimization of resource allocation should function as a "lubricant", and promote the coordinated operation of various systems supporting rural tourism development. In addition, we will formulate reasonable and effective policies to attract the integration of rural tourism professionals, and encourage the Hainan village to retain some experienced rural tourism management talents. Based on the research on resource optimization theory, the principles of optimal allocation of rural tourism resources are summarized as shown in Table 8 and Figure 8.

<table>
<thead>
<tr>
<th>Table 7. Descriptive Statistics of Government Interest Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean value</td>
</tr>
<tr>
<td>Town culture</td>
</tr>
<tr>
<td>Industrial Development</td>
</tr>
</tbody>
</table>
Table 8. Principles of Optimal Allocation of Rural Tourism Resources

<table>
<thead>
<tr>
<th>Principle</th>
<th>Benefit</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market-oriented principle</td>
<td>2.98</td>
<td>0.36</td>
</tr>
<tr>
<td>Principle of Systematic Coordination</td>
<td>1.71</td>
<td>0.85</td>
</tr>
<tr>
<td>Sustainable Development</td>
<td>0.25</td>
<td>1.52</td>
</tr>
</tbody>
</table>

Under the resource optimization rule, the connection weights between neurons are mainly adjusted according to the difference $t$ between ideal output and actual output under the given input mode:

$$c(j_1,1) = t_{j_1}$$  \(8\)

In order to linearize the results and maintain the stability of variance, a square transformation is performed, i.e. formulas are used:

$$c(j_1,k) = c(j_1,k-1) + t_{j_1,k}, k = 2, \ldots, m$$  \(9\)

The function can analyze the spatial distribution pattern $C$ at any scale. It is an important method to analyze the spatial distribution pattern of rural settlements. The calculation formulas are as follows:

$$c_{\text{max}} = c(j_n,m)$$  \(10\)

$$K(X,Y) = K(U_x,U_y)$$  \(11\)
Introduce a spatial "hot spot" exploration method to detect whether there is a current high value and a low value in a local area. The calculation formula is:

$$x_t = \left\{ w, g_t \right\}$$ (12)

Network convergence convergence x is the "learning convergence" process in which the global error y of the network tends to a minimum value u:

$$I = \left\{ i, x, y \right\}$$ (13)

The complexity of network structure, the convergence rate of different weights V and threshold x to the same sample t is different:

$$z_t = v_i \cdot x_t + f_i$$ (14)

In propaganda, we should highlight the characteristic culture of rural tourism, display the humanistic landscape of rural tourism, and improve its popularity; try our best to build Hainan rural tourism brand, attract the attention of tourists, so as to promote the development of rural tourism in Hainan. With the entry of tourism industry, rural settlements, which are the core of tourism, have become a regional entity closely related to the surrounding villages. The rapid development of tourism industry has formed an attraction effect in the region, and the core villages of tourism have gradually become the center of regional development. Hainan has a vast tourist market to develop rural tourism culture. At present, the number of tourists coming to Hainan is increasing. They include both Hong Kong, Macao, Taiwan and the mainland of China, as well as foreign tourists from Japan, Korea, Russia and other countries. At the same time, tourism has become one of the important pillar industries in Hainan. Attention should be paid to the ecology, culture, product difference and interest of tourism product development. By combining with the development of educational science and technology and strengthening the development and utilization of catering culture, we can realize the deep integration of ecology and culture. Real rural tourism should be supplemented by experience-based tourism, and experience is the core of rural tourism. Participate in experience-based products that develop activities such as farmland farming, agricultural product picking, flower planting, and traditional craftsmanship. The public activity space of the village usually takes the big trees in the village as the activity center, and builds a temple, a temple, a stage, etc. around the big tree, forming a popular space for public activities.

4. Conclusions

This paper studies the development model of rural tourism in Hainan based on spatial perspective. To build a regional complex of rural tourism, to achieve orderly industrial development, and to promote the prosperity of villagers. The quality certification system should focus on energy conservation and environmental protection, take full account of local environmental carrying capacity, increase investment in environmental protection according to certification standards, combine with tourism ecological education, strengthen the awareness of resource and environment protection of rural tourism operators, and advocate "green" consumption. The spatial landscape of Hainan rural areas has a lot of research and desirable points in terms of both morphological layout and the relationship with natural ecology. While planning and building a new countryside, we need to fully consider the local cultural traditions and natural conditions to create a rural landscape with Hainan's regional characteristics. As a material carrier for rural tourism, rural space can effectively promote the development of rural tourism by adapting to the spatial pattern of tourism resource utilization. It is necessary to determine the basic ideas and main modes of developing rural tourism in Hainan, so as to enable people to optimize the allocation of resources and develop differentiated products. But regardless of the development model, rural tourism products are developed. While the tourism industry is developing steadily, we must pay attention to protecting the environment, and make effective use of the unique natural scenery of Hainan, combined with the folk culture of Hainan, to develop a tourist road with Hainan's rural characteristics.

References


