Study on the Coordinated Development of Economy, Tourism, and Eco-Environment in Sanjiangyuan

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Sanjiangyuan region is located in the hinterland of Qinghai-Tibet plateau, covering an area of 30.25 square kilometers, with the total population of 556000 people, including Tibetans, constituting more than 90%. Since it is the source of the Yangtze River, Yellow River, Lancang River catchment area, biodiversity concentration, and a beautiful environment, known as the “Chinese water tower,” occupy an irreplaceable strategic position in national development. Although Sanjiangyuan region is blessed with unique natural landscape and rich tourism resources, its ecological environment has been seriously deteriorated due to long-term man-made destruction, backward economic development, and increasing poverty, which have seriously affected and restricted the survival and development of local ethnic groups. Since the 18th National Congress of the Communist Party of China, General Secretary Xi Jinping has repeatedly emphasized that “Lucid waters and lush mountains are invaluable assets.” China advocates harmonious coexistence between humans and nature and sticks to the path of green and sustainable development. At the 19th National Congress of the Communist Party of China, the rural revitalization strategy was clearly proposed, which includes not only industrial revitalization but also ecological revitalization. In this paper, the area belonging to Sanjiangyuan National Park is taken as the main research object. By constructing economic, tourism, and ecological environment (TEE) evaluation indexes, the coupling degree and coupling coordination degree models are established, and the data from 2000 to 2019 are measured. The relationship of the three indicators is analyzed, and corresponding proposals for its development are put forward, such as implementing ecological compensation mechanism to improve the level of ecosystem management; blending into ethnic cultural elements to create a unique tourist resort; paying attention to economic development quality, building energy conservation and emissions reduction green engine; doing a good job in the top-level design of ecological economy, and promoting the coordinated development of various indicators, etc. We will focus on quality control of economic development and build green engines for energy conservation and emission reduction. We will do a good job in top-level ecological and economic design and promote coordinated development of various indicators.

1. Introduction

As the headwaters of the Yangtze, Yellow, and Lancang rivers, Sanjiangyuan is known as the “Water tower of China.” Gathering Tibetan antelope and other rare animal species, breeding on Tanggula Mountain and other lofty peaks, is of great value to the protection and maintenance of its ecosystem. However, because it is located in the plateau area, the climate conditions are harsh, and the abnormal global climate leads to the aggravation of drought and the significant reduction in water resources. In addition, due to the exploitation of mineral resources, grassland grazing, and other activities to grab natural resources, the local ecosystem is more fragile. Therefore, it is essential to study how to give full play to its resource advantage and improve the path of ecological development.

Although the Sanjiangyuan region occupies an irreplaceable strategic position in China’s national development, the long-term man-made destruction has led to serious deterioration of the ecological environment, backward economic development, and increasing poverty, which seriously affects and restricts the survival and development of local ethnic groups. Since the 18th National Congress of the Communist Party of China, General Secretary Xi Jinping has
repeatedly emphasized that “we need both invaluable assets and lucid waters and lush mountains” and “lucid waters and lush mountains are invaluable assets.” The 19th National Congress of the Communist Party of China clearly put forward the strategy of rural revitalization, which not only includes industrial revitalization but also includes ecological revitalization. This study takes the tourism-economy environment (TEE) of the area where Sanjiangyuan National Park is located, as the research object, to draw on the coupling relationship to analyze the data, the quantitative analysis index system and the specific measurement value of TEE were given by empirical analysis on the operation mechanism of coordinated development of TEE system and the coupling and coordination relationship between industries, to provide quantitative decision-making reference for the coordinated development of economy, tourism, and ecological environment system in Sanjiangyuan National Park.

2. TEE System Coupling

Economy, tourism, and ecological environment are an open system with high complexity, uncertainty, and multiple levels. The elements of the complex system are interdependent and interact with each other [1]. As an organic whole, the ecological environment, economy, and tourism of Sanjiangyuan National Park both promote and restrict each other. Only when the three elements coordinate with each other can the overall development of the system be improved, to achieve a virtuous development cycle. The coupling relation of each two elements in TEE system will be described below, and its coupling relation framework is shown in Figure 1.

2.1. Economy and Tourism. Yan [2] used the input-output method to compare domestic studies and international studies and came to the conclusion that tourism could enter the industrialization stage only when it entered industrialization, especially when the economy entered the development stage equivalent to heavy chemical industrialization [2]. In other words, economic progress can provide a basic environment for the development of tourism. The prosperous economic situation and loose fiscal policy can provide sufficient fund guarantee for the construction of tourism infrastructure and supporting services. The lowered interest rate can stimulate the consumption enthusiasm of consumers, to enhance the attraction and consumer stickiness of tourist attractions. People in economically prosperous areas have higher disposable income than those in economically backward areas, and they are more likely to pursue spiritual enjoyment, so they are more likely to participate in tourism activities.

In the process of tourism, tourists will generate various consumption expenses for clothing, food, housing, and transportation. These amenities are supported by shops that touch almost all local residents, who enrich their own pockets while serving tourists. For the relatively underdeveloped but beautiful environment of the Sanjiangyuan region, the development of tourism industry can be regarded as an advantageous measure to promote local economic development and consolidate the achievements of poverty alleviation.

2.2. Economic and Ecological Environment. Qinghai Province, as a big ecological province, has achieved remarkable ecological protection effect. Ecological migrants should “move out and get rich,” and the improvement of sustainable poverty alleviation ability is strongly related to the government’s investment in skill training and employment assistance for poor migrants. Therefore, while protecting the ecology, it is also important to improve the local economy [3]. Solid economy can provide a solid material backing for the benign development of the ecological environment, but economic development will also be restricted by the ecological environment. The development of a low-carbon economy is possible only when the state increases investment in scientific research and provides various preferential policies to support the new energy industry. Economic progress helps to improve the way resources are used, reduce energy consumption, increase output efficiency through scientific and technological innovation, and adhere to the development of environmentally friendly industries. Economic development should be organically combined with local ecological and environmental protection. Only in this way the sustainable, healthy, and steady development of the local economy and even the whole national economy can be promoted [4].

The trade-off between economic construction and ecological protection is rooted in the fact that the rate of human’s demand for natural resources exceeds the rate of resource renewal. The implementation of the national park system will contribute to ecological protection, but the expansion of tourism scale will have negative effects [5]. The ecological environment provides suitable living conditions for human beings, and human beings obtain information from the environment to meet the needs of economic development. The richer the natural resources are, the better
the conditions for economic development will be. If more attention is paid to ecological protection in the process of economic development, the environment will be more resilient and natural resources can be used continuously, and thus, recycling development can continue. The pursuit of economic growth without regard to the consequences will lead to environmental pollution and ecological destruction, and ultimately, mankind will “shoot himself in the foot.”

2.3. Tourism and Ecological Environment. Tourism has a positive external economy for the ecological environment. Tourism activities are mainly direct utilization of natural resources, less polluting industrial production, and less impact on the ecological environment compared with other traditional industries. In tourism development, we can consider the integration of tourism project development and ecological environment protection and change the traditional passive protection into active protection [6]. In short, the development of tourism can play a role in promoting environmental improvement. To develop tourism continuously, we must pay attention to the protection and development of ecological environment.

The ecological environment is the basis of tourism development. The scenic areas that can be developed as tourism projects must be beautiful and delicious, which can let tourists relax and relieve pressure. There are beautiful mountains and rivers and blue sky. People can see the beautiful natural scenery and appreciate other even more; it is the purpose of the tourists. Therefore, only in the beautiful ecological environment we can better improve the tourism resources and make this region a high-quality tourism zone suitable for all ages.

3. Index System Construction and Processing

3.1. Data Sources. Sanjiangyuan National Park is the first national park in my country, and its management system is a typical representative of the model of “directly managed by the central government and entrusted to the provincial government” [7]. This study selected the relevant data of Maduo, Zaduo, Zhiduo, and Qumalai counties involved in Sanjiangyuan National Park from 2000 to 2019 as the original data of the study, which mainly covers three aspects: economy, tourism, and ecological environment. Data sources include “China County (city) Social and economic Statistical Yearbook,” “Qinghai Statistical Yearbook,” and “China Ethnic Statistical Yearbook”. In view of the lack of individual county-level data, this study referred to the provincial data of Qinghai Province and converted it according to the proportion of GDP of the four counties in the whole province in 2019 to ensure the integrity and authenticity of the research data.

3.2. Index System Construction. Based on the correlation between economic development, tourism industry, and ecological environment of Sanjiangyuan National Park, based on the research results of Song Changhai [8], Xu and Ding [9], and Dai et al. [10], and combined with the local actual situation, the TEE evaluation index system of Sanjiangyuan National Park was preliminarily constructed and continuously improved. Finally, the following index system is constructed.

This index system is composed of an economic subsystem, tourism subsystem, and the ecological environment subsystem involved in TEE system, including 7 first-level indicators and 19 second-level indicators. The specific classification is shown in Table 1. The index system covers multiple dimensions of each subsystem, and the selected index is complete and representative, to ensure the scientific nature and credibility of the results.

3.3. Normalization of Indicators. Different evaluation indicators have different dimensionality and dimensionality units. To make all indicators in a uniform order of magnitude and facilitate comparison between indicators, the original data are normalized and the deviation standardization method is adopted to make the index values map to the interval [0, 1]. The evaluation index is divided into positive index and reverse index. The larger the positive index value is, the more beneficial the system is, and the smaller the negative index value is, the more beneficial the system is. The calculation formula is as follows:

\[ X_{ij}^{\text{positive}} = \frac{x_{ij} - \min x_{ij}}{\max x_{ij} - \min x_{ij}} \]

\[ X_{ij}^{\text{reverse}} = \frac{\max x_{ij} - x_{ij}}{\max x_{ij} - \min x_{ij}} \]

where \( x_{ij} \) represents the original data of the \( j \) item of an index in the year, and \( X_{ij} \) represents the normalized result.

3.4. Calculate the Index Weight. On the basis of obtaining the original data and using Stata software for data processing, the entropy weight method is used to determine the weight of indicators to distinguish the influence degree of different indicators.

Index weight calculation formula under entropy weight method:

(1) Calculate the weight of the \( j \) index value of the year:

\[ p_{ij} = \frac{y_{ij}}{\sum_{i=1}^{n} y_{ij}}, i = 1, 2, 3 \ldots n; \quad j = 1, 2, 3 \ldots m. \]  

(2) \( k = 1/\ln(n) \), and calculate the information entropy of the index:

\[ e_j = -k \sum_{i=1}^{n} (p_{ij} \ln p_{ij}), i = 1, 2, 3 \ldots n; j = 1, 2, 3 \ldots m. \]

(3) Determine the weight of indicators:

\[ w_j = \frac{1 - e_j}{m - \sum_{j=1}^{m} e_j}, \quad 0 < w_j < 1, \sum_{j=1}^{m} w_j = 1, j = 1, 2, 3 \ldots m. \]
The calculation results of index weights are shown in Tables 2–4.

### 4. TEE System Coupling Coordination Evaluation Model

#### 4.1. Comprehensive Evaluation Model

In this study, the multiobjective weighted sum model is used to comprehensively evaluate the economic, tourism, and ecological environment indexes of Sanjiangyuan National Park. The calculation formula is as follows:

\[
\begin{align*}
    f_{\text{tourism}} &= \sum_{j=1}^{n} w_{\text{tourism}} \cdot v_{\text{tourism}}^j, \\
    f_{\text{economy}} &= \sum_{j=1}^{n} w_{\text{economy}} \cdot v_{\text{economy}}^j, \\
    f_{\text{eco-environment}} &= \sum_{j=1}^{n} w_{\text{eco-environment}} \cdot v_{\text{eco-environment}}^j. 
\end{align*}
\]

(5)

In the formula, \( f \) is the comprehensive evaluation function of the index, \( w \) is the weight of each index, \( v \) is the standardized value of the index, and all of them have no dimensional value.

#### 4.2. Coupling Degree Model

Coupling is a phenomenon that refers to the process in which two or more complex systems interact and influence each other through subsystems or elements to promote the system from disorder to order and determines the characteristics and rules of system phase transition [11]. For Sanjiangyuan National Park, there is also a coupling relationship among its economic, tourism, and ecological environment indexes. Based on this assumption, a coupling degree model is constructed. The calculation formula is as follows:

\[
C = \left\{ \left[ \left( f_{\text{economy}} \cdot f_{\text{tourism}} \cdot f_{\text{eco-environment}} \right)^{1/3} \right]^{1/3} \right\}^{1/3}, \quad (6)
\]

### Table 1: Comprehensive evaluation index system.

<table>
<thead>
<tr>
<th>Subsystem</th>
<th>First-level index</th>
<th>Secondary index</th>
<th>Variable name</th>
<th>Unit</th>
<th>Nature</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic level</td>
<td>1 Per capita GDP</td>
<td>gdp_avg</td>
<td>Ten thousand yuan</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2 Financial revenue</td>
<td>Financial</td>
<td>Ten thousand yuan</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3 Total retail sales of consumer goods</td>
<td>retail_w</td>
<td>Ten thousand yuan</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Economy</td>
<td>4 Household saving deposit</td>
<td>Deposit</td>
<td>Ten thousand yuan</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5 Balance of local and foreign currency loans of financial institutions</td>
<td>Loan</td>
<td>Ten thousand yuan</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Industry</td>
<td>6 Added value of the secondary industry</td>
<td>value_added2</td>
<td>Ten thousand yuan</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Structure</td>
<td>7 Added value of the third industry</td>
<td>value_added3</td>
<td>Ten thousand yuan</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td></td>
<td>8 Passenger turnover</td>
<td>traveler_turnover</td>
<td>Ten thousand yuan/km</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Industry scale</td>
<td>9 Number of inbound overnight visitors received</td>
<td>traveler_night</td>
<td>Ten thousand yuan/time</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Tourism</td>
<td>10 Foreign exchange income from tourism</td>
<td>Revenue</td>
<td>Thousands of dollars</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td></td>
<td>11 The number of persons employed in catering and accommodation industry above the quota</td>
<td>Employment</td>
<td>Persons</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Development</td>
<td>12 Total fixed assets of catering and accommodation industry above designated size</td>
<td>fixed_assets</td>
<td>Ten thousand yuan</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>potential</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>13 Total industrial exhaust emissions</td>
<td>Emissions</td>
<td>Ten thousand tons</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td>Pressure P</td>
<td>14 Total wastewater discharge</td>
<td>water_waste</td>
<td>Ten thousand tons</td>
<td>–</td>
<td></td>
</tr>
<tr>
<td>Ecological</td>
<td>15 Arable land</td>
<td>Cultivate</td>
<td>Thousands of hectares</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>environment</td>
<td>16 Afforestation coverage rate of county town built-up area</td>
<td>rate_green_coverage</td>
<td>%</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Status S</td>
<td>17 Total water resources</td>
<td>water_resources</td>
<td>Billion cubic meters</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Respondence R</td>
<td>18 Domestic garbage disposal rate</td>
<td>rate_disposal</td>
<td>%</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td></td>
<td>19 Afforestation area</td>
<td>Afforest</td>
<td>ha</td>
<td>+</td>
<td></td>
</tr>
</tbody>
</table>
5.1. Economic Synergy Development Index. As can be seen from Figure 2, the economic index, economic level, and industrial structure of Sanjiangyuan National Park area showed an overall trend of growth from 2000 to 2019. Among them, economic index growth speed is the fastest, and industrial structure adjustment is relatively slow. Since 2013, the growth rate of the three indicators has accelerated year by year. The economic index peaked at 0.428 in 2016. This indicates that the implementation of the pilot system of national parks in 2016 has a positive impact on driving economic growth, promoting the transformation of industrial structure, and boosting high-quality development. However, the industrial structure may have a long adjustment cycle, and the growth rate is relatively slow compared with the economic level.

5.2. Tourism Synergy Development Index. It can be seen from Figure 3 that from 2000 to 2019, the industrial scale and development potential of Sanjiangyuan National Park kept expanding, and there was no significant difference between the industrial scale index and development potential index, which is reflected in the figure that the two indexes rose and fell one after another, grew alternately and synchronously, and got good cooperation. Similar to the economic index, the tourism index also reached the highest in 2016, indicating that the implementation of the national park pilot system has played a great role in stimulating the development of the tourism industry in the Sanjiangyuan region, but at the same time, more attention has been paid to the ecological environment in the following years.

5.3. Eco-Environment Co-Development Index. As shown in Figure 4, the eco-environment co-development index of Sanjiangyuan National Park fluctuated greatly from 2000 to 2019. From 2000 to 2005, with the increase in local people’s awareness of environmental protection, the environmental pressure was significantly reduced; from 2006 to 2015, the pressure, state, and response indices of the ecological environment remained at a low level, and the values of pressure and state indices alternated. After 2016, the importance of ecological and environmental protection was further emphasized under the background of the pilot system, so the development level of ecological and environmental index and its indicators began to show an upward trend.

where $C$ is the coupling degree, and $0 \leq C \leq 1$. The closer $C$ is to 1, the greater the coupling degree between subsystems is and the smaller the discreteness is.

### 4.3. Coupling Coordination Degree Model

Coupling degree can indicate the degree of dispersion and coupling degree between systems, but cannot explain the level of coordinated development among the three. Therefore, it is necessary to use the coordinated development model to further analyze and study the coordination degree of economy, tourism, and ecological environment in Sanjiangyuan National Park.

Its calculation formula is as follows:

$$D = \sqrt{C \cdot T},$$

$$T = \alpha f_{\text{economy}} + \beta f_{\text{tourism}} + \lambda f_{\text{eco-environment}},$$

where $D$ is the coupling coordination degree, and $T$ is the comprehensive evaluation index of the coupling coordination development level.

$$\alpha = 0.6691,$$

$$\beta = 0.1980,$$

$$\gamma = 0.1329,$$

$$\alpha + \beta + \gamma = 1.$$

Therefore,

$$T = 0.6691 f_{\text{economy}} + 0.1980 f_{\text{tourism}} + 0.1329 f_{\text{eco-environment}}.$$

On the basis of the above analysis and referring to the existing research results, the coordinated development degree of the coupling of economy, tourism, and ecological environment in Sanjiangyuan National Park is divided into 10 levels [12], as shown in Table 5.

### 5. Analysis of Evaluation Results

#### 5.1. Economic Synergy Development Index

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5.4. Index of Coordinated Development of Economy, Tourism, and Eco-Environment. There is a coordination problem between "development" and "ecological protection" in the three-river headwater region. The optimal decision is to achieve a balance between the proportion of ecological protection land and agricultural land, and the proportion of optimal ecological protection land increases with the increase in ecological value per unit area [13]. As shown in Figure 5, before 2012, the development level of economy, tourism, and eco-environment indexes in the Sanjiangyuan region remained at a relatively low level with little difference. From 2013 to 2016, economic development made rapid progress, but at the same time, the ecological environment index declined; that is, the excessive pursuit of high-speed economic growth and high GDP caused a negative impact on the ecological environment. Since 2016, due to the implementation of the pilot system, people have paid more attention to the necessity of improving the quality of development and protecting the ecological environment. As a result, the economic growth rate began to slow down, and the ecological environment index gradually changed from declining to rising, while the tourism industry maintained a steady development trend. In the last five years, the level of economic growth in this region is still significantly higher than the tourism and ecological environment index, so in the process of development, we should continue to explore ways to take economic growth into account and promote the development of other industries.

Table 6 shows the calculated results of the coupling coordination degree of economy, tourism, and ecological environment in Sanjiangyuan National Park from 2000 to 2019. It can be seen that the coordinated development of the three indicators in this area has been gradually improved in
the past 20 years with people’s continuous self-reflection and improvement. It has transitioned from a severely unbalanced development pattern in 2000 to a barely coordinated development pattern in 2019, taking five years as a period. Although the situation has improved, it has not yet entered a relatively good stage of coordinated development. Therefore, the development of the Sanjiangyuan region still has great development potential, but we will also face greater challenges.

6. Conclusions and Recommendations

6.1. Research Conclusions. In this study, the coupling coordination among economy, tourism, and ecological environment in Maduo, Zaduo, Zhiduo, and Qumala counties, where Sanjiangyuan National Park is located, was analyzed. The coupling coordination degree model was used to calculate the coupling coordination degree between 2000 and 2019, and the dynamic coupling process of TEE system was analyzed. The results showed that, from 2000 to 2019, the economic index of Sanjiangyuan National Park changed from rising to slowing down, the tourism index showed a steady upward trend, and the ecological environment index had a large fluctuation. Since the implementation of the national park pilot system in 2016, the TEE system in the Sanjiangyuan region has been in a positive trend of continuous optimization, and the coupling coordination degree has transitioned from a serious imbalance in the early 21st century to a barely coordinated stage, which is a transitional period of about five years. Focusing on the improvement of the ecological environment promotes the high-quality development of the economy and ensures the stable development of the tourism industry. Therefore, it is urgent to improve the local basic ecological environment. However, the current coupling coordination degree is still at a moderate level of barely coordinated degree, and the economic index is still significantly higher than the tourism index and the ecological environment index. To achieve a higher level of coordination, we still need to make unremitting efforts.

6.2. Suggestions. Based on the above analysis results, the following suggestions are put forward to improve the coordinated development of TEE system in Sanjiangyuan National Park.

1. Implementing ecological compensation mechanisms to improve ecosystem management. The establishment of a new ecological compensation mechanism [14] is explored, local governments and residents to enhance environmental protection awareness are encouraged, and water and energy conservation is put into concrete action. General Secretary Xi has stressed many times that “mountains, rivers, forests, fields, lakes, and grass are a community of life.” We should start from the overall situation of the environmental system, accelerate the formulation and improvement of environmental protection rules and regulations, and provide normative guidance for the ecological legal system in the Sanjiangyuan region in the new era.

2. Integrating ethnic cultural elements to create a unique tourist resort. Local ethnic cultural elements are appropriately integrated into tourism projects to increase the interest of the tourism process; tourism reception facilities are improved, reception capacity is improved, and the quality of tourism is ensured in the Sanjiangyuan area [15]. The development framework of tourism industry is improved, the local diversity of biological species and comfortable and pleasant natural landscape are taken as development advantages, and the benign and sustainable

<table>
<thead>
<tr>
<th>Year</th>
<th>$f_{\text{economy}}$</th>
<th>$f_{\text{tourism}}$</th>
<th>$f_{\text{eco-environment}}$</th>
<th>$C$</th>
<th>$D$</th>
<th>Type of coordinated</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>0.015</td>
<td>0.111</td>
<td>0.008</td>
<td>0.535</td>
<td>0.130</td>
<td>Severe disorder</td>
</tr>
<tr>
<td>2001</td>
<td>0.019</td>
<td>0.107</td>
<td>0.015</td>
<td>0.666</td>
<td>0.151</td>
<td>Severe disorder</td>
</tr>
<tr>
<td>2002</td>
<td>0.025</td>
<td>0.092</td>
<td>0.020</td>
<td>0.785</td>
<td>0.168</td>
<td>Severe disorder</td>
</tr>
<tr>
<td>2003</td>
<td>0.028</td>
<td>0.090</td>
<td>0.012</td>
<td>0.722</td>
<td>0.162</td>
<td>Severe disorder</td>
</tr>
<tr>
<td>2004</td>
<td>0.032</td>
<td>0.055</td>
<td>0.028</td>
<td>0.957</td>
<td>0.185</td>
<td>Severe disorder</td>
</tr>
<tr>
<td>2005</td>
<td>0.037</td>
<td>0.082</td>
<td>0.030</td>
<td>0.904</td>
<td>0.199</td>
<td>Severe disorder</td>
</tr>
<tr>
<td>2006</td>
<td>0.058</td>
<td>0.046</td>
<td>0.040</td>
<td>0.987</td>
<td>0.228</td>
<td>Moderate disorder</td>
</tr>
<tr>
<td>2007</td>
<td>0.084</td>
<td>0.058</td>
<td>0.053</td>
<td>0.980</td>
<td>0.268</td>
<td>Moderate disorder</td>
</tr>
<tr>
<td>2008</td>
<td>0.085</td>
<td>0.058</td>
<td>0.076</td>
<td>0.988</td>
<td>0.278</td>
<td>Moderate disorder</td>
</tr>
<tr>
<td>2009</td>
<td>0.063</td>
<td>0.107</td>
<td>0.083</td>
<td>0.976</td>
<td>0.270</td>
<td>Moderate disorder</td>
</tr>
<tr>
<td>2010</td>
<td>0.074</td>
<td>0.076</td>
<td>0.093</td>
<td>0.995</td>
<td>0.279</td>
<td>Moderate disorder</td>
</tr>
<tr>
<td>2011</td>
<td>0.095</td>
<td>0.074</td>
<td>0.108</td>
<td>0.988</td>
<td>0.304</td>
<td>Mild disorder</td>
</tr>
<tr>
<td>2012</td>
<td>0.136</td>
<td>0.095</td>
<td>0.110</td>
<td>0.989</td>
<td>0.349</td>
<td>Mild disorder</td>
</tr>
<tr>
<td>2013</td>
<td>0.190</td>
<td>0.059</td>
<td>0.102</td>
<td>0.894</td>
<td>0.364</td>
<td>Mild disorder</td>
</tr>
<tr>
<td>2014</td>
<td>0.358</td>
<td>0.073</td>
<td>0.118</td>
<td>0.796</td>
<td>0.454</td>
<td>Verge disorder</td>
</tr>
<tr>
<td>2015</td>
<td>0.406</td>
<td>0.045</td>
<td>0.148</td>
<td>0.697</td>
<td>0.449</td>
<td>Verge disorder</td>
</tr>
<tr>
<td>2016</td>
<td>0.428</td>
<td>0.054</td>
<td>0.174</td>
<td>0.727</td>
<td>0.474</td>
<td>Verge disorder</td>
</tr>
<tr>
<td>2017</td>
<td>0.357</td>
<td>0.083</td>
<td>0.169</td>
<td>0.843</td>
<td>0.478</td>
<td>Verge disorder</td>
</tr>
<tr>
<td>2018</td>
<td>0.249</td>
<td>0.167</td>
<td>0.159</td>
<td>0.979</td>
<td>0.460</td>
<td>Verge disorder</td>
</tr>
<tr>
<td>2019</td>
<td>0.352</td>
<td>0.140</td>
<td>0.163</td>
<td>0.917</td>
<td>0.503</td>
<td>Barely coordination</td>
</tr>
</tbody>
</table>
development of tourism with its incomparability is promoted.

(3) Focusing on quality control of economic development and building green engines for energy conservation and emission reduction based on the actual situation of Sanjiangyuan region, the development of low-carbon economy [16] is actively advocated, the energy structure is adjusted, the carbon emissions in the production process are minimized, the utilization of clean energy is increased, and the vision of "carbon peak and carbon neutrality" is realized. Resource development should be in the form of points [17], strictly abiding by relevant regulations, do not exceed the scope of environmental carrying capacity, and take economic development as the engine to promote tourism and ecological environmental protection construction.

(4) Doing a good job in ecological and economic top-level design and promoting coordinated development of various indicators. The protection and development of the three-river headwaters region are a complex systematic project, involving many aspects of "five-in-one." Therefore, it is necessary to form a comprehensive development strategy at all levels, make overall long-term planning, realize the effective allocation of resource elements between industry and generation, and promote the coordinated development of economy, tourism, and ecological environment.

Data Availability
The data that support the findings of this study are available in “China County (City) Social and Economic Statistics Yearbook" at "https://www.stats.gov.cn/tjjs/tjcbw/", “Qinghai Statistical Yearbook” at “https://tjj.qinghai.gov.cn/tjData/qhtjnj/”, and “China National Statistical Yearbook” at "https://www.stats.gov.cn/".

Ethical Approval
Not applicable.

Conflicts of Interest
No conflicts of interest exist in the submission of this manuscript.

Authors’ Contributions
All authors contributed to the study conception and design. Xiaohui Wang and Xinna Zhang performed material preparation, data collection, and analysis. Xinna Zhang wrote the first draft of the manuscript, and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.

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