

Indicators of Sustainable Tourism for Yangshuo

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1. Preface

1.1 Origins of Monitoring

This monitoring is a continuation and further development of what has been done on August 2006, so it is the second monitoring. It's mainly to accomplish the following tasks: firstly, to continue with and analyze the on-going questionnaires and semi structured interviews on the topic of sustainable tourism with relevant groups of people, including domestic and foreign tourists, local residents and tourism practitioners, etc; secondly, to research on some new problems on sustainable tourism such as the change of land use; thirdly, to compare the research results between 2006 and 2007 and to analyze and explain the differences.

1.2 The Process of Monitoring

With the support of Tourism Bureau of Guilin and the help from Yangshuo Government, Center for Tourism Development and Planning of Sun Yat-sen University carried out the second monitoring of Yangshuo's sustainable tourism indicators from August 23rd to September 1st, 2007. The monitoring team consisted of 2 professors, 3 postgraduate students and 10 undergraduate students. The scenic spots inspected included Yulong River, Moon Hill, Big Banyan Tree, the Peach Resort, Longjing River, Xingping Village, Impression • Liu Sanjie and other important scenic spots. The governmental departments interviewed included Tourism Bureau, Development and Reform Bureau, Promotion Department, Health Bureau, Taxation Bureau, Environment Protection Bureau and others. Meanwhile, the monitoring group investigated 10 tourism communities including Jima Village, Mushan Village, and Fengming District which were in Yangshuo County, Li Village, Chuanyan Village and Zhudou Village which were in Gaotian County, as well as West Street. The research method adopted a combination of qualitative and quantitative analysis based on a large number of data from questionnaires and interviews. In total, the monitoring team designed 5 questionnaires respectively for community residents, tourism practitioners, property owners, foreign tourists (English) and domestic tourists (Chinese). Besides, the monitoring team interviewed Development and relevant people from the Development and Reform Bureau, Promotion Department and Land Bureau.

Referring to relevant contents in *Indicators of Sustainable Tourism for Yangshuo China* (WTO, 2004) and *Indicators of Sustainable Development for Tourism Destinations: A guidebook* published by WTO, the report bases its statistical analysis on a lot of interviews, observation data and nearly 1,000 questionnaires and draws its conclusions from a comparison of the results in 2006.

2. Tourism and Community

In the questionnaire surveys of residents in Yangshuo, tourism practitioners and non-tourism practitioners received random surveys separately. In 397 valid questionnaires, 97 were from tourism practitioners which made up 24.4% of the total while 300 were from non-tourism practitioners which made up 75.6% of the total. The main content of the survey was on the involvement in tourism of the community residents and their opinions on the positive and negative effects of tourism. The following is the main conclusions from the questionnaire surveys.

2.1 Tourists Welcomed by Community Residents

There are direct and indirect influences of tourism on the community. Direct influences come from the exposure of local residents to tourists. Residents engaged in tourism industry reach a proportion of 53.6%, which is higher than the non-involvement rate 46.4%. This indicates that residents who are in direct touch with tourists have become more than those who are not. Among tourism practitioners, people who usually get in touch with tourists are tour guides, service staff in restaurants and family lodging, as well as handicraft shop assistants. Due to the “demonstration effects” of tourists, young people have high acceptance of cultures coming from outside. The attitude of destination residents towards tourists is an important element in measuring social cultural impacts of tourism. Judged from the result of the survey, most of the tourism and non-tourism practitioners welcome tourists as both percentages of welcome reach 90% (as shown in Table 1).

Table 1 Welcoming Attitude towards Tourists in Residents of Different Occupations (%)

Satisfaction level Group of People	Welcome	Relatively Welcome	Welcome Only in Business	Indifferent	Not Welcome
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Tourism practitioners	71.2	25.7	1.9	0.6	0.6
Non-tourism practitioners	74.8	17.8	0	7.4	0

Source: The analysis of questionnaires on domestic and foreign tourists

The tourists' evaluation on social security of the tourist destination on the one hand directly reflects the social state; on the other hand, it also indirectly reflects the impact of tourism on local economy. From the results of the investigation, tourists have a high degree of satisfaction on the public security in Yangshuo. Most of them feel that local residents are rustic and hospitable (as shown in Table 2). Among them, the level of satisfaction of foreign tourists (90.4%) is higher than domestic tourists (65.2%). However, the increase of tourists also causes some security problems. 17% residents regard the development of tourism as a reason for the increase of crime rate.

Table 2 Satisfaction Level on Local Public Security in Foreign and Domestic Tourists (%)

Satisfaction Degree Group of People	Very Satisfied	Relatively Satisfied	Average	Not Satisfied	Extremely Unsatisfied
Domestic tourists	11.9	53.3	30.6	2.8	1.7
Foreign tourists	44.6	45.8	8.4	0.6	0.6

Source: The analysis of questionnaires on domestic and foreign tourists

Judged from tourists' evaluation on socioeconomic environment, residents' (both tourism practitioners and non-tourism practitioners) attitude toward tourists, and the public security state, Yangshuo is still a tourist friendly destination with its favorable host-guest relationship and social conditions.

2.2 Gender Differences Between Entrepreneurs and Practitioners in Tourism

The gender differences between entrepreneurs and practitioners in tourism are widely discussed among scholars home and abroad. Tourism development of Yangshuo presents evident gender differences in its entrepreneurs and practitioners. Among entrepreneurs, most of the property owners are male which makes up 59.8%. Among tourism employees the females make up

a large section which is 76.1% (as shown in Table 3).

Table 3 Proportion of Female and Male in Tourism Industry (%)

Gender Categories	Male	Female
Tourism practitioners	53.9	46.2
Property owners	59.8	40.2
Employees	23.9	76.1

Source: The analysis of questionnaires on property owners in Yangshuo

One important impact of tourism on the destination community is the change in women's identity. The monitoring team finds an evident trend in Yangshuo, where women take up almost half of the jobs in tourism service industry. Their independence and contribution to economy help to raise their status in the family and enhance the recognition of their self-value.

2.3 The Impacts of Foreign Investment

The massive influx of tourists breaks the social ecological balance of the tourist destination and brings with it direct or indirect influences on the life of the community. Tourists' behaviors, habits, sanitary awareness, ways of speaking and consuming all shake the mind-set of the local residents who have to reflect on and reconstruct their value system. This effect has both positive and negative sides.

The rapid development of tourism in Yangshuo creates lots of job opportunities. It is common for people from other regions to start their own business or find a job here. At the same time, the increase of foreign investment has brought about the return of some migrant workers. In Yangshuo, tourism practitioners are made up of 62.9% local residents and 37.1% people from other regions. Among tourism property owners, 35.7% are locals, 15.8% are from Guilin, 10.5% are from Guangxi Province and 38.6% are from other places of the country.

On the one hand, foreign investment introduced some new business concept and established a diversity of services; on the other hand, it fastened the commercialization of Yangshuo and weakened the local traditional characteristics. The business streets in Yangshuo's **built-up** area have evolved from the center of West Street to a commercial area which includes New West Street, Chengzhong Road, Diecui Road, Binjiang Road and Xianqian Street, etc., where bars, restaurants,

real estates, shops and other projects are found. Thanks to the development of tourism, the land price and housing price in Yangshuo's constructed area have risen a lot. From the special structure of RBD, the recreational business area roughly goes through a change of "Cross shaped – I shaped – 日 Shaped – Grid shaped" (as shown in Figure 1). Tourism brings about a stronger and stronger business sense in local residents and 56.7% of them think the development of tourism widens the gap between the rich and the poor. Owing to the limitations of economy and others, 46.1% of the residents have no chance to involve in tourism industry. Residents around the scenic spots have very a big discrepancy in income and it is very difficult to bridge the gap.



Figure 1 Evolution of RBD in Yangshuo

2.4 Increasing Commercialization in Tourism

Commercialization in Tourism is an inevitable issue for tourist destination. Many historical cities and towns with rapid tourism development have almost turned their main streets into places for profits. The entire street has become a public passageway and a shopping street. Commercialization is a serious problem in the tourism development of Yangshuo. It is also an important issue of the impacts of tourism on the local community.

The changes in the amount and variety of shops reflect the tendency of commercialization in Yangshuo. Large amount of family lodges, hotels and other accommodation facilities, together with bars and other catering facilities make up the largest proportion. Stores or supermarkets for handicrafts, characteristic clothing, special local products and other shopping facilities also

constitute a considerable part. Service facilities for residents such as pharmacies, grocery stores and food markets are few and usually locate in remote areas which are separated from where tourist service facilities are densely gathered. Shops for handicrafts, clothes with special features, bars and restaurants cluster in West Street and New West Street. Inns, hotels, and restaurants scatter all over other streets.

On the main streets, shops that cater for tourists take up 53%, shops for both tourists and residents are 27%, and shops for local residents are 20%, with the ratio as 6:3:1. in terms of pricing, 32.4% domestic tourists are happy, 47.9% think it is average while 29.9% express dissatisfaction. Cost increase is a reason for the relatively high price, but more importantly, it is the result of increased rent and land price. Depending on different locations, the lowest rent in the survey was at least 700 yuan per month and the most expensive location was in West Street where the rent was 20 times more, reaching 15000 yuan per month. High rent makes it difficult to keep business going, thus most of business owners only rent for 2 to 3 years. It is not unusual that some small businesses rent by the month.

Statistics show that the selling of commodities makes up 38% of the major business of small businesses. The main sale is clothing followed by all kinds of souvenirs. Meanwhile, catering and local products sales have equal shares in sale, taking up 36% of the business. In the catering industry, restaurants with local flavor take the leading place while western restaurants also play a significant role. In Yangshuo, western restaurants mainly gather on West Street and its nearby streets. Another important industry is lodging, which makes up 30%. In Yangshuo, it's hard to find good hotels, because the tourists are mainly backpackers or tourist groups that are not big consumers. Abundant family lodges provide 41.38% of the accommodation for tourists and become the main lodging suppliers. Other small business operations in Yangshuo include travel agencies, beauty salons, photo processing studios, entertainment businesses, and so on.

2.5 Overall Indicators on Community Monitoring

According to the overall indicators of the community monitoring (as shown in Table 4), tourism development brings both positive and negative impacts to the local community. With more and more tourists coming, investment and information have more ways to come through. The strong relevancy effects of tourism increase the economic income of local residents to a large

extent. 75.3% of the local residents agree that tourism raise their economic income. At the same time, tourism development also brings changes in price and widens the gap between the rich and the poor. 65.4% of the residents think tourism causes the rise of local price and 56.7% think tourism makes the gap between the rich and the poor even larger. However, tourism development has no big impact on the local living environment. 84.8% residents think tourism doesn't affect traditional architecture style and 87.2% of them think tourism makes no difference on their traditional life style.

Tourism development is a double edge sword for the destination community. It enhances employment rate, life quality and open the mind of the local community, but at the same time it brings about many problems such as environmental pollution, new colonialism, commercialization, etc. Due to the impacts of "demonstration effects", the culture and living environment of the local community are shaken and problems like public security and divorce become more and more serious. Therefore, limiting the negative effects from tourism is conducive for the sustainable development of the tourist destination.

Table 4 Indicators on Community Involvement and Tourism Effects

Categories	Indicators	Survey Results
Demographic structure	Nationality make up	Han nationality: 84.6%; Zhuang nationality: 13.1%
	Immigrants	From Guilin: 7.7%; From other places: 3.9%
Tourism engagement	Proportion of people engaged in tourism	52.7% (158/295)
	Time when people started engaging in tourism	Before 2003: 23.3%; 2003: 20.0% 2004: 15.0%; 2005: 15.8%; 2006: 19.2%
	Family members engaged in tourism	1 person: 43.8%; 2 persons: 21.0% 3 persons: 16.2%;
	Purpose	Make money: 54.3%
Effects on living environment	Whether or not affect traditional architecture style	Not: 84.8% (245/289)
	Whether or not affect traditional life style	Not: 87.2% (251/288)
	Public security	Good: 83.0% (240/289)
	Divorce rate	Lower: 93.1% (269/289)
Effects on residents' economic income	Whether or not raise the income	Yes: 75.3% (95/130)

	Income range	Mainly 400-500 or 800-1000
	Gap between rich and poor	Widened:56.7%(164/289)
	Price change	Raise: 65.4% (189/289)
	Living conditions	Better: 74.7% (221/296)
	Infrastructure	Better: 47.3% (140/296)

Source: The analysis of questionnaires on property owners in Yangshuo.

3. Tourist Satisfaction

Tourist satisfaction comes from his expectations of the trip and is influenced by a lot of factors. It reflects what the tourist experienced and got out of the trip. The monitoring team received 567 valid questionnaires including 397 from domestic tourists and 170 from foreign tourists. The ratio is 70% against 30%.

3.1 Evaluation on Landscape

Beauty of landscape is a fundamental element in the experience of the tourist as well as a core element in the competition among tourist destinations. From the questionnaire surveys, the evaluations on beauty of landscape are generally positive from both domestic and foreign tourists. Most of them think highly of it. Over 90% domestic tourists express satisfaction or great satisfaction in the surveys and over 97% foreign tourists state satisfaction on the landscape of Yangshuo. As the saying goes, “Guilin’s landscape is second to none in the world while Yangshuo’s landscape is No. 1 in Guilin”, in the eyes of those tourists who have already traveled around the world, landscape of Yangshuo is very competitive. It is obvious that scenery in Yangshuo is that of the first class

3.2 Evaluation on Environment Cleanness

Cleanness is an important indicator for the maturity of a scenic spot. As shown in the surveys, both domestic and foreign tourists think highly of the cleanness of Yangshuo. Only less than 4% domestic tourists and 5% foreign tourists are unsatisfied or think it as not clean. Over 65% domestic tourists are very content or satisfied with the cleanness and over 75% foreign tourists think Yangshuo is very clean or extraordinarily clean (as shown in Table 5). On the one hand, the clean

environment of Yangshuo owes to the tourists' cooperation; on the other hand, it is also the result of the increased effort on sanitation from the Yangshuo Government.

Table 5 Evaluation on Environment of Yangshuo from Tourists (%)

	Very Satisfied	Satisfied	Average	Not Satisfied	Extremely Unsatisfied
Domestic tourists	22.9	42.4	30.7	3.4	0.7
Foreign tourists	18.8	56.5	20.0	4.1	0.6

Source: The analysis of questionnaires on domestic and foreign tourists.

3.3 Evaluations on Congestion of Scenic Spots

Thanks to the development of tourism, Yangshuo enjoys higher and higher popularity and attracts more and more tourists. The number of tourists to Yangshuo increases year by year. The success of the performance “Impression • Liu Sanjie” further increases the number of tourists. Under the condition of a relatively slow improvement of scenic spot infrastructure, the growing number of tourists results in an increase of congestion in the scenic spots. As shown in Table 6: only 38% foreign tourists and 48% domestic tourists are satisfied or very content with the traffic c while over 20% foreign tourists and 10% domestic tourists express the feeling that Yangshuo is very congested. Nearly over 40% domestic and foreign tourists think of it as average.

Table 6 Evaluation on Traffic in Scenic Spots in Yangshuo

	Very Satisfied	Satisfied	Average	Not Satisfied	Extremely Unsatisfied
Domestic tourists	13.1	35.0	42.8	8.1	1.0
Foreign tourists	10.8	27.7	40.4	19.9	1.2

Source: The analysis of questionnaires on domestic and foreign tourists.

3.4 Evaluation on Cultural Values of Scenic Spots

Cultural values are an important indicator in evaluating the popularity of the scenic spots. As shown in our data, more than 70% foreign tourists and over 60% domestic tourists are positive

about the cultural values of Yangshuo. Only less than 9% foreign tourists and less than 6% domestic tourists hold a negative attitude (as shown in Table 7). Yangshuo is widely acknowledged by domestic and foreign tourists not only for its beautiful landscape, but also for its cultural values.

Table 7 Evaluation on Cultural Values of Scenic Spots in Yangshuo (%)

	Very Satisfied	Satisfied	Average	Not Satisfied	Extremely Unsatisfied
Domestic tourists	16.7	43.7	33.1	4.8	1.7
Foreign tourists	18.6	52.7	19.8	7.8	1.2

Source: The analysis of questionnaires on domestic and foreign tourists

3.5 Evaluation on Water Quality of Yulong River

Yulong River is one of the best characteristics in Yangshuo. While evaluating water quality of Yulong River, over 49% domestic tourists and more than 34% foreign tourists regard the water quality as very good, but still over 12% domestic tourists and about 13% foreign tourists hold a critical attitude. Nearly 39% domestic tourists and more than 52% foreign tourists are neutral in this matter (as shown in Table 8). We can see that in regard to the water quality of Yulong River, the positive evaluation is much less than that in other evaluations. Although the pollution of these two rivers is not very serious yet, worsening water quality is an indisputable tendency. The original ecological environment suffers continuously because of tourism development.

Table 8 Evaluation on Water Quality of Yulong River (%)

	Very Satisfied	Satisfied	Average	Not Satisfied	Extremely Unsatisfied
Domestic tourists	14.3	35.3%	38.2	8.8	3.4
Foreign tourists	6.9	28.1	52.1	11.6	1.4

Source: The analysis of questionnaires on domestic and foreign tourists

3.6 Evaluation on Transportation System

The improvement of the transportation outside the tourist destination is conducive to accessing it, while the progress in transportation inside the destination can make scenic spots more

accessible. Surveys show that both domestic and foreign tourists think the transportation is good. As high as 66.7% foreign tourists consider the transport in Yangshuo convenient. Among domestic tourists, those who regard the transport convenient also reach as high as 58.3% (as shown in Table 9).

Table 9 Evaluationson Transportation System in Yangshuo (%)

	Very Satisfied	Satisfied	Average	Not Satisfied	Extremely Unsatisfied
Domestic tourists	14.6	43.7	35.3	4.4	2.0
Foreign tourists	12.6	54.1	28.9	1.9	2.5

Source: The analysis of questionnaires on domestic and foreign tourists

3.7 Evaluation on the Sign System

The sign system reflects the maturity of the tourist destination. A good sign system plays a crucial role in directing the tourists. As shown in the data, nearly 50% foreign and domestic tourists think the signs in Yangshuo very clear. However, still many tourists are neutral which indicates that there are still some problems in the sign system (as shown in Table 10).

Table 10 Evaluations on theSign System (%)

	Very Satisfied	Satisfied	Average	Not Satisfied	Extremely Unsatisfied
Domestic tourists	8.5	40.5	39.5	9.5	2.0
Foreign tourists	9.4	35.1	40.6	13.1	3.8

Source: The analysis of questionnaires on domestic and foreign tourists

3.8 Evaluation on Lodging Facilities in Yangshuo

From tourists' evaluations on lodging facilities, most tourists are satisfied with them. Foreign tourists, in particular, have a satisfaction rate as high as 77.5%. This indicates a good development of lodging facilities in Yangshuo (as shown in Table 11). Major hotels all have websites for on-line reservation. All hotels have telephone service for booking, too. Foreign

tourists find it very convenient to make a booking. Moreover, in Yangshuo, there are not only many star hotels (the highest grade is four star), but also various economical hotels to meet different needs of the tourists.

Table 11 Evaluation on Lodging Conditions in Yangshuo (%)

	Very Satisfied	Satisfied	Average	Not Satisfied	Extremely Unsatisfied
Domestic tourists	9.5	51.7	31.8	6.1	1.0
Foreign tourists	32.7	54.8	9.5	2.4	0.6

Source: The analysis of questionnaires on domestic and foreign tourists

3.9 Evaluation on Word-of-mouth

Word-of-mouth effect mean good appraisal towards a tourist destination. Over 95% foreign tourists and over 75% domestic tourists show their willingness to recommend Yangshuo (as shown in Table 12). Over 56.3% domestic tourists and 45.2% foreign tourists say they would be back. 8.7% domestic tourists and 43.5% foreign tourists don't want to revisit (as shown in Table 13). About 49% domestic tourists and 33% foreign tourists what they saw matches what they expected. Over 23% domestic tourists and 55% foreign tourists feel that it is much better than expected. Only about 25% domestic tourists and about 7% foreign tourists say that what they saw fails their expectations. Judged from the word-of-mouth effect, Yangshuo is still a competitive tourist destination.

Table 12 Willingness to Recommend Yangshuo (%)

	Will	Will Not	Not Sure
Domestic tourists	75.1	21.9	3.0
Foreign tourists	95.9	0.6	3.6

Source: The analysis of questionnaires on domestic and foreign tourists in this investigation.

Table 13 Willingness to Revisit (%)

	Will	Will Not	Not Sure
Domestic tourists	56.3	8.7	35.0
Foreign tourists	45.2	11.3	43.5

Source: The analysis of questionnaires on domestic and foreign tourists

3.10 Overall Evaluation on Yangshuo

Overall evaluation is a reflection of the tourist's recognition of the destination. As shown in

the surveys, the satisfaction level of the domestic tourists is lower than that of the foreign tourists. 21% out of the domestic tourists feel the landscape in Yangshuo just ordinary and the discontent rate reaches 1.7%. Foreign tourists have a comparatively higher appraisal. Generally speaking, there is deficiency in the environment, transportation system, sign system, water quality of scenic rivers, lodging facilities, etc. in Yangshuo. Tourists vary a lot in their overall evaluation on Yangshuo. The experience of tourists may be affected by certain aspects which result in their different appraisals.

Table 14 Overall Evaluation on Yangshuo (%)

Landscape						
		Very Satisfied	Satisfied	Average	Not Satisfied	Extremely Unsatisfied
landscape	Domestic tourists	39.25%	51.54%	8.87%	0.34%	39.25%
	Foreign tourists	75.74%	22.49%	1.18%	0.59%	75.74%
cleanness	Domestic tourists	22.9%	42.42%	30.64%	3.37%	0.67%
	Foreign tourists	18.82%	56.47%	20.00%	4.12%	0.59%
congestion	Domestic tourists	13.13%	35.02%	42.76%	8.08%	1.01%
	Foreign tourists	10.84%	27.71%	40.36%	19.88%	1.20%
Cultural values	Domestic tourists	16.72%	43.69%	33.11%	4.78%	1.71%
	Foreign tourists	18.56%	52.69%	19.76%	7.78%	1.20%
Water quality of Li River	Domestic tourists	9.90%	33.45%	36.52%	15.70%	4.44%
	Foreign tourists	4.35%	26.09%	44.10%	20.50%	4.97%
Water quality of Yulong river	Domestic tourists	14.29%	35.29%	38.24%	8.82%	3.36%
	Foreign tourists	6.85%	28.08%	52.05%	11.64%	1.37%
Social Service						
Transportation system	Domestic tourists	14.58%	43.73%	35.25%	4.41%	2.03%
	Foreign tourists	12.58%	54.09%	28.93%	1.89%	2.52%

Sign system	Domestic tourists	8.45%	40.54%	39.53%	9.46%	2.03%
	Foreign tourists	9.38%	35.12%	40.62%	13.12%	3.75%
Health-care facilities	Domestic tourists	6.05%	30.24%	56.85%	5.24%	1.61%
	Foreign tourists	6.30%	9.45%	78.74%	1.57%	3.94%
Lodging facilities	Domestic tourists	9.46%	51.69%	31.76%	6.08%	1.01%
	Foreign tourists	32.74%	54.76%	9.52%	2.38%	0.60%
Noise	Domestic tourists	6.83%	29.69%	46.08%	13.31%	4.10%
	Foreign tourists	8.38%	31.14%	19.16%	32.34%	8.98%
Indirect evaluation			Will	Will Not	Not Sure	0.00%
	Willingness to recommend Yangshuo	Domestic Tourists	75.08%	21.89%	3.03%	0.00%
		Foreign Tourists	95.86%	0.59%	3.55%	0.00%
	Willingness to revisit Yangshuo	Domestic Tourists	56.25%	8.73%	35.02%	0.00%
		Foreign Tourists	45.24%	11.31%	43.45%	0.00%
			Very Similar	Similar	Better than Expected	Worse than Expected
	Similarity between expectation and reality	Domestic tourists	3.04%	48.99%	23.31%	24.66%
		Foreign tourists	6.25%	32.5%	54.38%	6.88%
Overall evaluation		Very Satisfied	Satisfied	Average	Not Satisfied	Extremely Unsatisfied
	Domestic tourists	13.9%	63.39%	21.02%	1.36%	0.34%
	Foreign tourists	57.99%	37.28%	4.73%	0%	0%

Source: The analysis of questionnaires on domestic and foreign tourists in this investigation.

4. Health Care and Safety

Health care and safety are two important measurements for a destination's sustainable

development. This monitoring uses the perception of tourists towards these two issues as the primary measuring indicators. Health care involves medical treatment and sanitation while safety includes fire control and public security.

4.1 Perceptions of Health Care and Fire Control

Most domestic and foreign tourists evaluate the health care and fire control as “just average” (as shown in Table 15). Some main reasons are as follows: ① Chinese tourists don’t pay attention to information like health care and fire control in their tours. Foreign tourists have a stronger sense in this aspect than Chinese tourists. ② Scenic spots in Yangshuo haven’t done a good job in providing enough information on health care and fire control to arise the attention of the tourists or pass the necessary information. ③ Domestic tourists have a higher satisfaction level on health care and fire control than foreign tourists. However, neither of the two groups thinks highly of the health care and fire control facilities, which suggests a necessity to improve these two aspects in Yangshuo.

Table 15 Tourists’ Evaluation on Health Care and Fire Control Facilities (%)

	Health Care Facilities		Fire Control Facilities	
	Domestic tourists	Foreign tourists	Domestic tourists	Foreign tourists
Very satisfied	6.1	6.3	7.1	This question was not included in the questionnaires this time, but we will have it in the next monitoring.
satisfied	30.2	9.5	31.1	
Average	56.9	78.7	54.3	
Not satisfied	5.2	1.6	5.1	
Extremely unsatisfied	1.6	3.9	2.4	

Source: The analysis of questionnaires on domestic and foreign tourists

4.2 Perception on Sanitation

As shown in statistics, most domestic tourists evaluate between “satisfied” and “average” for hotel cleanness, restaurant cleanness or food cleanness. Whereas foreign tourists usually evaluate them as “very satisfied” and “satisfied”. Among these three indicators, the percentage of “very satisfied” from foreign tourists is twice of that from domestic tourists. The percentage of “average” from foreign tourists is two to three times less than that of domestic tourists. Thus we can say that foreign tourists are more satisfied than domestic tourists with the catering and lodging

sanitation (as shown in Table 16).

Table 16 Evaluation on the Catering and Lodging Sanitation

Items Evaluation	Hotel Sanitation		Restaurant Sanitation		Food Sanitation	
	Domestic tourists	Foreign tourists	Domestic tourists	Foreign tourists	Domestic tourists	Foreign tourists
Very satisfied	10.9	30.7	6.7	21.8	8.5	21.2
Satisfied	50.3	51.2	43.8	58.8	42.4	55.8
Average	33.0	16.3	42.8	16.4	44.1	18.2
Not satisfied	4.1	1.8	6.2	2.4	3.1	4.9
Extremely unsatisfied	1.7	—	1.0	0.6	2.0	—

Source: The analysis of questionnaires on domestic and foreign tourists

4.3 Perception on Public Security

Both domestic and foreign tourists have good impression on the public security in Yangshuo. The satisfaction level is over 65% (as shown in Table 17). The perception on public security is higher in foreign tourists than that in domestic tourists. For foreign tourists, Yangshuo is a friendly and safe tourist destination.

Table 17 Evaluation on Public Security in Yangshuo

Evaluation Satisfaction Degree	Domestic Tourists	Foreign Tourists
Very satisfied	11.9	44.6
Satisfied	53.2	45.8
Average	30.5	8.4
Not satisfied	2.7	0.6
Extremely unsatisfied	1.7	0.6

Source: The analysis of questionnaires on domestic and foreign tourists

5. Economic Benefits from Tourism

Economic benefit is an important indicator in measuring the effects from tourism development. As a pillar industry for Yangshuo, tourism has significant influences on the economy of the county. In the following sections, both positive and negative effects will be analyzed in

details.

5.1 Positive Effects

5.1.1 Tourism's Contribution to GDP

Tourism is a pillar industry for Yangshuo and has made a big contribution to GDP. As shown in Table 18, the contribution from tourism in GDP is increasing year by year. The growth of general revenue from tourism is basically consistent with that of GDP, with an even higher growing rate. What is particular is the year 2003, having suffered from SARS, tourism that year only grew 1.2%, which was the lowest point as shown in Table 18. Nevertheless, tourism still took up 20.2% in GDP in spite of the fact that it was greatly plagued that year. Therefore, it's obvious that tourism is vital in the entire economy of Yangshuo.

Table 18 Contribution of Tourism to GDP from 2000 to 2006

Year	Items	GDP (At Current Price) (a hundred million yuan)		Tourism (At Current Price) (a hundred million yuan)		The Proportion of Tourism in GDP
		Total value	Growing rate	General income	Growing rate	
2000		9.81	—	1.85	—	18.86%
2001		10.43	6.32%	2.14	15.68%	20.52%
2002		11.11	6.52%	2.41	12.62%	21.69%
2003		12.07	8.64%	2.44	1.24%	20.22%
2004		16.51	36.79%	4.06	66.39%	24.59%
2005		17.89	8.36%	5.53	36.21%	30.91%
2006		22.90	28.00%	8.25	49.19%	36.24%

Source: Yangshuo Statistic Bureau.

5.1.2 Foreign Exchange Profit

Tourism has a relatively strong capacity to earn foreign exchange by receiving a large number of foreign tourists. Compared with most international trading, tourism has a comparatively lower cost of foreign exchange. This is shown very obviously in Yangshuo. It can attract a big amount of tourists with beautiful landscape and transform quickly the local resources and labor to foreign exchange with the help of unique service, business and management tools.

As shown in Figure 2, the expenditure of foreign tourists in Yangshuo is usually 300 to 1000

yuan per person. That above 1000 yuan also takes up a big proportion.

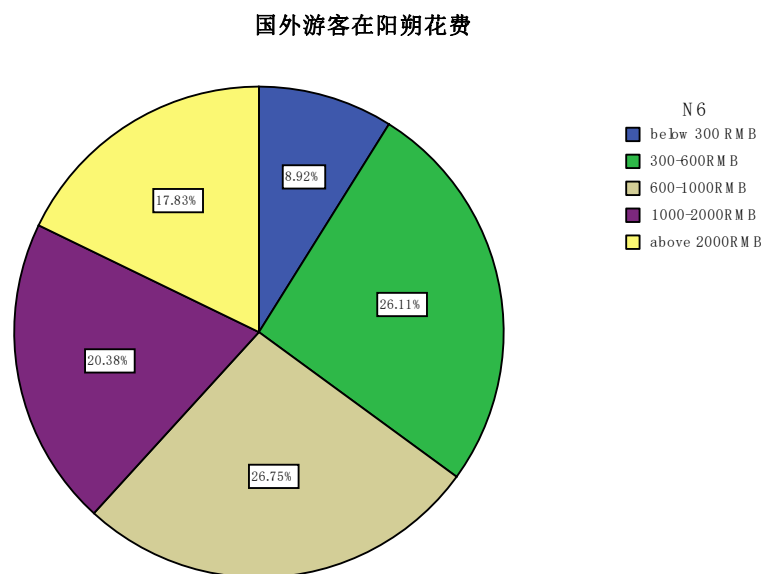


Figure 2 Expenditure Ratio of Foreign Tourists in Yangshuo

5.1.3 Job Opportunities

The rapid development of tourism in Yangshuo can not have been achieved without the support of abundant labor force. The work force comes from Yangshuo, from other counties in Guilin, and from other regions of China, even from foreign countries.

Labor force from other places is not merely employees. Quite a lot of them have become shop owners. As shown in the surveys, 38.6% property owners are from places outside Guangxi while local people only take up 35.09%. For local residents, tourism is an industry with great demand for labor force, thus it provides different job opportunities with easy accesses. According to statistics, 53.9% residents work in tourism related industries. Noticeable examples are five villages along the river: Mushan Village, Tianjiohe Village, Xingping Village, Mushanzha Village and Maozhaishan Village. Many villagers living near the scenic spots like Big Banyan Tree and Longjing River Rafting take photos for tourists in the scenic area. In Yulong River Drafting, villagers are hired to row the bamboo rafts for tourists. Many farmhouse restaurants run by local residents in Li Village hire workers from other regions.

5.1.4 Improving Investment Environment to Attract Investment

To develop the economy of Yangshuo, only depending on local residents is far from enough.

Attracting foreign investors is a necessity for Yangshuo to develop tourism and improve its regional industrial development. The growth of foreign investment accelerates the increase of rent in constructed areas. In 2007, the average shop rent in Yangshuo has reached 8807.53 yuan. The lease varies from 1 year to 20 years with an average of 4.7 years.

The beautiful landscape in Yangshuo attracts investors while tourism development also gradually completes the investment environment. This is mainly shown in the improvement of infrastructure and stability in regional economy development.

The most obvious improvement in infrastructure is its transportation. Yangshuo spares no efforts in constructing roads for tourism. In 2007, 11 new roads were constructed with the length of over 70 kilometers. Every main scenic spot in the county has roads leading to it. Besides transportation, the improvement of communication facilities is also worth noting. Cable TV, telephone, cell phone, and broadband network are all widely used in the county of Yangshuo. Even in some relatively backward villages, cell phone is a common communication tool. In addition, more than ten streets are newly constructed or rebuilt, enlarging the acreage of the county from 1.9 square kilometers to 5 square kilometers. The stable economic development in Yangshuo is mainly manifested in the diversified and synchronous development of its industries. Though tourism income in Yangshuo grows year by year, the growth rate of other industries cannot be ignored.

5.1.5 Stimulation for Other Industries

Tourism not only brings direct economic income like scenic spots entrance fee, relevant catering and lodging industries also benefit from it. Moreover, some other industries are also greatly advanced by the strong driving force of tourism.

The driving effect of tourism on transportation is clearly seen. A large number of tourists come to Yangshuo by plane, by car, by bike, by boat or by self-driving. Coach travel constitutes the largest proportion. 49.5% domestic tourists and 43.71% foreign tourists travel to Yangshuo by coach. Figure 3 and Figure 4 show the major transportation tools for tourists during their visits in Yangshuo.

国外游客在阳朔选择的交通方式

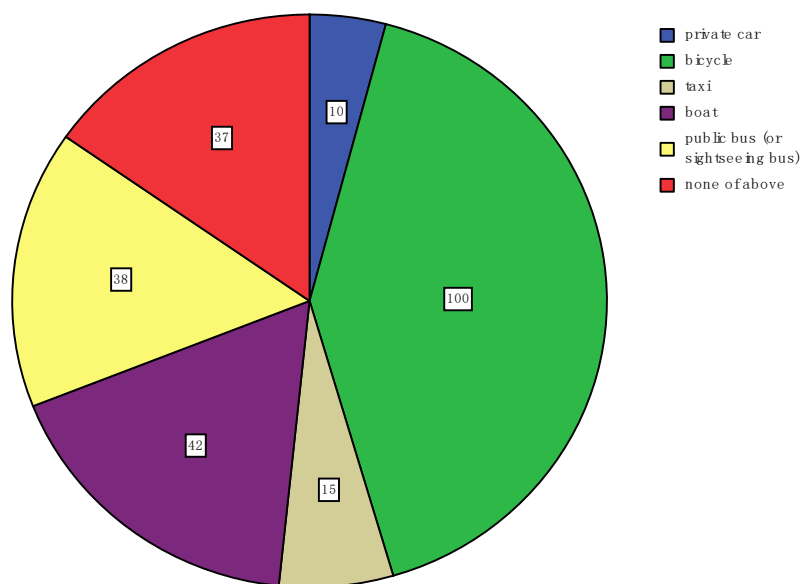


Figure 3 Transportation Tools Favored by Foreign Tourists

国内游客在阳朔选择的交通方式

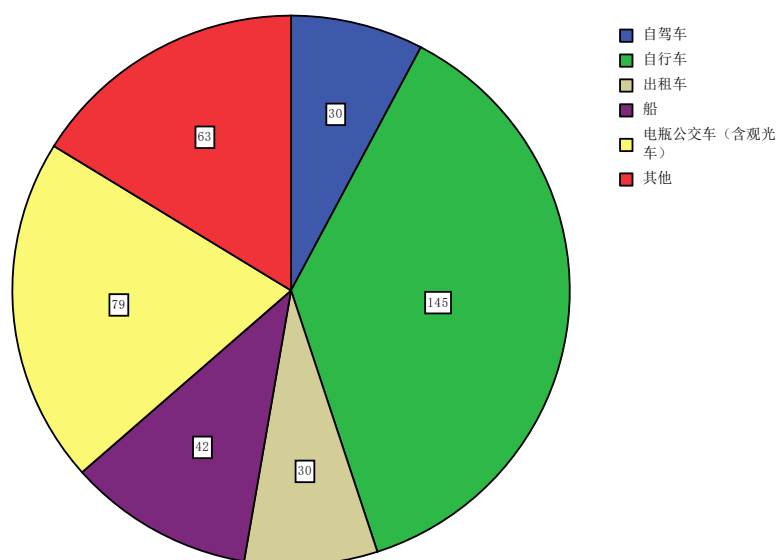


Figure 4 Transportation Tools Favored by Domestic Tourists

Tourists often buy some special handcrafts as souvenirs or gifts for their relatives and friends, which has boosted greatly the local light industry. Yangshuo is where the cultures of Han nationality and Zhuang nationality meet, thus handcrafts like painting, fans with drawing, decorations, wood and bamboo carving are very unique and characteristic of ethical flavors. The

production of such tourist commodities is an important way for local residents to make a profit. In Fangshi Village, Gaotian Town of Yangshuo, almost every family pursues the production of wood and bamboo carving handicrafts. The annual production is 11,000 pieces and the increased average personal income is 1500 yuan. Zhao Qiaofa from Fuli Town is considered “the King of Drawing Fans”. He is the first person to start a private fan business in Yangshuo. With the mountain and water landscape of Guilin drawn on fans, he not only makes Guilin better known, but also earns profit for himself. Following his lead, more than 200 out of over 700 families of the town start family fan workshops. With the products sold far away to more than 30 countries and regions such as Japan, America and Australia, the town is known to be “the No.1 Fan- Drawing Town in China”.

5.1.6 Improvement on the Living Standard and Life of the Local Residents

Generally speaking, tourism mainly affects the income and values of the local residents. As shown in the data from the survey, 75.3% residents think tourism raises their living standard and improve their life.

As residents of an international tourist destination, people in Yangshuo are continuously exposed to ideas and cultures from different places and gradually changing their traditional mindset. New concepts like “Earn to spend, not to save” have overturned the traditional idea of frugality and encouraged people in Yangshuo to spend money for a better life.

5.2 Negative Effects

5.2.1 Opportunity Cost

High demand on resources from tourism may easily lead to an imbalance of industrial structure in Yangshuo. The general revenue of tourism is taking up larger and larger proportion of GDP in Yangshuo, which means the proportions of other industries in GDP are decreasing year by year.

Tourism provides farmers in Yangshuo with relatively good job opportunities. Some farmers have freed themselves from farming and entirely engaged in tourism. From the monitoring, we met some shop owners and staff, street vendors, bamboo raft rowers in Yulong River, villager actors in “Impression • Liu Sanjie” and “Country Tour Guides” who we saw everywhere. They all

gave up part of or the entire farming work due to the more profitable tourism related jobs. The growing of crops is decreasing while the resident and tourist population keeps rising. The increasing consumption of crops has led to the rising price of agricultural and sideline products. This virtually raises the living cost of local residents. The imbalance of industrial structure brings about negative effects on the stability of economic development in Yangshuo.

5.2.2 Instability

As a pillar industry, the seasonal characteristic of tourism results in a seasonal economy that fluctuates in Yangshuo. Although the overall economy with annual gross value still keeps a rising tendency, impacts from the busy and off seasons cannot be ignored. Especially for the families that count on tourism as their income source, the fluctuation of income is greatly felt. In addition, tourism is very easily influenced by the environment.

The development of industries in Yangshuo is diversified, with direct or indirect relations with each other. Most of the industries are closely related to tourism. Tourism is giving a boost to a lot of industries, but it may also cause many industries to suffer. Once tourism is shaken, some relevant industries, especially transportation, will be greatly influenced. Vice versa, if the controllable factors of these non-tourism related industries have any unfavorable changes, tourism demand will be largely decreased. Tourism and even the whole economy will be hurt and serious economic problems will result.

5.2.3 Rising Price

For tourists, rising price in tourist destination suggests an increase of travel cost which mainly covers scenic spots entrance fee, food and accommodation cost, transportation cost, shopping and entertainment cost. The satisfaction level on the prices of these items is shown in Table 19.

Table 19 Evaluation on Tourist Related Price in Yangshuo (%)

Evaluations Items		Very Satisfied	Satisfied	Average	Not Satisfied	Extremely Unsatisfied
		Scenic spots entrance fee	Domestic	4.1	21.2	47.1
	Foreign	8.0	36.8	33.7	16.6	4.9
Food and accommodation	Domestic	5.8	36.5	45.1	9.6	3.1
	Foreign	18.2	55.2	20.6	6.1	0

Transportation	Domestic	6.2	45.9	39.3	6.2	2.4
	Foreign	12.7	63.9	19.6	3.2	0.6
Shopping	Domestic	5.8	26.4	47.9	15.4	4.5
	Foreign	6.0	45.2	30.7	12.1	6.0
Entertainment	Domestic	4.8	29.7	43.6	17.6	4.4
	Foreign	7.6	39.0	37.7	13.8	1.9

Source: The analysis of questionnaires on domestic and foreign tourists.

Most domestic tourists have worse appraisal on price than foreign tourists. “Average” takes up the largest proportion in the evaluation of domestic tourists while most foreign tourists feel “satisfied”. Most foreign tourists are from developed countries, so their income and daily expenditure are both comparatively high. However, some foreign tourists think some costs in Yangshuo such as the beer in bars are even higher than that in Europe which makes them feel very expensive. What’s more, for local residents, the rising price means a rising living cost. 65.4% local residents think tourism development brings this negative impact to them. Few local residents will consume in places which are developed for tourism as tourists drive up the prices.

5.2.4 A Widened Gap between Rich and Poor

According to statistics from the surveys on residents, 43.3% of them think tourism development widened the gap between the rich and the poor. An example is the “farmhouse restaurant”, the people whose land is expropriated get much more profit than others. But generally speaking, residents who hold such an opinion are less than half, which means this phenomenon is not too serious. During the interviews, quite a lot of residents commented that tourism development led them to a better life. As for the gap between the rich and the poor, even if it is existent, it is still acceptable.

5.3 Overall economic Indicators

From overall economic indicators, the contribution of tourism to GDP in Yangshuo is still growing year by year. The proportion of tourism income is 36.24% in GDP. In contrast to the prosperous development of tourism, the primary industry and secondary industry are declining. Due to comparative benefit effects, the agricultural and manufacturing benefits are much less than that of tourism. The scales of agricultural industry and manufacturing industry are always small,

thus tourism industry takes the lead in Yangshuo (as shown in Table 20).

Tourism is an industry related to many other industries. The development of tourism has led to the development of transportation, catering industry, business and other economy. In Yangshuo, these industries all benefit from the development of tourism.

Table 20 Indicators on Economic Effects from Tourism

Issues	Indicators	Yangshuo Application (research result)
Positive Effects	GDP growth rate	◆ 23.4% growth from 2005 to 2006
	Growth rate of tourism total income	◆ 49.19% growth from 2005 to 2006
	Ratio of tourism in GDP	◆ 36.24% in 2006
	Foreign tourists travel expenditure	◆ Below 300 yuan: 8.92%, 300-600 yuan: 26.11%, 600-1000 yuan: 26.76%, 1000-2000 yuan: 20.58%, above 2000: 17.85%
	The makeup of owners	◆ From Outside Guangxi: 38.60%, Local Residents in Yangshuo: 35.09%
	The ratio of residents engaged in tourism related industry	◆ 53.9%
	Growth rate in gross value of primary, manufacturing, and tertiary industry	◆ From 1995 to 2005, three industries showed an annual growth (except a particular decline in 1999)
	Transportation tools favored by domestic tourists	◆ Sample capacity 389, including self-drive 30, bike 145, taxi 30, boat 42, battery-driven bus (including sightseeing vehicle) 79, others 63
	Transportation tools favored by foreign tourists	◆ Sample capacity 242, including self-drive 10, bike 100, taxi 15, boat 42, battery-driven bus (including sightseeing vehicle) 38, others 37
	Living standards of residents	◆ From July 2006, Yangshuo government distributed full amount of West China allowance. The average wage of employed workers is 17,400 yuan, year-on-year increase 17.9%; The urban residents disposable income is 12,429 yuan, year-on-year increase 42%; The per capita net income of peasants is 3504 yuan, year-on-year increase 23.3%
Number of beds and hotels	◆ In 2003, Yangshuo accommodated 450,000 tourists. ◆ In 2004, "Impression • Liu Sanjie" had its official public performance.	

		<ul style="list-style-type: none"> ◆ In 2006, Yangshuo accommodated 11,870,000 tourists, with a growth rate of 164% from 2003. Tourist hotels in the whole town increased from 181 in 2003 to 286 in 2006. Beds increased from 6102 in 2003 to 13,000 in 2006.
Negative Effects	Degree of satisfaction on travel cost	<ul style="list-style-type: none"> ◆ This includes five parts: scenic spots entrance fee, food and accommodation, transportation, shopping and entertainment. Domestic tourists mainly commented “average”. The most satisfied part is transportation, 6.2%; the least satisfied part is scenic spots entrance fee, 8.2%; foreign tourists mainly chose “satisfied”, with food and accommodation “most satisfied” 18.2% and scenic spots entrance fee least satisfied 4.9%.

Source: The analysis of questionnaires on domestic and foreign tourists and the materials provided by relevant departments of Yangshuo.

6. Tourism, Resources and Environmental Protection

Influence on environment is an important indicator in sustainable tourism. The tendency of environmental changes has a direct impact on the appeal of a destination to tourists. In the following sections, we will analyze the influences of tourism on Yangshuo from four aspects: air, water, noise and landscape.

6.1 Status Quo and Protection of Air Environment

One direct benefit the idyllic landscape in Yangshuo brings to its visitors is the clean air. However, as tourists swarm into the place, exhaust and soot dust also grew. With further harmful substances emitted by industrial projects (as shown in Table 21 and Table 22), tourists' evaluation on the air quality is becoming worse.

Table 21 Air Pollution Indexes of Yangshuo in 2004 and 2005

Pollution Year	Monitoring Spot	Air Pollution Indexes			Air Pollution Indexes	Major Pollutant	Air Quality Level
		Sulfur Dioxide	Nitrogen Dioxide	Total Suspended Particulate			

2004	Experiment Elementary School	56	35	60	60	Particles in the air	Level 2
	Beimen'e	59	14	55	59	Sulfur dioxide	Level 2
2005	Experiment Elementary School	38	45	66	66	Particles in the air	Level 2
	Beimen'e	38	22	70	70	Particles in the air	Level 2

Source: *The Environment Status Gazette of Yangshuo County*, Environmental Protection Bureau of Yangshuo.

Table 22 Air Pollutant Concentration of Yangshuo in 2004 and 2005

Year	Average Concentration of Pollutants (mg/m ³)			National Standards of <i>Air Quality Standard</i> (GB3095-1996)		
	Sulfur Dioxide	Nitrogen Dioxide	Particles in the air	Sulfur Dioxide	Nitrogen Dioxide	Particles in the air
2004	0.026	0.019	0.098	Level 2	Level 1	Level 2
2005	0.038	0.034	0.184	Level 1	Level 1	Level 2

Source: *The Environment Status Gazette of Yangshuo County*, Environmental Protection Bureau of Yangshuo.

6.2 Status Quo and Protection of Water Environment

As shown in the surveys, domestic tourists differ in their satisfaction level on the water quality of Li River: 9.9% are very satisfied, 33.4% are satisfied, 36.5% feel so-so, 15.7% are dissatisfied and 4.4% are very unsatisfied. As for foreign tourists, 4.3% are very satisfied, 26.1% are satisfied, 44.1% feel average, 20.5% are dissatisfied and 5.0% are very unsatisfied. We can see that tourists don't have very high satisfaction level on the water quality of Li River and Yulong River.

Table 23 Wastewater Discharge and Treatment of Yangshuo in 2004 and 2005

Year	2004	2005
Wastewater		
Discharge amount of industrial wastewater (10,000 tons)	16.73	20.46
Discharge amount of industrial COD (ton)	2.3	5.26
Discharge amount of domestic sewage (10,000 tons)	466	511
Wastewater treatment amount (10,000 tons)	370	142
Rate of centralized sewage treatment (%)	80	65

Source: *The Environment Status Gazette of Yangshuo County*, Environmental Protection Bureau of Yangshuo.

As shown in Table 23, compared with 2004, 2005 had more waste water discharge yet worse sewage treatment. With the development of tourism and industry, an increase of sewage discharge is inevitable. The government still needs to enhance the centralized sewage treatment.

6.3 Status Quo and Protection of Noise Environment

According to statistics provided by Environment Protection Bureau of Yangshuo, the area where the noise level is under control has a monitoring acreage of 24 square kilometers. In 2004, the average noise level of the area where the noise level is under control was 53.8 db during daytime, 43.3 db at night, which met the national noise standards. Compared with 2003, these two indexes respectively increased 2.7 db and 1.2 db, with traffic noises beyond the noise standard for both day and night. In 2005, the average noise level of the area where the noise level is under control was 53.4 db during daytime, 45.9 db at night, which met the national noise standards. Compared with 2003, the daytime index decreased 0.3 db and the night one increased 2.6 db. The traffic noise of the daytime met the standard while the night index exceeded. This set of data shows that major pollution source in Yangshuo is at night. Traffic runs day and night, bringing more and more tourists, more and more diversified goods and building materials for construction. Such heavy traffic brings about noise pollution, but it is also indispensable for tourism development.

Apart from the traffic noise on road, noise from bars and shops in West Street is also a

problem. According to the firsthand information of the monitoring team, West Street and its adjacent streets were still hustling and bustling at 22:00 o'clock at night. Over 20 shops (mainly bars) were giving off high decibel noise. Different music or selling noise was frequently heard. By midnight, 14 shops were closed or stopped playing music; 4 bars turned the music down; 5 bars kept the same volume of music, but staff would close the glass doors to reduce noise; still 3 bars (Right here waiting, BABYFACE, MAY) didn't do anything to reduce noise (as shown in Table 24).

Table 24 Noise of the Bars in West Street after Midnight 12 O'clock

Volume of music the same, in business with the door closed	STONE ROSE、LEGEND BAR、SI HAI LOVER BAR、THE BLUE LOTUS、KING FISHER
Volume of music the same, in business with door still open	RIGHT HERE WAITING、SOLO、BABYFACE
Volume of music lowered	VICTORIA、MARCO POLO、CO CO

Source: real time monitoring in this investigation.

6.4 Overall Indicators of Tourism, Resources and Environmental Protection

Tourism development has relatively big impacts on the resources and environment of Yangshuo. The effects are mainly shown in aspects like air, water quality and noise. Among them, tourists have comparatively low evaluation on water quality and noise. Due to the environmental problems in these aspects, the overall experience of the tourists is affected, which results in a decrease of satisfaction in both domestic and foreign tourists (as shown in Table 25).

Table 25 Indexes of the Environmental Impact on Tourism

Issues	Indicator	Research Result
Impact on air	Coal pollution	<ul style="list-style-type: none"> ◆ In 2004, coal consumption was 29.3 thousand tons, sulfur dioxide emission 755.18 tons, smoke and dust 506.86 tons in the whole county. ◆ In 2005, the coal consumption was 10.6 thousand tons, sulfur dioxide emission 867.38 tons, smoke and dust 501.41 tons in the whole county. ◆ The latest data is not yet available.
Impact on water quality	Satisfaction level to the water quality of Li River of the tourists from	◆ Tourists from home: Very satisfied 9.9%, Satisfied 33.4%, Average 36.5%, Unsatisfied 15.7%, Very unsatisfied 4.4%;

	home and abroad	<ul style="list-style-type: none"> ◆ Tourists from abroad : Very satisfied 4.3 % , Satisfied 26.1 % , Average 44.1 % , Unsatisfied 20.5% , Very unsatisfied 5.0%.
	Wastewater discharge and treatment	<ul style="list-style-type: none"> ◆ In 2004, discharge amount of industrial wastewater was 167.3 thousand tons, discharge amount of industrial COD 23 thousand tons, discharge amount of domestic sewage 4.66 million tons. Total waste water treatment amount was 3.70 million tons. The rate of centralized sewage treatment is 80%; ◆ In 2005, discharge amount of industrial wastewater was 204.6 thousand tons, discharge amount of industrial COD 52.6 thousand tons, discharge amount of domestic sewage 5.11 million tons. Total waste water treatment amount was 1.42 million tons. The rate of centralized sewage treatment was 65%; ◆ The latest data is not yet available.
Impact on noise	Environmental noise	<ul style="list-style-type: none"> ◆ In 2004, the average environmental noise level of the reach-mark areas was 53.8 db during the daytime, 43.3 db at night, reaching the national environmental noise standards. But these two indexes have increased 2.7 db and 1.2 db relatively than 2003, and the traffic noises exceed standard both in day and at night. ◆ In 2005, the average environmental noise level of the reach-mark areas was 53.4 db during the daytime, 45.9 db at night, also reaching the national environmental noise standards. The first index decreased 0.3 db and the second one increased 2.6 db. The traffic noise of the daytime reaches the standard but didn't at night; ◆ The latest data is not yet available.
	Tourists' satisfaction level to the noise when traveling	<ul style="list-style-type: none"> ◆ Only 8.38% of the tourists from home and 6.83% tourists from abroad declared "Very satisfied".
General impact on environment	Tourist's satisfaction level to the beauty and sanitation of the scenic area	<ul style="list-style-type: none"> ◆ The tourists from both home and abroad were relatively satisfied with the beauty of scenic areas, 39.25% and 75.75% "very satisfied". The satisfaction degree to the cleanness of scenic areas was a bit lower, 42.42% and 58.47% "satisfied", 22.90% and 18.82% "very satisfied".
Water quality	Evaluation of Li River's water quality: tourist	Very satisfied: 9.9%; Satisfied: 33.4%; Average: 36.5%; Unsatisfied: 15.7%; Very unsatisfied: 4.4%.

condition of Li River	from home	Total number: 293.
	Evaluation of Li River's water quality: tourist from abroad	Very satisfied: 94.3%; Satisfied: 26.1%; Average: 44.1%; Unsatisfied: 20.5%; Very unsatisfied: 5.0%. Total number: 161.
Water quality condition of Yulong River	Evaluation of Yulong River's water quality: tourist from home	Very satisfied: 14.2%; Satisfied: 35.1%; Average: 38.1%; Unsatisfied: 8.8%; Very unsatisfied: 3.3%. Total number: 239.
	Evaluation of Yulong River's water quality: tourist from abroad	Very satisfied: 6.8%; Satisfied: 28.1%; Average: 52.1%; Unsatisfied: 11.6%; Very unsatisfied: 1.4%. Total number: 146.
Water quality condition of other rivers	Whether water is polluted	Yes: 68% (32/47) No: 32% (15/47)
Monitoring of the noise function area	Living noise	Class 2—Daytime: below 55Db (A), reaching standard; Nighttime: below 50 Db (A), reaching standard.
	traffic noise	Class 4—Daytime: below 64Db (A), reaching standard; Nighttime: below 59 Db (A), reaching standard.
Evaluation of traffic noise of the local residents	Whether vehicle density is too big	Yes: 46.8% (22/47) No: 53.2% (25/47)
Noise beyond standard	Decibel beyond the standard one	1-16 and over 16
	Standard Charge	350 yuan-11200 yuan and over 11200
Sound environment status quo of Yangshuo	Evaluation of the sound environment of the tourists from abroad	Very satisfied: 8.4%; Satisfied: 31.1%; Average: 19.2%; Unsatisfied: 32.3%; Very unsatisfied: 9.0%. Total number: 167.

Source: Questionnaire analysis of the tourist from home and abroad to Yangshuo, and the information provided by the related departments of Yangshuo County.

7. The Impact of Tourism on the Change of Land Use

7.1 The Impact of Tourism on the Change of Land Use in the County

7.1.1 Analysis on Dynamic Change of Land Use

As shown in Table 26 and Table 27, farmland and construction land had a relatively big

increase from 1993 to 1999, each increasing 44.97km² and 11.25km² respectively. Nevertheless, forestland decreased by 58.62km². During this period, agriculture is the leading industry of Yangshuo with an increase in revenue far higher than other industries. Land use adjustment with the purpose to increase farmland and construction land was frequent in this period while urban construction in Yangshuo was relatively slow. The increase of construction land was in residential area rather than in urban space.

In terms of the type of land use, construction land had the largest annual changing rate which was 10.88%. Second to it was the body of water which was 2.64%. Farmland and forestland had comparatively low changing rate which were 1.89% and -0.79%.

During this period (1993-1999), tourism in Yangshuo was in its slow growing stage. There were only a few scenic spots such as Yangshuo Park, Ancient Banyan Park and West Street. Tourism facilities around the major scenic spots were also very limited. Rural tourism in Yangshuo developed slowly. At that time, the main force for the increase of farmland and construction land and the decrease of forestland was mainly the result of slow urbanization and natural expansion of village configuration instead of tourism.

Table 26 Changes of Land Use in Yangshuo from 1993 to 1999 (km²)

Towns	Construction Land	Forestland	Water Body	Farmland
Puyi	0.41	-1.72	-0.04	1.34
Gaotian	1.17	-3.89	0.45	2.28
Yangshuo	2.13	-3.01	0.39	0.48
Jinbao	0.84	1.07	0.07	-1.99
Baisha	2.26	-6.80	0.00	4.54
Fuli	1.09	-9.26	0.27	7.90
Putao	2.61	-6.50	0.46	3.43
Yangdi	0.21	-8.93	0.17	8.55
Xingping	0.52	-19.58	0.62	18.44
Yangshuo County	11.25	-58.62	2.39	44.97

Source: Materials provided by relevant departments in Yangshuo.

Table 27 Dynamic Level of Land Use in Yangshuo from 1993 to 1999 (%)

Towns	Construction Land	Forestland	Water Body	Farmland
Puyi	10.12	-0.47	-0.51	1.36
Gaotian	6.37	-0.53	6.66	0.70
Yangshuo	14.28	-0.84	1.97	0.31

Jinbao	23.66	0.09	1.32	-0.82
Baisha	22.77	-0.98	-0.01	1.18
Fuli	4.58	-0.83	1.87	1.74
Putao	24.79	-1.32	42.52	0.89
Yangdi	6.28	-1.45	1.70	18.86
Xingping	3.49	-1.05	3.49	6.52
Yangshuo County	10.88	-0.79	2.64	1.89

Source: Materials provided by relevant departments in Yangshuo.

7.1.2 Analysis on Dynamic Changes of Land Use from 1999 to 2005

As shown in Table 28 and Table 29, from 1999 to 2005, construction land increased by 11.34 km², forestland increased by 82.00 km² while farmland decreased by 91.03 km². In this period, the importance of agriculture dropped while tourism gradually became the leading industry in Yangshuo. It was also a period that witnessed the urban prosperity of Yangshuo. It was mainly urban space expansion that led to the demand on construction land. Along with the development of tourism, ecological environment became very important. Compilation and implementation of ecologic demonstration area planning in Yangshuo ensured the vegetation coverage and ecological environment of the whole town. There were two reasons for the decrease of farmland during this period: ① The transform from farmland to construction land. The urban expansion was mainly in the form of claiming land surrounding the urban area. The farmland around the urban area was transformed into construction land through land expropriation. Both the attribute and use of the land were changed. ② Farmland was transformed into orchards. This is also an important reason for the decrease of farmland in Yangshuo. Due to low economic benefit from traditional agriculture and relatively high outcome from forestry and fruit industry, more farmland became orchards in this period. The land use in Yangshuo showed that the orchards acreage in Yangshuo increased by 14.0% from 2004 to 2005. The increase of orchards resulted in the decrease of farmland and the increase of forestry land (the classification of land here puts orchards in forestry land category).

In terms of type of land use, the annual changing rate of construction land was the biggest which was 6.23%. Second to it was that of the farmland which was -3.38%. The changing rates of water body and forestry land were relatively slow which were respectively -2.17% and 1.17%.

This period (1999-2005) was the time of rapid tourism development of Yangshuo. This was mainly seen in the following aspects: ① large increase of domestic tourists; ② vigorous development of rural tourism; ③ rapid development of scenic spots. More domestic tourists demanded more tourist facilities, thus more construction land was mainly used to develop tourist service facilities and tourism infrastructure. During this period, a lot of reconstruction or expansion were accomplished, such as the reconstruction of West Street, “five streets plus one lane” and “two streets plus one lane”, the expansion and diversion of National Highway 321, Yangshuo-Xingping Road, Yangshuo-Puyi Road, and Yangshuo-Baisha Road, as well as the construction of the small wharf of Yulong River and the tourist route from downtown Yangshuo to Yulong River. The above infrastructure construction work made access to Yangshuo easy and increased the construction land acreage.

The big increase of domestic tourists also facilitated the extension of original scenic spots and a development of new ones. Yangshuo Park, Ancient Banyan Park, Xingping Fishing Village and Moon Mountain Scenic Spot were reconstructed and expanded while new scenic spots like Impression • Liu Sanjie Park, Totem Ancient Way, Butterfly Fountain, Windmill Villa, Peach Resort, Jianshan Temple, Julongtan Park were established in this period. Due to the pull effects of individual tours, rural tourism was greatly promoted in this period. The development of farmhouse restaurant, family hotel and tourism village prospered and mainly centered on rafting, hiking, cycling and other activities. Ten-mile Gallery, Xingping Fishing Village, Yulong River Family Hotel, Moon Mountain Li-Cun Tour Village, Mushan Village, Tianjiahe Village, Jima Village, Chelangshan Village, Fenglou Village and Xianguaqiao Village all received tourists. The construction of tourism facilities and scenic spots along with the development of rural tourism increased the use of construction land. Throughout this period, the main force that drove the increase of construction land and the decrease of farmland and forestry land was the development of tourism.

Table 28 Change of Land Use in Yangshuo from 1999 to 2005 (km²)

Towns	Construction Land	Forestland	Water Body	Farmland
Puyi	0.45	4.35	-0.28	-4.52
Gaotian	1.62	11.34	-0.11	-12.86
Yangshuo	1.37	5.41	-1.27	-5.51
Jinbao	0.87	8.88	0.57	-10.32

Baisha	2.72	9.73	0.20	-12.65
Fuli	1.55	13.51	-0.59	-14.46
Putao	1.10	11.36	-0.04	-12.42
Yangdi	0.29	2.90	-0.31	-2.87
Xingping	1.38	14.52	-0.50	-15.41
Yangshuo County	11.34	82.00	-2.32	-91.03

Source: Materials provided by relevant departments in Yangshuo.

Table 29 Dynamic level of Land Use in Yangshuo from 1999 to 2005 (%)

Towns	Construction Land	Forestland	Water Body	Farmland
Puyi	6.41	1.23	-3.81	-4.18
Gaotian	6.12	1.59	-1.08	-3.77
Yangshuo	4.57	1.61	-5.59	-3.50
Jinbao	9.23	0.76	9.20	-4.53
Baisha	10.57	1.51	2.79	-3.04
Fuli	4.93	1.29	-3.63	-2.83
Putao	3.82	2.55	-0.82	-3.02
Yangdi	5.89	0.52	-2.81	-2.73
Xingping	7.47	0.84	-2.27	-3.74
Yangshuo County	6.23	1.17	-2.17	-3.38

Source: Materials provided by relevant departments in Yangshuo.

7.1.3 Analysis on Dynamic Changes of Land Use from 1993 to 2005

From Table 30 and Table 31, we can see that the construction land use increased 22.59 km² while farmland decreased 46.06km² from 1993 to 2005. This was a period of time when urban construction and tourism developed rapidly in Yangshuo. The main characteristic of this period was the gradual decrease of the importance of agriculture and the gradual importance of tourism. Although Yangshuo already went through the land adjustment and farmland increase in early 1990s, the demand for land use increased due to rapid urbanization in this period. Considerable farmland near the urban area was transformed into construction land.

In terms of the type of land use, the changing rate of construction land was the biggest which was 21.85%. The changing rates of farmland, forestry land and water body were relatively slow which were respectively -1.94%, -0.32% and 0.07%.

1993 to 2005 was a period of economic transformation and rapid urbanization for Yangshuo.

The gradual decrease of the importance of agriculture and the quick emergence of tertiary industry dominated by tourism not only changed the industry structure, but also changed the land use structure. The urbanization of Yangshuo was tourism-driven. Under the force of the rapid tourism development, urbanization in Yangshuo also picked up its speed. In towns like Yangshuo, Yangdi, and Xingping, urbanization was obviously tourism-driven. The urban expansion of Yangshuo centering on West Street and the construction of Xingping Fishing Village served as very good examples to show tourism-driven characteristics. 1999 can be taken as an intermediate point in the change of land use from 1993 to 2005 in Yangshuo¹. In terms of the type of land use, the change in each type of land use in the last 6 years (1999 to 2005) was higher than that in the first 6 years (1993 to 1999) in both changing rate and acreage. The driving force was also different. Before 1999, the increase of construction land was more of the result of slow urbanization and rural natural development. After 1999, however, the increase of construction land was more of the result of tourism and rapid urbanization. From 1993 to 2005, although the acreage of construction land in Yangshuo kept increasing, neither the increase range nor the acreage was very big. Basically, there was no out-of-proportion increase.

Table 30 Land Use Change in Yangshuo from 1993 to 2005 (km²)

Towns	Construction Land	Forestland	Water Body	Farmland
Puyi	0.86	2.64	-0.32	-3.18
Gaotian	2.79	7.45	0.34	-10.58
Yangshuo	3.50	2.41	-0.88	-5.03
Jinbao	1.71	9.94	0.64	-12.30
Baisha	4.98	2.93	0.20	-8.11
Fuli	2.63	4.25	-0.32	-6.56
Putao	3.71	4.85	0.42	-8.99
Yangdi	0.50	-6.03	-0.14	5.68
Xingping	1.89	-5.05	0.12	3.02
Yangshuo County	22.59	23.37	0.07	-46.06

Source: Materials provided by relevant departments in Yangshuo.

Table 31 Dynamic Degree of Land Use in Yangshuo from 1993 to 2005 (%)

Towns	Construction Land	Forestland	Water Body	Farmland
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¹ 1999 was the year of economic transition in Yangshuo. The reconstruction of West Street in 1999 saw the sharp increase of domestic tourists. Tourism developed very rapidly while agricultural revenue was relatively low. Tourism began to replace agriculture as the leading industry.

Puyi	21.07	0.72	-4.18	-3.22
Gaotian	15.23	1.01	5.07	-3.25
Yangshuo	23.42	0.68	-4.39	-3.26
Jinbao	48.18	0.86	11.37	-5.09
Baisha	50.19	0.42	2.78	-2.11
Fuli	11.08	0.38	-2.23	-1.44
Putao	35.24	0.99	39.26	-2.32
Yangdi	14.76	-0.98	-1.44	12.52
Xingping	12.78	-0.27	0.67	1.07
Yangshuo County	21.85	0.32	0.07	-1.94

Source: Materials provided by relevant departments in Yangshuo.

7.1.4 Conclusions

Based on the above analysis, there was not much increase of construction land acreage in Yangshuo. From 1995 to 2005, the gross amount of increased acreage was only 0.09 km² more than that from 1993 to 1999. The relatively low increase of construction land was not because of poor development or slow economy in Yangshuo, but because of the restriction on construction land use from the central government and autonomous regional government. Most areas in Yangshuo are important parts of Li River National Scenic Area of Guilin. Limited by relevant national laws and regulations, the acreage of construction land use in Yangshuo increased only in a small range. Under the control of rigid national land policy, construction land use in Yangshuo was in a slow growing state.

7.2 The Impact of Tourism on the Change of Land Use of the Constructed areas

7.2.1 Morphological Change in Functional Divisions

In 1985, *Urban Master Planning of Yangshuo* centered on the old city area without the eastern, western, southern and northern function divisions. In 2001, *Urban Master Planning of Yangshuo* is based on the plan of 1985 and put forward the concepts of the above functional divisions. The main purpose was to simplify the function of old city area and made it a functional division led by tourism businesses. Administration, culture, residence and other city functions began to lean toward the eastern, western, southern and northern divisions (as shown in Table 32).

Therefore, the western division, as the new central town area, with its major area as Dacunmen, focuses on politics, culture and sports, together with commercial services. The northern division, with Beimen'e as its major area, focuses on tourism related transport and service facilities. The Eastern division, with its major area in East Street and East Ridge, has a focus on tourist sightseeing or services. The southern division, with its major area as Aishanmen District, is a transition coordinating area between the city and the scenic spots. When fully developed, this division, this division, on the current construction basis, will become one with focuses on business and trading, education and research, residential housing, basic municipal construction and warehouses.

Table 32 Formative years for Different Functional Divisions

Divisions	Formative year
Central Division	1999
Eastern Division	2003
Western Division	2004
Southern Division	2005
Northern Division	2006

Source: in-depth interviews with MG, LYS, MYM and others from Construction and Planning Bureau of Yangshuo, 2006.

Changes in the city's function divisions reflect changes in land use types. Before 1999, the eastern, western, southern and northern function division areas were all countryside areas. Farmland and residential land were major land use types. With the development of the four function divisions, the land use type of farmland in the above areas was transformed and the land market became active. Old city area centering on West Street gradually realized its transformation from multifunction and multipurpose land use to a single function and single purpose tourism land use. Most of the areas in Yangshuo are of Karst landform with isolated peaks. Flat terrain suitable for urban development is distributed in dissolution basins among the isolated peaks. Different from a city with flat terrain, such topography determines the different spatial setup of the constructed areas in Yangshuo. Thus, Yangshuo develops a "rhombic enclave" spatial setup pattern, which means different function divisions are connected through heavy traffic arteries (as shown in Figure 5 and Figure 6).



Figure 5

Figure 5 The Spatial Setup of Built-up Area in Yangshuo

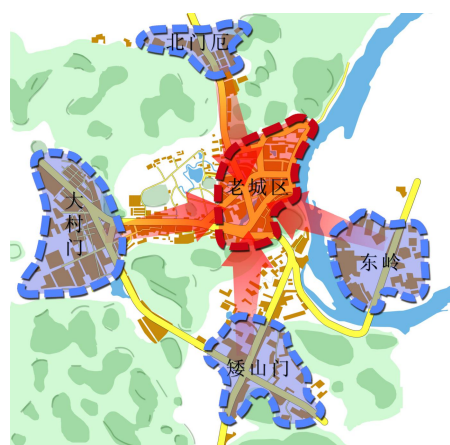


Figure 6

Figure 6 The “Rhombic Enclave” Spatial Setup of Built-up Area in Yangshuo

7.2.2 Quantitative Analysis on Dynamic Changes of Land Use

This section measures the changes of land use of constructed areas from the land use **shape index** and level of dynamic land use change. The formula and meaning of the above two measurements are the same as the previous sections.

From the **shape index** (as shown in Table 33), the western and central divisions are the largest, shaped in irregular polygons. The Northern and eastern divisions are comparatively small, shaped in relatively regular long strip. The Western division is the Dashanmen Development area which is a combination of business, tourism, residential and governmental land use. It has a relatively large area. Therefore, its spatial setup is developed in a multidimensional way. The Central division is the old city area of Yangshuo. After the reform and opening, it has been urbanized and the land in the old city area has relatively been fully utilized. A compact land use spatial setup is forged alongside some landmarks like Bilian Mountain, Li River, Longou Mountain, Duxiu Mountain, Xilang Mountain, and Pantao Mountain. Tourism is its main function. The Eastern division land use is in East Ridge and the land use is mainly for residential housing. In the urban master plan of Yangshuo, land use of this division is to be adjusted to cater for tourism. However, Yangshuo is part of Li River National Scenic Area of Guilin, so the land use in the urban plan is rigidly restricted. So far the eastern division is not fully developed and its spatial setup is strip-shaped. The northern division is Beimen'e district which is mainly for residential and agricultural land use.

Since the emphasis of urban development in Yangshuo is not in the northern part, the land use setup in the northern division is not greatly influenced by urbanization. So far it is in a relatively regular strip-shaped development.

Table 33 Shape Index for Different Function Divisions

Divisions	Circumference (km)	Acreage (km ²)	Shape Index
Central Division	3.21	0.39	4.74
East Division	1.43	0.08	0.45
West Division	3.50	0.48	6.58
South Division	3.37	0.47	6.55
North Division	2.45	0.11	0.49

Source: Decoded by remote sensing computer with GIS.

In terms of the dynamic level of construction land use (as shown in Table 34), expansion was fastest in 2003 and 2004, second to it was 2004 to 2005 and the slowest was from 1999 to 2003. The dynamic level of construction land use change in Yangshuo reflects the speed of land use expansion in constructed areas. The expansion of construction land use was fastest in 2004, second to it was 2005. Before 2003, it was relatively slow. In 2004, the Dacunmen developmental district in the western division was finished. The important administrative departments and part of residential housing had expanded to Dacunmen. At the same time East Street was partly completed. 2004 was the year when the area of constructed area had the most land use change. In 2005, constructed area in Yangshuo basically finished the construction of Aishanmen residential housing and business functional district. The acreage of constructed area in this period was only second to that of 2004, which makes it an important year for constructed area land use change in Yangshuo. In 2006, the changes in constructed area land use were relatively few. The main reason was that the structure of constructed area had gradually stabilized and it was difficult to develop any new function divisions in a large scale.

Table 34 Dynamic Level of Construction Land Use %

Time	Dynamic Degree of Construction Land Use
1999-2003	5.13%
2003-2004	102.13%
2004-2005	49.47%
2005-2006	7.75%
1999—2004	28.7%

1999—2005	44.0%
1999—2006	41.8%
Average	39.85%

Source: Decoded by remote sensing computer with GIS. The dynamic level of land use here means construction land use dynamic changing tendency with the continuous expansion of function divisions. The base year is 1999.

In terms of the driving factors for the function divisions, the primary tourism driving force that influenced the shape of function divisions in constructed areas of Yangshuo was the number of tourists. On the one hand, the increase of tourists brought about higher income; on the other hand, it accelerated urban construction and demanded more tourist facilities, which led the rise of land price. On the premise that land use of old city area was limited, the supply and demand of land became a problem. To solve the problem, the government decided to move land assigned for governmental offices, residential housing, and education further away from the old city. The move relieved the tension between the lack of land for tourism and facilitated the forming of function divisions in constructed areas.

8. Remarkable Change of the Monitoring Indicators Compared with 2006

Compared with the monitoring indicators of 2006, there are few changes in 2007. Except for the scenic spot congestion indicator, most of the other indicators only fluctuated between 1-10%. This means that the items set in the sustainable development indicators of Yangshuo are in a stable state. Yangshuo is basically under sustainable development. In regard to scenic spots congestion, 2007 saw a big change compared to 2006 and the fluctuation range was over 10%. In 2006, domestic tourists had an overall satisfaction level of 37.1% and foreign tourists 45.9%. In 2007, the level of satisfaction of domestic tourists was 48.1% and foreign tourists 38.5%. From the above figures, we see that, compared with 2006, 2007 had a relatively quick increase in satisfaction level among domestic tourists but a decrease of satisfaction among foreign tourists. The main reason for an increased satisfaction level among domestic tourists lies in the improved of the traffic condition to scenic spots as well as scenic spots management (e.g. Peach Resort). The

increase of tourists to Yangshuo is mainly an increase of domestic tourists who usually come in tour groups. Foreign tourists, however, are usually backpackers. They prefer more space and freedom, so the increase of tourists makes them feel an increase of scenic spots congestion to some extent.

9. Conclusions

9.1 Yangshuo: still a Tourist-friendly Destination

The residents of Yangshuo are still friendly towards tourists. They warmly welcome visitors from home and abroad. Over 90% of the tourism practitioners and non-tourism practitioners welcome tourists. Most residents are willing to help tourists whenever they can.

In the context of tourism development, public security hasn't changed much with more tourists. Cases against tourists like theft and robbery are very few.

Beautiful landscape, hospitable residents and safe environment make Yangshuo one of the best destinations for tourists from both home and abroad. Compared with the monitoring statistics of 2006, Yangshuo remains to be a friendly tourism destination.

9.2 Management of Water Environment: still the Major Task for Yangshuo

In the monitoring, we found domestic and foreign tourists both had relatively negative views towards water environment of Li River and Yulong River. They thought the water environment had a worsening tendency. Li River and Yulong River are not only important resources for residents for production and every day life, but also the central element of tourism resources and landscape. Water pollution is not only harmful to the production and life of local residents, but is also detrimental to tourism. Therefore, vigorous treatment of water environment and improvement of water quality are the main tasks to protect the environment in Yangshuo.

The measures that the Yangshuo government takes for water management include shutting down industrial pollution sources, educating and reinforcing the awareness of environmental protection among residents and tourists, improving water quality monitoring and emergency treatment, and so on.

9.3 Tourism: still a Significant Contribution to the Economy of Yangshuo

Tourism have made increasing contribution to GDP. Under the driving force of tourism, the primary industry and secondary industry have also developed, which resulted in a relatively quick increase in local fiscal revenue.

After 1990, domestic tourism market rose and the number of domestic tourists increased rapidly. In addition, the consumption level of domestic tourists increased, thus a rise in the average expenditure led to a big increase in fiscal revenue. The above relationship reflects the important role of tourism in the fiscal revenue system of Yangshuo. Although the immediate income from tourism cannot be directly reflected in the fiscal revenue statistics, tourism is actually the primary factor of Yangshuo's fiscal revenue because of its strong industry relevancy. Yangshuo is an important leisure tourism destination. Tourism business, which centers on West Street radiating to the nearby places, is very well developed. In the early period of development in Yangshuo, many shops in West Street sold handicrafts with local characteristics. Most of the handicrafts came from local township enterprises. Tourism has had very obvious indirect impacts on township enterprises in Yangshuo, which also exemplifies the great driving force of tourism. On the other hand, some local residents who had made their fortune through tourism industry began to invest in other industries which are usually relatively small scale enterprises by taking advantage of the local resources.

After 1990, the scale of tourism industry in Yangshuo expanded. The increase of tourism practitioners led to an increase of payment, tourism promotion and publicity expenses, so most of the financial expenditure is directly or indirectly related with tourism. Due to the low efficiency of agricultural production and the small scale manufacturing industry, the actual support of fiscal revenue and expenditure system is the economic benefits from tourism. Major financial expenditure of different governmental departments all serves tourism directly and indirectly. It can be understood that the financial expenditure on tourism and expenses related to tourism manifest the status of tourism in Yangshuo.

Tourism has brought peasants real benefits including material profit, better business awareness and education. It has not only benefited local residents economically, but also

broadened their horizon. More importantly, with the improvement of business awareness and education, local residents gradually found their minds opened.

9.4 Land: a Big Challenge for Sustainable Development of Yangshuo

Rigid farmland protection policy is implemented in Yangshuo. The Northeastern and southeastern parts of Yangshuo lie in the edges of sea cordillera and Jiaqiao Ridge cordillera, where mountains are either middle- or low-ranged in height, hills, and karst landform. Karst landform is the most special in the area, being one of the most typical of tropical karst landform in the world, with peaks, peak forests, valleys, isolated peaks, plains, caves and underground rivers. Out of 1423 km² area of Yangshuo, limestone area takes up 513 km², which is 36.0% of the overall acreage. Under such circumstance, the amount of farmland in Yangshuo is relatively limited. In 1996, farmland acreage was 271 km² which was 19% of land acreage. Average farmland acreage was 0.095 hectare, lower than the average level of Guangxi Province². In such a context, Yangshuo applies a rigid agricultural land protection policy and a number of laws and policies on agricultural land protection and regulations came into being.

Demand on land for tourism has been increasing in Yangshuo. The development of tourism accelerated the demand on tourism infrastructure and service facilities. Land use demand on hotels, restaurants and scenic spots facilities increases dramatically. This tendency became more obvious after 1999. Out of the 48 projects in the “Eleventh Five Year” land use plan in Yangshuo, 8 projects directly cater for tourism development, which take up 16.7% of the total projects. The occupied acreage of 258 hectares takes up 16.4% of the total land use. Except for 724 hectares land used to improve tourism traffic, direct land use for tourism projects takes up 26.3% of the total, which is over a quarter of the total.

Yangshuo is having serious tourism-land use problem. As an important part of Li River National Scenic Area, construction land is rigidly restricted in Yangshuo. After it became one of the first national scenic spots in 1983, , the other 8 villages and towns including Baisha, Fuli, Yangdi, Xingping, Putao, Gaotian, Puyi, Yangshuo (Chengguan Town) are all under control of

² *Land Use Master Planning in Yangshuo*, 1996.

national scenic spot areas, with Jingbao Village as an exception. The acreage of scenic spots takes up 85.9% of the whole county. Guangxi autonomous regional government gives Yangshuo 7 hectares fixed construction land quota every year. But in recent years, construction land quota is in serious shortage. Over two third of the quota is occupied by countryside residential center extension. Only one third of the quota is used on urban construction. Therefore, land use is in more demand than supply. Large scale tourism project land use have to obtain special permission from the Guangxi autonomous regional government and is not counted as part of the fixed construction land use quota. There was basically no reserve land in Yangshuo during 2004 and 2005. In 2006, construction land quota was 150 hectares, but Guilin City managed to get 100 hectares more from the autonomous government and the total construction land reached 250 hectares.

With the development of tourism in Yangshuo, the evident shortage of infrastructure and service facilities has become the major obstacle for tourism development. As a matter of fact, Yangshuo is in serious lack of construction land, so it's hard to satisfy the need of tourism development. Land use in Yangshuo has increased rapidly due to the demand of tourism. The supply and demand of land is in serious imbalance. The land market has a price for land that is non-existent. These impede the development of tourism in Yangshuo. It also leads to a general paralysis of the land market in Yangshuo and the local government has no way out for the time being. A sound land market system is still not established and the local government faces a lot of difficulties in trying to solve land use problems for tourism projects.

9.5 Control and Management: Conducive for Sustainable Tourism Development for Yangshuo

Tourism resources are public resources. Without proper management, it may easily end up as “Tragedy of the Common”, which is very detrimental to the sustainable development of tourism. In the sustainable development of tourism, the leading role the local government plays is very important. It may help centralize administration to solve environmental, security or sanitary problems. Efficient control and management will not only strengthen the protection of tourism resources and enhance efficiency of resources, but also set the right guidance to educate tourists

and residents.

As an international tourist destination, Yangshuo shoulders the expectations from both tourists and local residents in tourism development. Only by proper management can Yangshuo further develop its tourism industry through sustainable development.