



The Sustainable Tourism Observatory of Yangshuo (STOY)

Annual Progress Report 2024.9 Edition



INSTO

International Network
of Sustainable Tourism
Observatories

**The Sustainable Tourism
Observatory of Yangshuo
(STOY)**

Annual Progress Report-2024.9 Edition

MCSTO

We thank the INSTO network and the Sustainable Development of Tourism Programme of the United Nations World Tourism Organization (UNWTO) for the excellent platform for networking and knowledge exchange. We also thank the Yangshuo County for their invaluable collaboration in the realisation of this study. Furthermore, we would like to extend our heartfelt thanks to partners and colleagues that kindly shared both data and precious advice.

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Contents

Acknowledgments	3
Contents	4
Foreword	5
Executive Summary	6
Yangshuo in Brief	7
Methodologies and Issue Areas	7
Destination Economics Benefits	15
Employment	18
Tourism	22
Seasonality	22
Energy Management	26
Water Management	29
Waste Water Management	32
Solid Waste Management	35
Governance	38
Climate Action	41
Accessibility	43
New Modes of Cultural Tourism in Yangshuo	46
Conclusions and Suggestions	49

Foreword

In 2004, the cooperation agreement between Guilin City and the World Tourism Organization (UNWTO, now UN Tourism) proposed incorporating Yangshuo's tourism data into the Indicators of Sustainable Development for Tourism Destinations (UNWTO, 2012). On July 26, 2005, the world's first Sustainable Tourism Observatory was established in Yangshuo, with its official unveiling ceremony held in October 2009, marking the start of long-term sustainable development monitoring. Since its inception, the observatory has annually monitored the sustainable development of local tourism.

From July 15 to 21, 2024, with the support of the UN Tourism Sustainable Tourism Observatory in Yangshuo, a monitoring team from School of Tourism Management, Sun Yat-sen University (SYSU), conducted on-site research on Yangshuo's sustainable tourism development. The team included 1 professor, 2 postdoctoral researchers, 3 doctoral students, 8 graduate students, and 12 undergraduates from the university's Tourism Development and Planning Research Center. The monitoring work consisted of two parts: assessing Yangshuo's sustainable tourism status based on core indicators and conducting thematic research on emerging tourism trends and cultural tourism innovations, including a symposium on these topics. The team visited multiple sites, focusing on sustainable tourism practices and related themes, successfully completing the research.

Executive Summary

Sustainable tourism encompasses the entire tourism experience, addressing economic, social, and environmental concerns while enhancing visitor experiences and meeting destination community needs (UNWTO, 2020). Overall, Yangshuo's tourism industry demonstrates a sustainable development trend. Tourism is a vital part of the local economy, with residents widely supporting it as a pillar industry and holding positive views on its social, economic, and cultural impacts. Residents benefit economically from tourism, improving their living standards. For visitors, Yangshuo's unique karst landscapes, exceptional natural scenery, and rich local culture are major attractions, drawing tourists for sightseeing, photography, and leisure. Visitor satisfaction, revisit intention, and recommendation intention have slightly increased compared to the previous year. However, there remains room for further development in Yangshuo's tourism sector.

This year's monitoring covered a wide range of areas, including tourism satisfaction, destination economic benefits, employment, seasonality, energy management, water management, wastewater management, solid waste management, governance, climate action, accessibility, and emerging cultural tourism trends. Each area was evaluated using specific indicators, dimensions, and related sustainable development goals.

Yangshuo in Brief

Yangshuo County is located in the northeastern part of Guangxi Zhuang Autonomous Region, south of Guilin City, spanning longitude 110°13'–110°40' E and latitude 24°28'–25°4' N. It borders Gongcheng County and Pingle County to the east, Lipu City to the south, Yongfu County and Lingui District to the west, and Lingchuan County and Yanshan District to the north. The county covers an area of 1,436 square kilometers and administers 6 towns and 3 townships (Yangshuo County Government Office, 2024).

Yangshuo experiences a subtropical monsoon climate characterized by abundant rainfall, ample sunshine, mild humidity, and distinct seasons (Yangshuo County People's Government, 2023). It is a multi-ethnic region inhabited by 14 ethnic groups, including Han, Zhuang, Yao, Hui, Miao, Dong, Mulao, Li, Manchu, Tujia, Korean, Maonan, Bai, and Shui. In 2023, the population was 299,190, with 243,400 rural residents and 54,300 ethnic minorities such as Zhuang, Yao, Miao, and Hui (Yangshuo County Government Office, 2024).

Methodologies and Issue Areas

The monitoring process was divided into three stages: preparation, on-site research, and report writing.

1. Preparation Phase (June 15–July 14, 2024):

The monitoring team developed a research outline and plan, identified required information, and collected official data such as lists of new tourism projects, statistics on tourism practitioners, and ecological environment reports. Questionnaires, interview guides, and discussion proposals were designed, and the research itinerary and personnel arrangements were confirmed. The team also coordinated with the UNWTO Sustainable Tourism Observatory in Yangshuo to ensure smooth on-site research.

2. On-Site Research Phase (July 15–21, 2024):














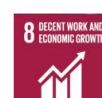
















The team conducted on-site research using observation, questionnaires, and interviews. A total of 1,433 valid questionnaires were collected, including 289

from residents, 174 from employees, 84 from business owners, and 886 from domestic and international tourists, with a 98% response rate. Through field visits, face-to-face interviews, symposiums, and surveys, the team engaged with various stakeholders, including observatory staff, scenic area managers, tourism enterprise representatives, township government officials, local residents, employees, and tourists.

3. Report Writing Phase (Post-July 21, 2024):

The team analyzed data from preliminary research and on-site investigations, applying tourism expertise to compile a comprehensive report and specialized reports on specific issues.

The monitoring covered 11 key areas, with Table 1 detailing the corresponding indicators, dimensions, and related sustainable development fields.

ISSUE AREA	INDICATORS	DIMENSIONS	SDGS
1 Local Satisfaction with Tourism	Tourism Development Satisfaction and Support	Social-Cultural	 
	Sense of identity and belonging to the locality		 
2 Destination Economic Benefits	Tourism Revenue and Growth Rate	Economic	 
	GDP and fiscal industry structure		 
3 Employment	Resident and Community Participation	Social-Cultural	 
	The impact of tourism on local employment in Yangshuo		  
4 Tourism Seasonality	Visitor Numbers and Growth Rate	Economic	  
	Visitor preferences for attractio		  
	Tourism Peak Season Timing		  
5 Energy Management	Green Energy and Sustainable Development	Economic-Environmental	   
6 Water Resource Management	Water Resource Status and Sustainability	Environmental	   

	Flood prevention and emergency management		 
7 Solid Waste Management	Solid Waste (Industrial, Agricultural, Domestic, Hazardous Solid Waste)	Environmental	  
8 Governance	Food Safety Governance	Social-Cultural	  
	Public Safety Governance		
	Tourism Participation Governance		     
9 Climate Action	Sustainable Development Goals and Actions	Economic-Environmental	  
10 Accessibility	Transportation Planning and Sustainable Development	Social-Cultural	 
11 New Modes of Cultural Tourism in Yangshuo	Emerging Tourism Business Modes	Social-Cultural	  

Table 1: Issue areas respectively with corresponding indicators, dimensions and SDGs

Issue Areas

想和你在一起
阳朔 稻田看日落



Local Satisfaction With Tourism

This survey collected a total of 289 resident questionnaires, with 287 valid responses, resulting in an effective response rate of 99.3%. The survey was conducted over a period of seven days, from July 15 to July 21, 2024. The survey locations included major sites such as West Street in Yangshuo, Xingping Ancient Town, Yulong River–Ten-Mile Gallery Scenic Area, Julong Cave Scenic Area, Moon Hill Scenic Area, Big Banyan Tree Scenic Area, and major piers in Yangshuo, including Shui'edi Pier, Jima Pier, Jiuxian Pier, and Wanjing Pier. Additionally, key roads in Yangshuo County, such as Diecui Road, Pantao Road, and Chengxi Road, were included in the survey.

The resident questionnaire comprised four main sections: residents' perceptions and satisfaction regarding the impacts of tourism development, a special study on tourism and family impact, a special study on tourism and local housing impact, and residents' demographic characteristics. The perceptions of tourism development impacts were measured using a five-point Likert scale. During the distribution of the questionnaires, most residents completed them independently. For a small number of residents who had difficulties understanding or filling out the questionnaire, the survey staff provided explanations and clarifications, assisting them through an interview-style approach.

For this analysis, to better reflect residents' attitudes toward various impact indicators, the response categories "very satisfied" and "satisfied" were combined into "satisfied," while "very dissatisfied" and "dissatisfied" were combined into "dissatisfied." Overall, 61.81% of residents expressed satisfaction with Yangshuo's tourism development, a slight decrease compared to 2023. 92.6% of residents indicated that they would continue to support Yangshuo's tourism development. The vast majority of residents (90.6%) believed that tourism benefits local development, slightly higher than in 2023. Additionally, 72.7% of residents felt that they personally benefited from tourism, also slightly higher than in 2023. The decline in overall satisfaction suggests that while residents recognize and support tourism development, they also have high expectations, indicating room for improvement in the current situation.

Furthermore, the study investigated residents' sense of identity with Yangshuo as an indirect measure of their satisfaction with tourism development. The results showed that most residents (82.6%) reported a strong sense of identity with Yangshuo. Additionally, 79.9% and 80.2% of residents, respectively, stated that Yangshuo holds deep significance for them and that they have a strong sense of belonging to the area—both figures slightly

higher than in 2023. Moreover, 70.8% of residents expressed their intention to settle in Yangshuo in the future. These findings suggest that the majority of residents hold a positive attitude toward local tourism development and have a strong sense of identity and belonging to the area.

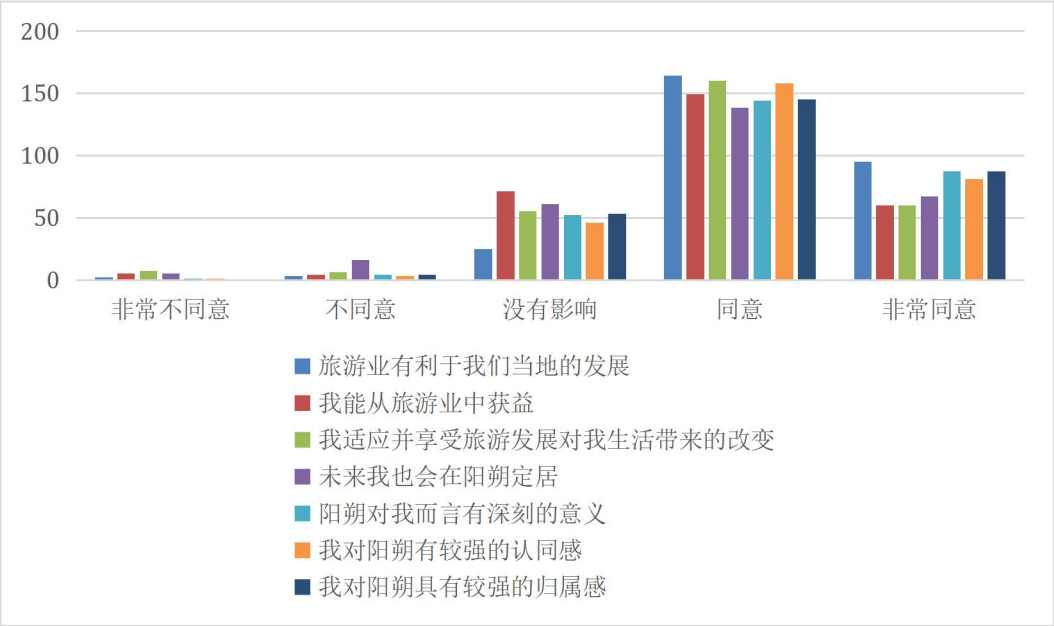


Figure 2: Residents' satisfaction with local tourism development



Destination

Economics Benefits

Tourism is the pillar industry of Yangshuo's economic development. Since 2006, the tertiary sector has been the dominant industry in Yangshuo County, with its value-added output accounting for an increasing proportion of the county’s GDP, surpassing 50% in recent years and widening the gap with the primary and secondary industries. As the leading sector within the tertiary industry, tourism has played a crucial role in this growth.

2.1 Tourism Revenues in the Destination

In 2023, total tourism consumption in Yangshuo reached **30.029 billion RMB**, representing a **year-on-year growth of 79.76%**. Among this, international foreign exchange earnings totaled **34.6673 million USD**, reflecting a **1095.55% increase** compared to the previous year (Yangshuo County Government, 2024). As shown in **Figure 1**, overall, Yangshuo’s tourism market in 2023 exhibited a **continued positive growth trend**, with total tourism consumption recovering to pre-pandemic **2019**

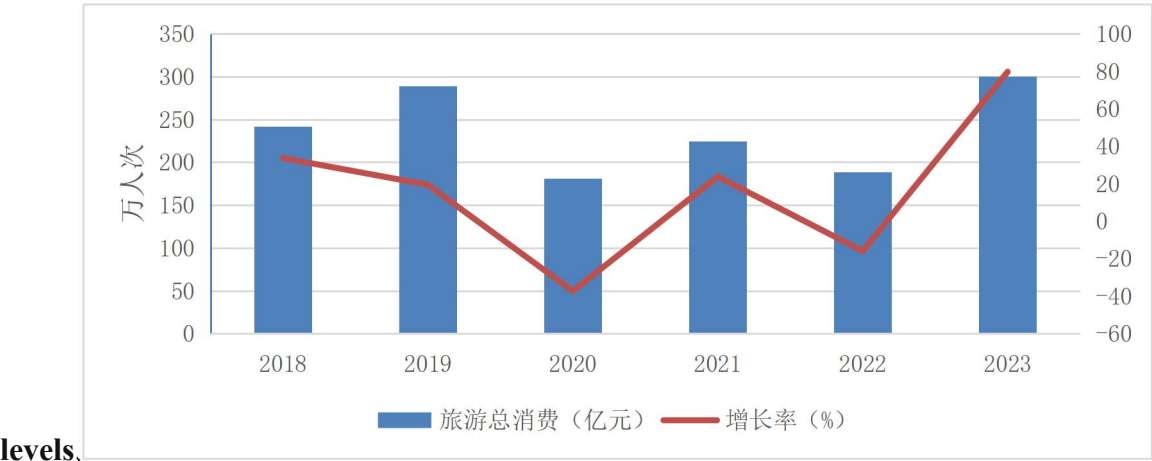


Figure 1: Tourist Arrivals and Total Tourism Consumption in Yangshuo County (2018–2023) (Source: Yangshuo County Government Work Report)

2.2 Investment Environment

The overall business investment climate in Yangshuo County has remained stable with steady growth. Last year, investment potential was strong, and investor confidence increased. However, confidence among business owners regarding investment in 2024 and 2025 has declined. A survey of 84 business owners revealed that confidence in tourism development in 2023 improved significantly compared to 2022, indicating that Yangshuo’s tourism industry quickly rebounded as the pandemic subsided. Many business owners regained confidence in production and pursued higher-quality operations.

However, expectations for tourism growth in 2024 and 2025 are lower than in 2023. This decline in confidence is largely associated with concerns about intensifying local competition and increasing industry homogenization, as mentioned by various tourism practitioners during stakeholder meetings. In 2023, Yangshuo's rapid tourism growth also led to certain investment challenges, particularly overconstruction of guesthouses, resulting in increased market competition. This situation has caused business owners to worry about the quality of tourism products and the long-term sustainability of future development.



Employment

Tourism, as the pillar industry of Yangshuo, has not only driven economic development but also provided a significant number of employment opportunities at the social level. This monitoring study conducted a sampling survey of local residents, employees, and business owners within Yangshuo County. A total of 287 valid resident questionnaires, 174 valid employee questionnaires, and 84 valid business owner questionnaires were collected. The data indicate that residents widely recognize the positive impact of tourism on local employment, as Yangshuo's tourism industry has directly or indirectly provided jobs and employment opportunities to society.

3.1 Impact of Tourism on Employment in Yangshuo

Residents are generally aware of the positive employment effects of tourism, with several indicators showing growth compared to the previous year. According to the resident survey, the vast majority of residents (90.6%) believe that tourism benefits local development, a slight increase from 2023. Additionally, 72.7% of residents believe they personally benefit from the tourism industry, also slightly higher than in 2023. Furthermore, 90.6% of residents recognize that tourism development has created more job opportunities locally, reflecting an increase from the previous year.

From an employee perspective, local workers still make up the majority of the tourism workforce. Among the 174 valid employee questionnaires collected in this survey, 119 employees (68.3%) were local residents, while 31 employees (17.8%) were from other districts and counties of Guilin City. Compared to 2023, when 82.6% of tourism employees were local residents, this indicates a decline in the proportion of local workers and a rise in non-local employees, reflecting the employment attractiveness of Yangshuo's tourism industry.

However, employee satisfaction with salary levels and career prospects still has room for improvement: 48.8% of employees are satisfied with their salary, while 40.5% remain neutral; 46.5% of employees are satisfied with their company's reward system; 53.4% are satisfied with their current leave policy; 39.6% believe they can see their career prospects, while 44.2% remain neutral regarding their promotion opportunities.

3.2 Residents' Perceptions of Tourism Development

Overall, Yangshuo residents mainly support and approve of tourism development, with support levels higher than in 2023. Residents strongly affirm the positive economic role of tourism, recognizing its contributions in job creation, increasing economic income, boosting investment and consumption, and improving living standards. Positive evaluations have increased compared to last year. However, it is important to note that residents remain dissatisfied with certain economic impacts, particularly rising prices and housing costs, as well as unequal distribution of tourism benefits. This suggests that while residents have high expectations for tourism development, there is still room for improvement in the current situation.

Residents' perceptions of the socio-cultural benefits of tourism remain highly positive, with all positive indicators surpassing 2023 levels. Most residents believe that tourism:

- Promotes cultural exchange
- Helps preserve and promote local traditional culture
- Enhances residents' local identity
- Supports the development of local handicrafts
- Strengthens relationships between locals and tourists
- Enhances Yangshuo's image as an international tourist destination

Overall, most residents recognize the role of tourism in fostering socio-cultural development.

With the continuous and sustainable growth of Yangshuo's tourism industry, residents' negative perceptions of tourism's environmental impact have diminished compared to previous years. This suggests that efforts to mitigate tourism's negative environmental effects have been somewhat successful. However, the large influx of tourists has challenged the region's carrying capacity, leading to increased resident concerns about environmental strain.

Regarding pollution-related issues, residents' attitudes have generally improved, and there is greater awareness of environmental pollution and traffic congestion. While residents show tolerance toward the impact of tourism infrastructure, they also demonstrate a

strong environmental awareness, highlighting the need for continued efforts in sustainable tourism development.



Tourism

Seasonality

Yangshuo's tourism boomed in 2023, with a surge in visitor numbers surpassing pre-pandemic levels in 2019. However, tourists mainly concentrated on a few attractions, such as West Street, Yulong River, the "20 Yuan Scenic Spot," and Li River rafting, resulting in an uneven distribution of visitors across different sites. In terms of seasonal patterns, Yangshuo experienced peak tourism in summer, followed by spring and autumn, while winter remained the off-season.

4.1 Tourist Volume in the Destination

In 2023, Yangshuo received a total of 21.1143 million tourists, reflecting a year-on-year increase of 75.92%. Among them, 98,714 were inbound tourists, marking an 899.84% increase compared to the previous year (Yangshuo County Government, 2024). As shown in Figure 2, the overall tourist volume in 2023 grew rapidly, surpassing the total number of visitors in 2019.

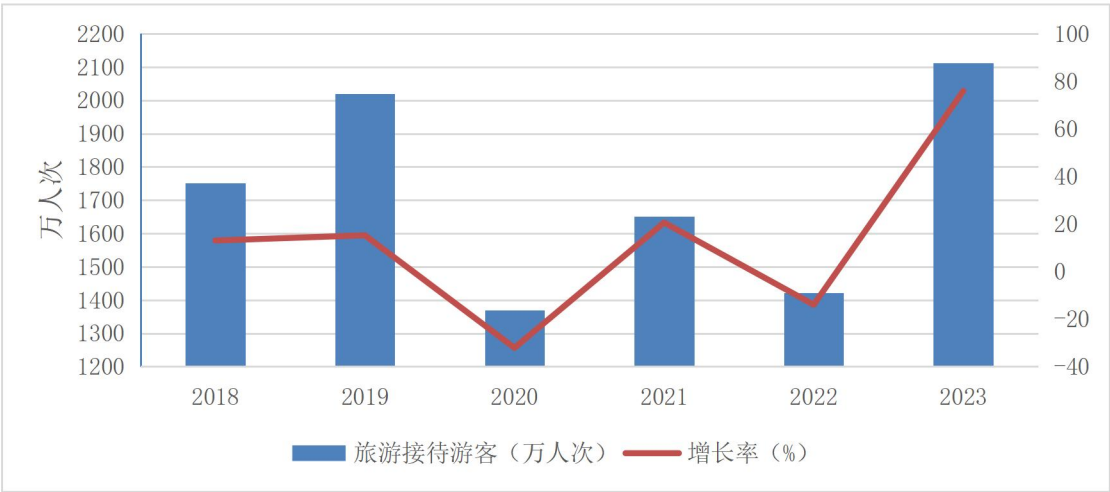


Figure 2 The Total Tourist Arrivals and Consumption in Yangshuo County of 2018-2023

However, there were significant differences in tourist distribution among various attractions in Yangshuo. To estimate visitor traffic at different sites, the survey analyzed tourists' planned itineraries. The data (see Figure 3) indicate an uneven distribution of tourists across attractions. 80% of tourists chose West Street as a destination, making it the most visited site, demonstrating its lasting popularity as a historic attraction. The second tier of popular destinations included Yulong River (70%), the 20 Yuan Scenic Spot (64%), and Li River rafting (51%), showing that nature-based attractions continue to hold strong appeal. Ten-Mile Gallery (47%) and Xingping Ancient Town/Old Street (41%) formed the third tier. Other attractions received significantly fewer visitors, highlighting the concentrated distribution of tourists across a limited number of sites.

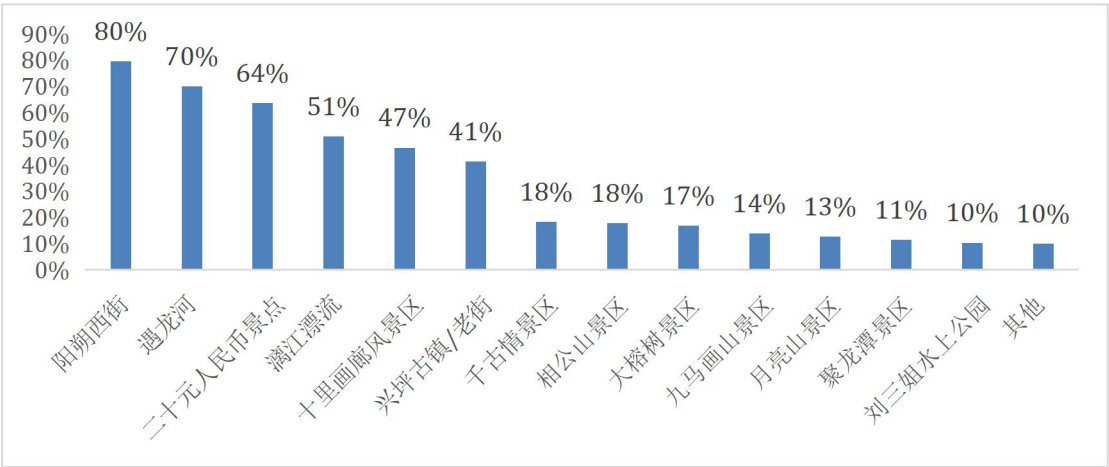


Figure 3 The Scenic Spots Tourists Planed to Visit

4.2 Seasonal Characteristics of Tourism

Additionally, insights into the seasonality of Yangshuo's tourism can be derived from the business owner survey, which included a question about peak business months. A total of 81 business owners responded to the question, "Which months are typically the peak season for your business?" The data (see Figure 4) show that the distribution of peak months follows an approximately normal curve, with at least some business owners identifying every month as part of their peak season. However, July and August were cited most frequently as peak months, mentioned 75 and 76 times, respectively. This confirms that the peak of Yangshuo's tourism season occurs during the summer holiday months of July and August. The second tier of peak months includes May, June, September, and October, when Yangshuo's climate is pleasant, making it ideal for outdoor activities. These months also coincide with the Labor Day (May 1) and National Day (October 1) holidays, allowing visitors ample time to travel to Yangshuo. Although some business owners consider November to March as peak months, the overall data suggest that this period constitutes the low season for Yangshuo tourism. In summary, Yangshuo's tourism peak season spans from May to October, with July and August being the busiest months, while November to March marks the off-season.



Figure The Distribution of Tourism Peak Months according to Local Business Owners



Energy

Management

5.1 Energy Reserves

In November 2023, the Zero-Carbon Virtual Power Plant, constructed by Guilin Power Supply Bureau, was completed in Yangshuo, Guilin. Since its establishment, photovoltaic resources, such as those at the Egend Bottom Charging Station, can be efficiently integrated into local shared energy storage, significantly increasing the proportion of green electricity consumption in Yangshuo. This has also brought economic benefits to local enterprises (Guilin Daily All-Media, 2024).

The number of new energy vehicle (NEV) charging facilities has been steadily increasing. By 2023, the number of NEV charging stations in Yangshuo County reached 781, reflecting an 864% increase compared to 2021. Charging stations are now available in all nine townships of Yangshuo, ensuring county-wide coverage. This has greatly enhanced charging convenience for both tourists and residents, effectively addressing charging accessibility issues. In 2023, Yangshuo received approximately 800,000 NEV self-driving trips. Moving forward, in 2024, the county aims to attract more private investment to further expand the charging infrastructure and promote the high-quality development of new energy adoption in Yangshuo.

Additionally, Yangshuo has fully transitioned to electric-powered tourism boats on the Li River, contributing to the development of low-carbon tourism. By the end of 2023, over 1,000 pure electric tour rafts in the Li River Scenic Area successfully completed the transition from fuel to electric power, marking Yangshuo's official entry into the era of new energy tourism (Yangshuo County Media Center, 2024).

5.2 Green Energy and Sustainable Development

To achieve sustainable development, Yangshuo's 14th Five-Year Plan outlines the following measures:

- **Strengthening energy conservation and emissions reduction:** The county will phase out outdated production capacity, encourage green and clean manufacturing, and promote the green transformation of traditional industries. By adjusting industrial policies and promoting low-carbon technologies, Yangshuo aims to upgrade traditional industries and cultivate emerging strategic industries,

gradually establishing an eco-economic development model with local characteristics.

- **Advocating a low-carbon lifestyle:** The county encourages green travel options, prioritizes public transportation, and promotes the use of new energy and small-displacement eco-friendly vehicles, especially electric buses. Effective measures will be implemented to reduce energy consumption and improve energy efficiency in office spaces. Additionally, green building initiatives will be launched to establish a low-carbon, eco-friendly Yangshuo.
- **Advancing comprehensive environmental management:** The county will enforce strict management of environmental performance indicators, strengthen resource conservation and efficient utilization, and promote water, land, and material conservation. Measures will be taken to enhance water recycling, control land use, and reduce resource consumption intensity. A dual-control system will be implemented for energy and water consumption, construction land usage, and overall environmental impact.
- **Developing key environmental protection industries and projects:** The Yangshuo Ecological and Environmental Technology Park has been completed and put into operation. Efforts will focus on the development of environmental technology equipment, resource recycling technologies, and waste-to-energy projects. The county will also promote solar-powered water heating systems and expand energy-saving and environmental protection services, including pollution control and ecological restoration.



Water Management

6.1 Water Resources

Yangshuo County is home to numerous rivers, with 17 major rivers spanning a total length of 243.78 kilometers. The Li River is the most important waterway in Yangshuo, while the Yulong River is its longest tributary within the county. The water quality in the Yulong River Basin is relatively high, meeting Class II standards under the *Environmental Quality Standards for Surface Water (GB3838-2002)*, with water temperatures ranging from 15.5°C to 22.8°C.

The quality of groundwater in Yangshuo remains generally good. However, in recent years, unauthorized extraction of groundwater by some guesthouses and hotels has affected both water quality and ecological balance. To address this issue, relevant authorities have launched awareness campaigns targeting guesthouses, hotels, swimming pools, and scenic areas, aiming to enhance public awareness of ecological protection and water conservation.

6.2 Flood Control Capacity and Emergency Management

In 2024, Yangshuo County learned from past experiences and proactively prepared for flood season, ensuring effective coordination among various departments and stakeholders to manage flood risks. The key measures included:

- Revising the flood emergency response plan before the rainy season to ensure a structured approach to unforeseen disasters.
- Pre-allocating and stockpiling flood control materials through scientific forecasting and planning.
- Conducting on-site inspections of six reservoirs and 12 flood-prone embankments, identifying and mitigating potential hazards.
- Organizing comprehensive flood rescue drills to test the emergency response capabilities of flood control teams at various levels.
- Ensuring rapid response during flood season, with all relevant units working in

close coordination to implement effective flood prevention and disaster relief measures.

Having suffered severe flood damage in previous years, the Yangshuo County Government has proactively implemented early warning systems and preparedness measures to mitigate risks. These efforts have successfully ensured the safety of local residents, protected property, and safeguarded the sustainable development of the tourism industry.



Waste Water Management

In 2023, Yangshuo's overall water quality remained relatively good. Compared to 2022 and previous years, the number of non-compliant sectors significantly decreased. The water quality in both national and provincial control areas remained at Class III or above, and the quality of drinking water sources remained stable and good.

7.1 Surface Water Quality Situation

Yangshuo has two surface water monitoring sections: the Li River Yangshuo section, monitored by the national authorities using a separate sampling and testing system, and the Yulong River Jinlong Bridge section, monitored by the Guangxi Department of Ecology and Environment. Surface water quality is monitored monthly, with a total of 24 monitoring sessions conducted annually, generating 464 monitoring data points. In 2023, the mainstream and tributaries of the Li River in Yangshuo County maintained good water quality, meeting Class II standards under the *Environmental Quality Standards for Surface Water (GB3838-2002)*. The compliance rate for water quality monitoring at the Li River Yangshuo section was 100%, and the compliance rate for the Yulong River Jinlong Bridge section was also 100%.

7.2 Quality of Centralized Drinking Water Sources

Yangshuo County has one active centralized drinking water source, which is a river-type water source. Water quality is monitored quarterly, yielding 244 monitoring data points annually. The monitoring is conducted by the Guilin Ecological and Environmental Monitoring Center.

The water quality at the centralized drinking water source in Yangshuo consistently met Class II standards under the *Environmental Quality Standards for Surface Water (GB3838-2002)*, with a 100% compliance rate. The water quality remained stable throughout all four quarters.

Water Source Name	Period	Control Category	Achieved Class	Compliance Rate
Yangshuo	Q1	Class III	Class II	100%

Centralized Drinking Water Source	Q2	Class II
	Q3	
	Q4	

Table 5 Yangshuo County Centralized Drinking Water Source Water Quality Monitoring Results in 2023



Solid Waste Management

8.1 Industrial Solid Waste

In 2023, Guilin continued to optimize its industrial solid waste management system, achieving a resource utilization rate of over 90% while effectively controlling the safe storage scale. The main sources of industrial solid waste in the city came from the power generation, mining, and waste incineration industries, with typical waste materials such as fly ash and tailings being managed through targeted classification strategies.

Notably, the industry concentration effect was significant, with five key enterprises accounting for approximately two-thirds of the total industrial solid waste output, highlighting the synergistic benefits of large-scale production and centralized waste management. By advancing resource utilization technologies, Guilin has established model applications in fly ash-based construction materials and ecological restoration of tailings, providing a practical pathway for reducing and repurposing industrial solid waste in urban industrial centers.

8.2 Agricultural Solid Waste

Guilin has been leveraging ecotourism and specialty agriculture to develop circular agriculture and value-added processing industries, with the aim of building "Zero-Waste Ethnic Towns and Villages." The development plan proposes implementing a "low-carbon tourism" initiative to establish an internationally recognized low-carbon tourism demonstration zone.

The city is also exploring multiple resource recovery methods for agricultural solid waste, including plastic film, straw, and livestock manure recycling. Efforts are underway to establish national and regional modern agricultural parks, technology parks, and specialty agricultural product zones. By the end of 2025, the city aims to achieve a 65% large-scale livestock farming rate, a plastic film recovery rate exceeding 93.18%, and a 60% pesticide packaging waste recovery rate.

8.3 Household Solid Waste

In 2023, household waste in Guilin was primarily treated through incineration, while some counties and cities used sanitary landfilling for safe disposal. Incineration offers advantages in waste volume reduction, resource recovery, and hazard mitigation. Modern waste-to-energy incineration facilities process household waste at high temperatures, significantly reducing its volume while converting the generated thermal energy into electricity, thus achieving secondary resource utilization. Large-scale waste-to-energy plants have been operating efficiently, handling substantial amounts of household waste daily and playing a key role in Guilin's solid waste management system.

8.4 Hazardous waste

In 2023, Guilin achieved significant progress in hazardous waste management, ensuring the safe disposal of all newly generated hazardous waste while also reducing historical waste stockpiles. Data show that the main sources of hazardous waste in the city were waste incineration, pharmaceuticals, and other key industries, emphasizing the importance of centralized waste treatment.

A key achievement was the enhanced capacity for hazardous waste treatment, which not only allowed for real-time disposal of newly generated hazardous waste but also enabled the continuous reduction of existing stockpiles. Under strict zero-emission control, the total hazardous waste storage remained within safe and manageable limits, demonstrating the systematic effectiveness of Guilin's environmental governance efforts. This sustainable approach serves as a model for other industrial cities looking to implement a "reduce existing stockpiles and control new waste generation" strategy.



Governance

9.1 Food Safety Governance

In its 2024 plan for routine supervision and inspection of food production and operation, the Yangshuo County government fully implements the *Food Safety Law*, resolutely upholding the "four strictest" requirements for food safety.

On the one hand, Yangshuo County conducts thorough daily supervision and inspections, which are based on grid-based regulation and carried out by no fewer than two law enforcement officers. The inspection items should align with the relevant content and requirements outlined in the "Food Sales Supervision and Inspection Key Points Table," focusing on areas where food safety hazards may exist for food sellers. In addition, at least one comprehensive inspection, covering all items listed in the Inspection Key Points Table, must be conducted annually for each food seller.

On the other hand, Yangshuo County also conducts targeted inspections based on special rectifications, public complaints, and reports. Special enforcement actions are undertaken for key food varieties, key areas, food operations in key locations, and seasonal or holiday food markets. The government places particular emphasis on inspecting seasonal and holiday foods, especially during festivals such as New Year's Day, May Day, National Day, and the Spring Festival.

9.2 Public Safety Governance

Accommodation Safety: The overall situation is satisfactory. Yangshuo County steadily advances the three-year action plan for special rectification in safety production. The rescue capabilities of emergency teams are being enhanced toward a more systematic approach. In particular, supervision of the tourism accommodation market has been strengthened, and all levels of potential hazards have been further investigated.

Social Security: Multiple measures are being implemented to consolidate the effectiveness of social governance. Yangshuo County is making every effort to build a harmonious and stable society by deepening the "Smart Yangshuo" and "Bright Snow Project" initiatives, aiming to create a higher level of public safety in Yangshuo. The county continues to promote the integration of "traffic exchange" and "one auxiliary police officer per village," accelerates the intelligent construction of public security big

data, and moves forward with the planning and construction of the "three-in-one" project for detention centers, detention houses, and compulsory drug rehabilitation centers. The county maintains a regular, sustained campaign against organized crime and corruption, severely cracking down on illegal fundraising, gambling, drugs, telecom network fraud, and other criminal activities. Efforts in the "Eight-Five" law popularization initiative are solidly advancing, with a focus on establishing a public legal service system benefiting all citizens. Overall, the social security situation in Yangshuo County remains among the best in Guilin, ensuring social harmony and stability.

Crime Rate and Healthcare Services: The government's work has been pivotal, with strong support from residents. Survey results show that residents believe tourism development in Yangshuo has little impact on the crime rate. The majority of residents report that the development of the tourism industry has boosted local government revenue, which has been reinvested into healthcare infrastructure, benefiting both tourists and residents. Residents express general satisfaction with the government's efforts in this regard and support the continued development of the tourism industry.

Overall, as a world-class tourist destination with significant population mobility, Yangshuo serves as a model for social security, creating a positive and relaxing environment for visitors. Looking ahead, Yangshuo's relevant departments should continue to uphold their successful traditions and ensure the sustainable development of tourism.



Climate Action

Yangshuo County is located in the subtropical monsoon climate zone, characterized by abundant heat, plentiful rainfall, and a mild and humid environment. The karst and low-elevation areas of the county experience long summers and short winters, with moderate spring and autumn. The climate is heavily influenced by monsoons, resulting in significant variations in drought, flooding, cold, and heat throughout the year. In 2020, the total annual rainfall in Yangshuo County was 1,929.1 millimeters, with an average annual temperature of 20.0°C.

In recent years, Yangshuo has made significant progress through measures such as the protection of natural landscape resources and the innovative development of eco-tourism. The county has mobilized government departments, local tourism industry practitioners, and other stakeholders to vigorously promote both green, low-carbon initiatives and economic benefits, turning the new development concept of "lucid waters and lush mountains are invaluable assets" into reality.

The county has also worked to actively develop a green, low-carbon circular economy, implementing electric vehicle charging station projects and promoting green industries to facilitate green production in key sectors.

Yangshuo encourages the development of the "ecology + tourism" industry, enhancing the quality of ecological agricultural complexes and expanding the value realization channels for ecological products such as ecological agriculture, garden health, and natural wellness.

A comprehensive effort is being made to tackle pollution prevention and control, including strengthening grid-based management of air quality, increasing control over open-air burning, and ensuring the proportion of days with excellent air quality remains at the best level. The county is also advancing the river and lake management system, speeding up the development of low-carbon tourism and clean boat operations along the Li River, and conducting thorough investigations and rectifications of pollution discharge into rivers to ensure water quality at key national monitoring points meets standards.

Efforts to strengthen soil and water conservation, public forest management, and the protection and restoration of natural forests are ongoing, alongside comprehensive control of karst rocky desertification. The county strictly adheres to ecological protection red lines, rigorously enforces environmental impact assessments, improves the ecological monitoring and early-warning system for the Li River Basin, and ensures ecological safety. Additionally, illegal fishing and hunting activities are being strictly punished to contribute to biodiversity protection in Yangshuo.



Accessibility

From transportation to and from the destination to local transportation upon arrival, every detail in Yangshuo has been carefully considered to ensure accessibility for visitors.

Yangshuo County continues to improve both its external and internal transportation systems. Road transport has been upgraded, with main roads and the county's rural road network efficiently connected. Water transport has been optimized, with tourism transport projects along major rivers such as the Li River expanded. Air transport has also been enhanced, with the reliance on Guilin Liangjiang International Airport making connections between Yangshuo and major domestic and international cities more convenient.

In terms of rail transport, the Guiyang-Guangzhou high-speed railway passes through Yangshuo County, with a station in Xingping Town. Yangshuo Station officially opened in 2016, located approximately 22 kilometers from the county center and about 8.5 kilometers from the Li River Scenic Area, just a 10-minute drive from the Xingping Li River Scenic Area. Yangshuo Station is the largest intermediate station on the Guiyang-Guangzhou high-speed rail line, with six tracks and two platforms, offering direct connections to major cities in China.

For water transport, the main rivers in Yangshuo County include the Li River, Jinbao River, Yulong River, Dayuan River, and Tianjia River. The Jinbao, Yulong, Dayuan, and Tianjia rivers can only be crossed, while the development of tourism projects, such as bamboo raft leisure tours and bamboo raft drifting, has been focused mainly on the Li River, which is navigable.

In terms of air transport, Guilin Liangjiang International Airport has over 50 flight routes, offering direct flights to cities such as Beijing, Guangzhou, and Shanghai. The airport has an annual passenger throughput capacity of 10 million, and it takes only 45 minutes to fly from Guangzhou to Guilin, offering a fast and convenient travel option.

The local transportation situation has improved, but further refinement of the road network is essential. The proportion of tourists using self-driving cars and taxis has decreased compared to the previous year, but these modes of transport remain important. Electric vehicles (EVs) are the main transportation choice for tourists within Yangshuo. Although some areas lack clear distinction between motorized and non-motorized lanes, leading to issues such as uncivilized driving by EV operators

and traffic congestion, the addition of dedicated parking spaces has improved the situation regarding illegal parking. It is also worth noting that concerns have been raised regarding the regulation and safety of sidecar vehicles, which tourists rent for convenience or use as props for photography. These vehicles differ from ordinary motorcycles or cars, and many tourists have no prior experience driving them. Therefore, the feasibility of providing training on driving norms and safety before renting sidecar vehicles to tourists is worth considering.



New Modes of Cultural Tourism in Yangshuo

Since 2023, the cultural tourism industry in Yangshuo has experienced a strong recovery. Following the requirements for high-quality development, Yangshuo County has focused on policy implementation and project construction. Building on its scenic landscape tourism, the county has vigorously developed more experiential, participatory, and interactive cultural tourism formats, injecting new momentum into tourism development.

The rock climbing industry remains as popular as ever. Yangshuo is not only a renowned climbing destination in China but also a world-class climbing spot. The industry in Yangshuo has experienced significant growth, expanding from the initial 30 climbing routes to now more than 1,200 routes. According to statistics from the Yangshuo Cultural Tourism Department, the county receives 300,000 rock climbing tourists annually, with more than 60% of them staying for over 10 days. To date, Yangshuo has more than 600 climbing professionals, 22 climbing clubs, 20 climbing-themed restaurants, 30 dining and accommodation businesses around the climbing sites, and 27 climbing-themed inns, forming a clear industrial chain. As a "favorable location" for outdoor sports, Yangshuo actively explores the development model of "low-altitude + tourism" and promotes the innovative growth of the Guilin low-altitude tourism industry. The goal is to build a three-dimensional low-altitude tourism city, contributing to the development of Guilin as a world-class tourist city.

Low-altitude tourism is developing rapidly. Products such as Via Ferrata, hot air balloons, paragliding, and helicopters are providing new aerial perspectives of Yangshuo, becoming a "new growth engine" for high-quality development. Since its establishment, Yangshuo Zhan Zhuo General Aviation Company has logged nearly 20,000 safe flying hours and received 56,000 tourists. The Yangshuo Yansha Aviation Sports Camp, leveraging local tourism resources, is focusing on the construction of new campsites and plans to introduce new projects such as skydiving experiences, wind tunnel flying, and drone passenger tours, further enriching tourists' experiences. "Low-altitude tourism" is continuously enhancing Yangshuo's tourism with its unique perspectives and experiences.

Tourist photography is evolving creatively. Tourism photography in Yangshuo is shifting towards a greater focus on experience and emotional expression, moving away from traditional posed or enhanced shots. Yangshuo's travel photography has distinguished itself by innovating service models and utilizing drone technology. Unlike traditional posed photography, real-time following shots have become popular, with videos shot using drones being shared on platforms such as Xiaohongshu and Douyin, attracting a

large number of customers. At the same time, refined customer service is enhancing client engagement and experience.

Private high-end dining is rising rapidly. Yangshuo's Xie Dajie Beer Fish Restaurant has explored the private domain market based on traditional dining, offering high-end customized services, such as designing lotus-themed custom banquets, to provide unique experiences. Meanwhile, the Yangshuo Catering Association and businesses have launched cold-chain beer fish gift packages online, attempting an e-commerce sales model to expand sales channels. The promotion on social media platforms like Xiaohongshu is helping to reach more potential customers.

High-end customized tour guides are increasingly popular. In recent years, a number of tour guide teams have emerged in Yangshuo, focusing on family-style service. These teams are dedicated to offering comprehensive, thoughtful services for high-end tourists, including booking accommodation, designing itineraries, accompanying tours, recommending restaurants, and caring for children. These family-style tour guides link various aspects of Yangshuo's tourism and experiences, improving the tourist experience and maintaining a good reputation for the destination.

Conclusions and Suggestions

Yangshuo County, with its unique natural scenery and rich cultural heritage, has successfully developed its cultural tourism industry. However, it still faces several challenges.

Residents generally have a positive perception of tourism development, but the preferences and demands of tourists present additional challenges.

The overall attitude of Yangshuo residents towards tourism development is largely supportive. Most residents recognize the benefits that tourism brings to the local socio-economic landscape. Monitoring data shows that 90.6% of residents believe tourism development has created more job opportunities locally, and 95% agree that the tourism industry has improved Yangshuo's economic situation, with a notable increase compared to 2023. Regarding infrastructure, 77.8% of respondents think that tourism development has led to improvements in local infrastructure. Residents generally hold a positive attitude towards tourism's contribution to infrastructure improvements, medical services, and increased educational opportunities. Over half of the residents (60.1%) believe that healthcare and services have significantly improved, and that tourism has brought more educational resources and opportunities to Yangshuo. In terms of culture, residents' positive perception is high, as they believe tourism development can increase cultural activities, promote local traditional culture, enhance local identity, foster closer relationships between residents and tourists, and contribute to building a positive image of the tourist destination. However, local residents also express dissatisfaction with the rising costs of living, such as higher prices and housing costs. They also react strongly to negative impacts like environmental pollution and traffic congestion, which may stem from issues such as unequal distribution of benefits, delayed infrastructure development, and a lack of community voice. Additionally, while residents are generally willing to participate in tourism development, inadequate information transparency and limited channels for offering suggestions have restricted their actual participation.

This year, while visitors' satisfaction with Yangshuo's tourism resources has slightly improved, their satisfaction with tourism services has declined. In the post-pandemic era, tourists' demand for personalized and diversified travel experiences has become more

evident, highlighting issues such as the homogenization of dining and accommodation services and inconvenient transportation. These problems arise due to insufficient standardization of service quality, limitations in the investment environment, and delayed infrastructure upgrades.

Innovating new modes of cultural tourism and stimulating the vitality of the tourism economy.

In recent years, Yangshuo has adhered to the high-quality development approach, focusing on policy implementation and project construction. The county has built on scenic landscape tourism, vigorously developing more experiential, participatory, and interactive cultural tourism formats such as low-altitude tourism, travel photography, private high-end dining, and customized tour guides, continually activating new driving forces for tourism. Yangshuo successfully hosted the 2023 UN World Tourism Organization's Training Course on Sustainable Tourism Development in China and the Think Tank Conference for the Yangshuo County World-Class Tourism City Pilot Area. The county also organized cultural tourism festivals such as the Yulong River Rice Planting Festival and the Dragon Boat Festival Golden Dragon Parade. Study tours at attractions like "Secret Paradise," "Impression Liu Sanjie," and "Guilin Ancient Love" have been well received by tourists. Yanhao Aviation Camp offers hot air balloon short-distance aerial tours and free flying experiences. New evening and cultural tourism formats such as bonfire parties, intangible cultural heritage performances, and music festivals have emerged, and rural tourism sectors like homestays, camping, farming, and fruit-picking are flourishing. However, the development of these new cultural tourism formats faces challenges, such as regional development imbalances, a lack of skilled talent, and market disorder.

Sustainable Tourism Development: Increasing Awareness Among Tourists and Residents about Sustainability and Environmental Protection

Yangshuo has implemented strict environmental protection policies to limit overdevelopment, carry out ecological restoration projects, and promote green tourism. By restoring and preserving historical monuments and promoting intangible cultural heritage, the county has maintained the vitality of its cultural heritage. Improvements in tourism infrastructure, a diverse range of tourism products and services, and strengthened

training for tourism professionals have also been prioritized. The focus on community involvement and benefit sharing encourages local residents to engage in tourism development and enjoy the benefits it brings.

As modern society increasingly recognizes the importance of sustainable development and green tourism, more and more tourists are becoming aware of the potential impacts that tourism activities can have on the natural environment and social culture. They are more likely to choose tourism methods that protect the local environment, respect local culture, and promote community development. This includes practices such as using eco-friendly utensils, staying in eco-hotels, and supporting local agricultural products and handicrafts.

At the same time, local residents' awareness of sustainable development has increased. A majority (92.3%) of residents believe that protecting the natural environment is important, and environmental consciousness is rising. However, 30.4% and 26.6% of residents think that tourism development has caused more serious air and water pollution in the area. While the negative perceptions of the environmental impacts of tourism have weakened compared to previous years, this reflects improvements in the management of tourism-related environmental issues. However, due to an increase in the number of visitors, with Yangshuo County receiving 21.1143 million tourists in 2023, a 75.92% year-on-year increase, local carrying capacity faces challenges. The number of inbound tourists reached 98,714, showing a massive increase of 899.84%. Total tourist numbers have surpassed the pre-pandemic levels of 2019, indicating that additional efforts from all sectors of society are required to strengthen the management of Yangshuo's cultural tourism and environmental protection.

To ensure long-term sustainable development, Yangshuo can improve in the following areas:

Continuing Focus on Community Interests: Accelerate the enhancement of tourism service quality and standards.

To better protect local community interests, the government should continue improving the benefit distribution mechanism, controlling the rise in prices and housing costs, and strengthening environmental protection and traffic management.

Improving Tourism Infrastructure and Enhancing Public Service Capacity

The government and relevant departments should further establish dedicated lanes for electric vehicles (EVs) to reduce safety risks from mixed traffic. Additionally, the behavior of EV rental services should be regulated, and traffic safety training for tourists should be promoted. For new tourism transport tools such as sidecar vehicles, standardized rental and management regulations should be developed to ensure driving safety and road order. Furthermore, the functions of local bus stations and tourist information centers should be further improved, particularly by optimizing the shuttle services between Yangshuo High-Speed Rail Station and the main scenic areas. Flexible shuttle vehicles should be added to enhance the convenience of transferring from the high-speed rail station to tourist attractions. At the same time, the upgrade and renovation of key roads connecting the county's main roads to scenic areas should be accelerated, with a focus on the Xingping to Li River main road. This includes improving street lighting, guardrails, and traffic signage to ensure efficient traffic flow during peak hours and ensure safety at night.

Promoting Ecological Construction and Strengthening the Integration of Ecological and Cultural Tourism

Compared to 2023, the average perception of environmental pollution among residents in 2024 has decreased, indicating the efforts Yangshuo has made in pollution control. Moving forward, the construction of tourism restrooms should continue to be improved, and air and water pollution prevention efforts should be strengthened. At the same time, relevant departments should analyze successful water management practices, reflect on weak links such as power supply difficulties in certain areas during floods, and continuously enhance service capabilities and levels.

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