

Report on Indicators Monitoring of Sustainable Tourism in Yangshuo, China

English Version

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&

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1 The rationale of Indicator- Monitoring

1.1 Introduction

Since 2002, the collaboration between the government of Guilin and the WTO has been increasingly strengthened. In November 2002, the Boao Asian Tourism forum, organized by the government of Guilin and co-sponsored by State Tourism Bureau, Boao Asian Forum and Asian Dialogues, attracted the world's attention. Later on in December of 2003, WTO, State Tourism Bureau and the government of Guilin jointly held a conference on "WTO tourism destination development and management", the first WTO-organized conference relating to tourism destination development and management. Following the development, in 2004, the mayor and the vice director of Tourism Bureau of Guilin led a delegation to visiting the WTO in Spain, where both parties reached an agreement for collaboration work. In terms of the agreement, Guilin was designated as one of global tourism monitoring sites, and the tourism data of Guilin was put into the book of "WTO Indictors for Sustainable Tourism". Again, in July 2005, the forum of "WTO Indictors for Sustainable Tourism" was held in Yangshuo, Guilin. The mission of the forum was to define and apply the indicators of sustainable tourism to a local tourism planning, to inspect tourism development process and also provide training for Chinese officials and professionals. In addition, the "Yanshuo Agenda" was declared after the forum. And the WTO then believed that tourism in Yangshuo had reached a fast development stage, and become one of the pillar industries in the area. Therefore, the establishment of an indicator monitoring site in Yangshuo was decided to make a go-ahead. In August 2006, Centre for Tourism Development and Planning with Zhongshan University, China and the Tourism Bureau of Guilin signed a joint agreement on "Indicators monitoring for sustainable Tourism of Yangshuo." A first three-year project on the indictor monitoring for tourism sustainability of Yangshuo has begun.

1.2 Process of Indicators monitoring

From August 23 to 30, 2006, Centre for Tourism Development and Planning, Zhongshan University, strongly supported by The Tourism Bureau and government of Guilin, had completed the first round of indicator monitoring work. The project team consisted of 2 teachers and 11

selected postgraduates and undergraduates. They did detailed survey at over 20 tourist sites such as Yu Long River, and so forth. Besides, they paid visits to a number of government agencies including the Tourism Bureau, Bureau of Development and Reform, Government offices etc.. In the meantime, they investigated 11 community areas. The integrated quantitative and qualitative research methods were applied in the research, and large quantity of data was acquired through questionnaire survey and interviews. In the earlier stage of research planning, the project team had designed 5 copies of questionnaire for different groups which include: two copies of questionnaire for tourism employees and residents in the community; one copy of questionnaire for the employers of small business; and two copies of questionnaire in English and Chinese for outbound and inbound tourists, respectively

This report is formulated on the basis of large number of interviews, observed data and almost a thousand of questionnaire surveys, and referred to the systems, contents and relevant information of “WTO, 2004, Indicators of sustainable tourism, Yangshuo, China,” and “WTO, Indicators of Sustainable Development for Tourism Destination: A Guide Book”.

In terms of the real situation of Yangshuo, the relevant indicators used in the report were selected from the “indicators handbook”. In the meantime, due to the time limit and data collection difficulties, some valuable indicators were not yet used, which would be made up in the next round of monitoring work in 2007.

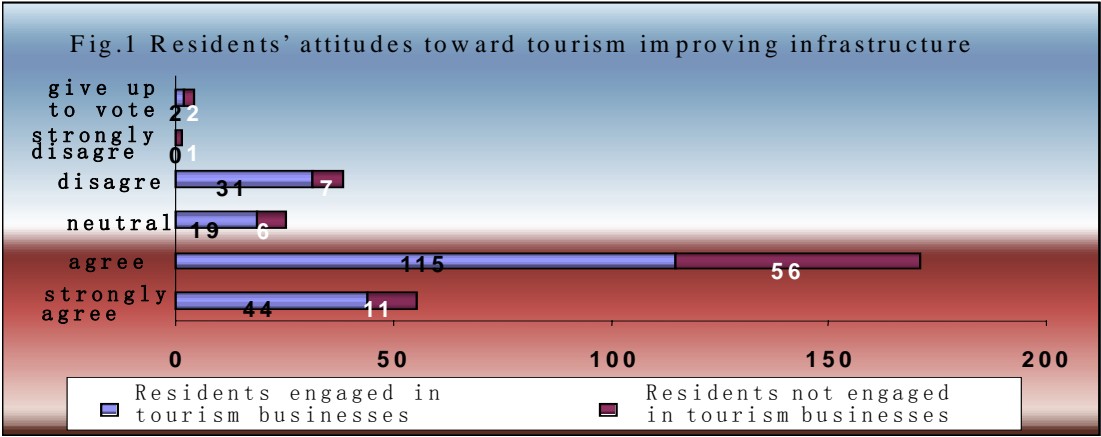
2 Tourism and Community

Community participation and residents perceptions on tourism impacts are studied emphatically in this part. There are 294 effective questionnaires done by residents at Yangshuo, among which 211 are practitioners and 83 are non-practitioners, the former accounting for 72% and the latter accounting for 28%.

2.1 Community residents’ perception of tourism being beneficial to Yangshuo

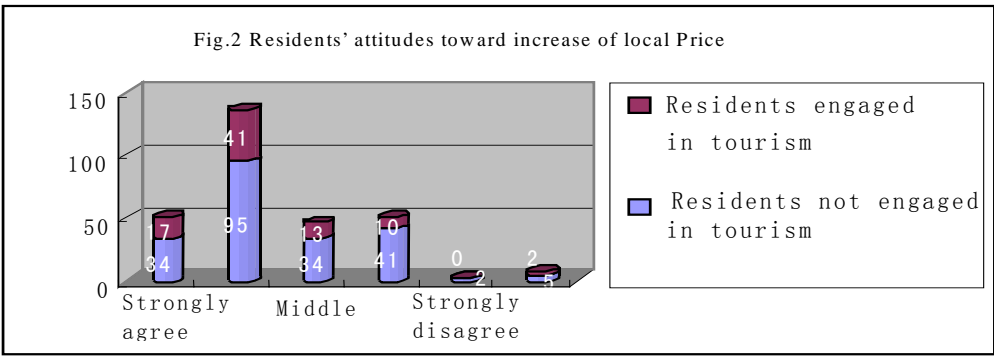
Majority of residents perceive tourism beneficial to Yangshuo development. For example,

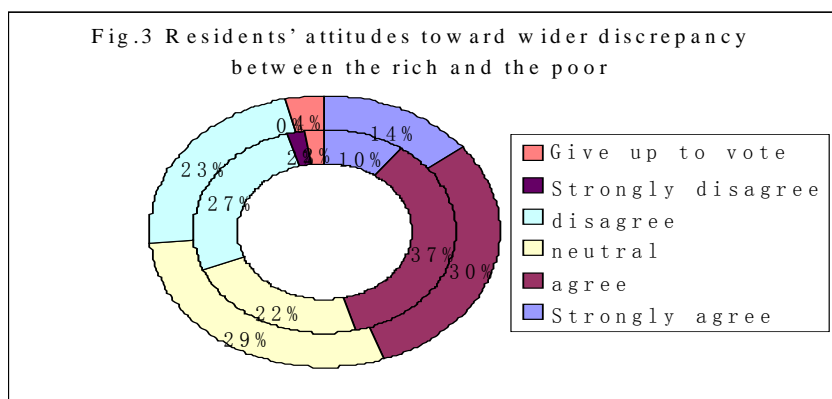
when the question about whether tourism has improved the infrastructure of Yangshuo is asked (see figure1), 75.4% practitioners and 80.8% non-practitioners hold positive attitudes. Meanwhile, 82% practitioners and 68.7% non-practitioners consider tourism to broaden their horizon. On the contrary, the question concerning whether tourism at Yangshuo interferes residents normal life & work is surveyed, the percentage of agreement are only 9.5% practitioners and 4.8% non-practitioners while the percentage of disagreement are 66.7% practitioners and 72% non-practitioners. As a result, most of residents perceive that tourism has positive impacts on the local and themselves.



2.2 Negative impacts of tourism on the community

It is inevitable that tourism brings negative impacts to the community and residents, for instance, tourism development causes the increase of local price and wider discrepancy between the rich and the poor (see fig. 2 and fig.3). Although community residents welcome tourism development, they still have no enough preparation for the negative impacts. Therefore, it is important to bear it in mind that how to control the speed of tourism development effectively and upgrade the acceptance capability of residents is the premise for sustainable development.





2.3 Active participation of community residents in tourism development

More and more local residents are likely to be involved in tourism industry since it can increase the income of participants (see fig. 4).

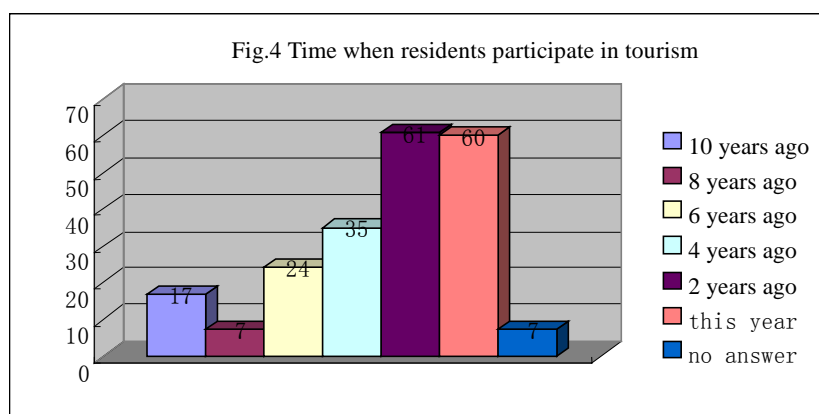
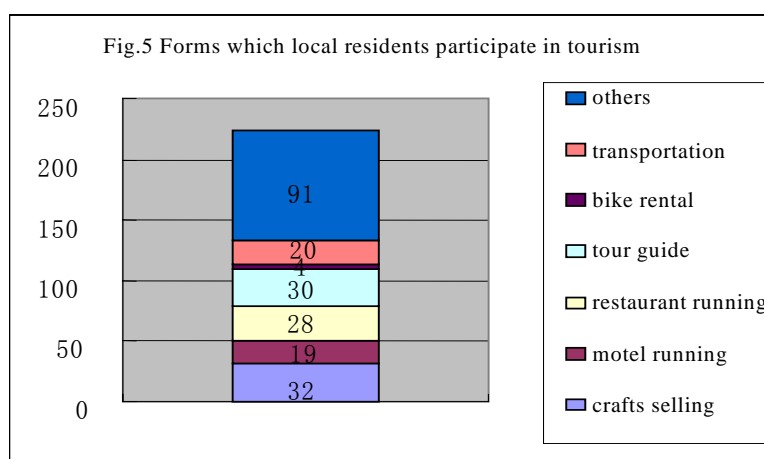
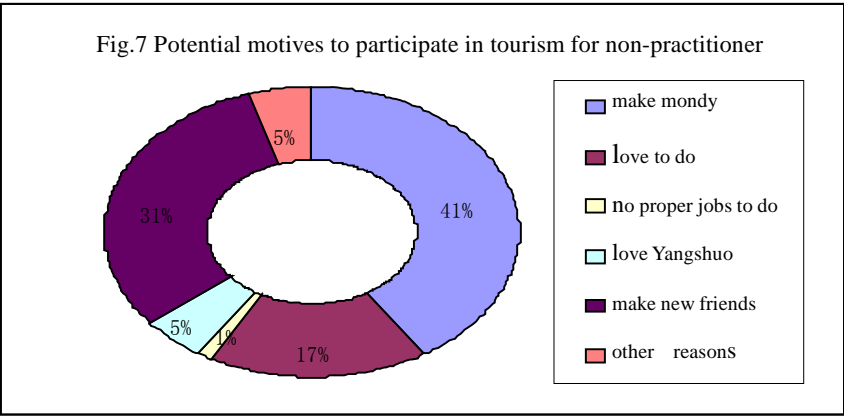
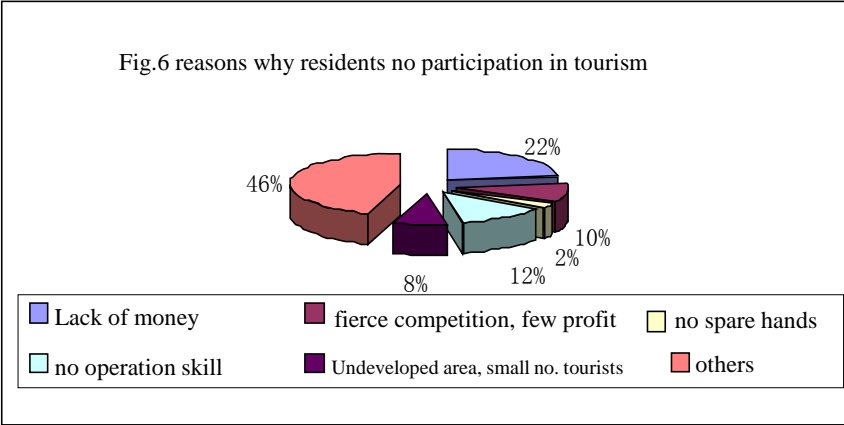


Fig.5 indicates that residents at Yangshuo participate in varieties of tourism jobs with a balanced distribution. In fig.5, “others” refer to bamboo raft workers and other related tourism agents.



It is worthy mentioning that 77.1% non-practitioners express their wishes to participate in tourism industry if they have chance. To earn more money is the main incentive factor (see fig.7). In addition, 94.3% practitioners and 84.4% non-practitioners give positive evaluation toward tourists, which reveal that residents welcome tourists.



2.4 Enhancement of community residents’ awareness of environmental protection

During the survey, we often heard complains from local residents about water contamination, noise, air pollution, environment deterioration, which means local residents are becoming more and more aware of environment protection. When observation group ask a question like “If Yangshuo develops itself to a place like other big cities with no natural surrounding anymore, will you like it happen?” 69.9% non- practitioners and 48.8% practitioners said “no”. Compared to that 40% of residents against this statement last year, we can infer that local residents in Yangshuo are more and more inclined to environment protection and becoming more rational toward environmental issues.

2.5 Main indicators related to community and their monitoring

Tab. 1 shows main indicators related to community and their monitoring results.

Tab. 1 Study results about community

Issue	Indicators	Research Results
Local Satisfaction with tourism	1.Percentage of residents who perceive tourism benefit to locals	75.85% (223/294 agree with)
	2.Percentage of residents who perceive tourism beneficial to Yangshuo	73.13% (215/294 agree with)
	3.Percentage of residents who are working at tourism industry	71.77% (211/294 agree with)
	4.Percentage of residents who hold different opinions on impacts of tourism on themselves and community	74.15% (218/294 agree with)
Impacts of tourism on community	1.Percentage of residents who participate in tourism businesses	71.77%(211/294 participate)
	2.Ratio of tourism revenue in local GNP	31.8% (Year 2005)
	3.Percentage of residents that provide tourism services (such as motels, tour guide, food services, retail shops and bike-rental)	75.85%(223/294 provide tourism services)
Community awareness and participation in tourism	1.Percentage of residents who are rational to balance environment and development and are not willing to develop tourism at the expenses of sacrificing environment	76.53% (225/294 agree with)
	2. Percentage of residents who agree with tourism negative impacts, such as the increase of local price increasing and wider discrepancy between the rich and the poor	47% agree with wider discrepancy (138/294) 63.61% agree with price increasing (187/294)

3 Tourist Satisfaction

Observation group took questionnaire survey on tourist satisfaction. Three landscape sites and six communities were selected to conduct survey. The selected landscape spots and communities were Darongshu, Tuteng, Shiwaitaoyuan, Licun, Chuanyan, Zhudouzai, Qiqiushu, Jima and Fengming. 450 questionnaires were collected in total and 412 were effective with the effective rate 91.6%. Among those questionnaires, 210 were done by foreigners and 198 are effective, effective rate is 94.3%.

Observation group classified the indicators into two tiers. Indicators of natural landscape, services, price and others make up of first tier and second tier indicators are set up under every first class indicator. 5 point Likert scaling is adopted to measure tourists satisfaction.

3.1 Natural landscape

Tourists enjoy the beautiful scenery at Yangshuo, and they have preferential valuations toward the indicator of landscape beauty, which suggests that wonderful and abundant natural resources are the main tourism attractions for Yangshuo. In comparison, cultural values of Yangshuo are less recognized than natural ones. In addition, environment cleanness and crowdedness are the factors drawing complaints by tourists, which indicates that crowdedness at the sites affects the tourists traveling experiences. There is thus more work needed to be done in keeping surroundings cleaner.

3.2 Service

- Tourists are satisfied with transportation at Yangshuo. It is quite accessible from central town to every landscape sits and among landscapes. On the one hand, tourists can select variety of transportation tools such as bicycle, boat, taxi and shuttle bus. On the other hand, roads at Yangshuo are in good conditions.
- Accommodation services are scored at the fifth and the third satisfied respectively by Chinese and foreign tourists. Foreign tourists are more satisfied than Chinese ones in that regard. Only 1.5% tourists expressed moderately unsatisfied and strongly unsatisfied.
- Domestic and foreign tourists give different evaluations on quality of living water. Chinese tourists scored it at the fourth place, and foreign tourists scored it at the twelfth place. Foreigners complain that the water smelled stale at the hotel where they stayed.
- Foreign tourists are more satisfied with three indicators concerning sanitation than Chinese ones. International tourists value highly on hotel sanitation and value lower on restaurant sanitation. One possible reason could be that most foreigners stay at hotels with higher grade.
- Tourists' perception on souvenir is moderately satisfied. Because of careless missing of this item in Chinese questionnaire, observation group obtained no information on Chinese tourist evaluation of this item. However, it did some interview during research. In interview, quiet

a number of Chinese tourists complained that the souvenirs at West Street were not unique and were too expensive.

- Marking system is scored at the lowest satisfied, which illustrates that improvement must be done to satisfy the needs of tourists. Another possible reason is that Chinese tourist groups don't pay special attention to signs.
- Landscape site management is valued very low. Domestic tourists score it at the last second place and foreigner tourists score it at the last third place.
- Tourists' satisfaction degree on security at Yangshuo are pretty high. Foreign tourists evaluate it the most satisfied and domestic tourists score it at the third place. This result is consistent with opinions of local residents who think Yangshuo is becoming a safer and safer place.
- Medical equipment at Yangshuo is beyond satisfaction, tourists are not content with it. Yangshuo is a small county. Complete tourism facilities make a sharp contrast with medical equipment.
- Tourists perceive fire equipment at slightly lower satisfaction, and score it at the fourth place.
- Tourists are strongly satisfied with friendliness of local residents. Domestic and foreign tourists value it the most satisfied and the second satisfied respectively. Residents at Yangshuo hold welcoming attitudes toward visitor, which make visitors very impressed.

3.3 Price

Tourists score this group of indicators slightly low. In particular, the admission tickets for scenic spots are considered too high. Moreover, international tourists mentioned that there are different prices on the same tourism commodity between domestic tourists and foreigners. Some Chinese tourists pointed out that prices at different places also have big differences. In the meantime, tourists are not satisfied with entertainment price as well. Accommodation and transportation prices are valued relatively higher than others.

3.4 Other aspects

Other aspects include indicators such as noise, health, local culture, commercialization and overall satisfaction on Yangshuo. Domestic tourists as well as foreigners perceived that noise level at some scenic spots and downtown affects their experiences and they score this indicator

quite low. As far as commercialization is concerned, many domestic tourists consider Yangshuo too commercialized. Tourists value highly to aspects such as local cultural experiences and health. Overall satisfaction on Yangshuo is very high. On the other hand, foreign tourists think that some aspects need to be improved, such as water quality, marking system, medical equipment, admission fee, tourism commodity price and noise control.

3.5 Main indicators of tourist satisfaction and study results

Tab. 2 shows main indicators on tourists satisfaction and study results.

Tab. 2 Study results of tourist satisfaction

Indicators			Strongly satisfactory (%)	Moderately satisfactory (%)	Neutral (%)	Moderately unsatisfactory (%)	Strongly unsatisfactory (%)
Natural landscape							
beauty of landscape	Tourists’ satisfaction degree about beauty of landscape	Chinese	35.2	48.9	15.16	0.49	0.24
		Foreign	66.5	30.46	3.05	0	0
cleanness of environment	Tourists’ satisfaction degree about cleanness of environment	Chinese	11.22	39.51	39.76	7.56	1.95
		Foreign	10.66	41.12	32.49	13.71	2.03
crowdedness	Tourists’ satisfaction degree about crowdedness	Chinese	8.15	28.89	47.90	13.33	1.73
		Foreign	14.95	28.87	39.18	14.43	2.58
cultural value	Tourists’ satisfaction degree about cultural value	Chinese	15.42	43.78	35.57	3.98	1.24
		Foreign	16.41	43.59	27.69	9.74	2.56
Service							
transportation	Tourists’ satisfaction degree about transportation service	Chinese	11.06	40.05	36.36	9.09	3.44
		Foreign	11.28	56.92	25.64	5.64	0.51
accommodation	Tourists satisfaction degree about accommodation service	Chinese	10.78	46.57	35.78	6.37	0.49
		Foreign	27.55	55.10	15.82	0.51	1.02
Water quality		Chinese	10.30	47.24	38.19	3.77	0.50

	Tourists satisfaction degree about quality of living water	Foreign	6.59	28.57	48.35	12.09	4.39
food hygiene	Tourists satisfaction degree about food sanitation	Chinese	7.44	34.24	47.64	8.93	1.73
		Foreign	12.44	62.18	18.13	5.7	1.55
hotel & motel sanitation	Tourists satisfaction degree about sanitation of hotel & motel	Chinese	11.5	41.25	40.00	7.00	0.25
		Foreign	20.30	60.41	15.23	2.03	2.03
restaurant sanitation	Tourists satisfaction degree about restaurant sanitation	Chinese	6.72	33.08	48.51	10.20	1.49
		Foreign	9.27	64.43	20.10	6.19	0.00
Local cuisine	Tourists satisfaction degree about local cuisine	Chinese	14.03	37.24	40.05	7.14	1.53
		Foreign	25.13	46.6	21.99	4.71	1.57
service quality of tourism companies	Tourists satisfaction degree on service quality of tourism businesses	Chinese	10.20	36.82	43.03	5.97	3.98
		Foreign	9.90	47.92	34.38	5.73	2.08
souvenir	Tourists satisfaction degree about souvenir	Chinese					
		Foreign	16.84	50.53	25.79	5.26	1.58
Marking system	Tourists satisfaction degree about tourism interpretation system	Chinese	5.19	34.65	46.78	12.38	0.99
		Foreign	2.69	32.26	42.47	17.20	5.38
landscape spot management	Tourists satisfaction degree about landscape spot management	Chinese	4.96	33.74	50.87	8.19	2.34
		Foreign	5.88	33.16	41.71	15.51	3.74
security	Tourists satisfaction degree about security	Chinese	8.93	52.61	33.25	4.96	0.25
		Foreign	33.33	52.31	11.28	2.05	1.03
medical equipment	Tourists satisfaction degree about medical equipment	Chinese	3.87	28.18	60.77	6.08	1.11
		Foreign	1.32	11.18	84.87	1.97	0.66

fire equipment	Tourists satisfaction degree about fire equipment	Chinese	3.89	30.28	61.11	4.17	0.56
		Foreign					
friendliness of residents	Tourists satisfaction degree about friendliness of residents	Chinese	15.62	50.88	27.96	4.53	1.01
		Foreign	30.61	56.63	9.18	3.06	0.51
Price							
admission fee	Tourists satisfaction degree about entrance price of scenic spot	Chinese	1.47	25.06	47.67	20.88	4.91
		Foreign	7.33	28.80	27.75	27.22	8.90
accommodation	Tourists satisfaction degree about accommodation price	Chinese	5.49	35.16	46.63	11.72	0.10
		Foreign	16.02	49.72	28.18	4.42	1.66
transportation	Tourists satisfaction degree about transportation price	Chinese	5.36	43.62	40.82	7.91	2.30
		Foreign	17.11	51.87	23.53	6.42	1.07
tourism commodity	Tourists satisfaction degree about tourism commodity price	Chinese	2.99	23.88	49.75	19.90	3.48
		Foreign	7.25	35.23	27.98	19.17	10.36
entertainment	Tourists satisfaction degree about entertainment price	Chinese	1.83	29.06	53.14	12.83	3.14
		Foreign					

4 Health and Safety

4.1 Health

4.1.1 Food Safety

- All food handlers in Yangshuo are requested to receive regular health checkups and food hygiene training.
- Yangshuo local government issue both hygiene and health certificate to tourism businesses.

Last year 100% of food handlers with 1201 units in the whole county, received hygiene certificate. 3,543 employees got health certificate, which accounted for 98.8% of all.

- Tourism businesses in Yangshuo receive the monitoring of food hygiene and cleaning procedures (including dishware cleaning). Last year there were 26 violation cases in food handlers, which were fined and requested to make correction. Besides, 263KG obsolete spoiled food was destroyed last year.

4.1.2 Local Environment Sanitation

- Yangshuo government monitors sanitation of public places on a regular basis. It checks the indicators related to sanitation of interior environment of the public places such as hotels facilities.
- Yangshuo government takes measure to monitor water quality. In year 2005 it inspected the purity of the drinking water supply in tap water factories in 8 towns of Yangshuo.

4.2 Tourist Security

4.2.1 Accidents

The measure for the prevention of the accidents adopted by Yangshuo government is mainly the set-up of security standard and its related regulations. For instance, in Yangshuo it is not allowed for a family hostel to run its business until it gets the permits from the local governmental departments including tourism bureau, public security bureau, sanitation bureau, environment protection bureau and industrial and commercial bureau. As far as food safety is concerned, Yangshuo sanitation monitoring bureau and antiepidemic station carry out regular inspection at food factories as well as food outlets. Regarding tourist security, Yangshuo government also gives a special regulation to some tourist activities with high risks such as high-speed drift.

While Yangshuo government sets up various regulations, tourism businesses haven't done much in accidents prevention. In the survey of owners of tourism businesses, there were only 36.5% of those businesses that did related training for their employees. The majority of employees from tourism businesses haven't received any systematic training on the handling of accidents.

4.2.2 Security facility

Western Street is a famous tourist site and it is a place converged with a large number of foreign visitors. In “Detailed Planning for the Protection of Historical Sites in Western Street of Yangshuo”, Yangshuo government puts forward the plan for increasing the level of fire prevention and public security. In 2005, 16 cameras were installed to monitor the security and fire prevention. Nevertheless, in the research we found that there was still lack of enough fire fighting equipments in Western Street. For instance, there wasn’t a fire bolt every hundred meters.

4.2.3 Tourist Perception

In the survey of tourists, there were respectively 65.1% Chinese tourists and 78.2% of foreign tourists who were satisfied with their health situation during their stay in Yangshuo. In evaluating the medical equipments and fire fighting equipments, there were respectively 15.7% and 12.6% that gave up the choice. That showed that tourists had limited knowledge of local medical and fire prevention facilities.

4.3 Local Public Safety

4.3.1 Health and Safety

Issues related to epidemics dissemination and prevention and food safety refer to table 3 listed below.

4.3.2 Crime

Crime is one of important indicators of local public safety. There are a large number of foreign tourists in Western Street, whose public safety will therefore have a direct impact on the reputation of Yangshuo as a whole. In recent years, along with the rapid development of tourism industry in Yangshuo, there is pour of immigrated population. But that doesn’t result in the worsening of local public safety. According to the statistics, there are only two criminal cases in Western Street from Jan. to Jun., 2006. Now Yangshuo has been one of the first counties to be entitled with “Safe County” in Guilin.

4.3.3 Awareness of risk and risk management

In the survey of the owners of tourism businesses in Yangshuo, there're nearly 70% whose ownership belongs to individual or family. Small enterprises are sensitive as well as flexible to the change of market; but on the other hand, they can hardly resist the risk in particular can not respond to some abrupt incidents efficiently. In China, risk management has not yet been paid enough attention. There's so far no efficient plan responding to the abrupt incidents such as epidemics and flood. In order to reduce the possible loss brought by risks and ensure the sustainability of tourism development in Yangshuo, there is an urgent need for enhancing the awareness of risk and incidents among employees in tourism businesses and helping them formulate risk management plan.

4.3.4 Tourist Perception

The majority of tourists give the positive reply when they are asked to evaluate the local public safety in Yangshuo. In the survey of tourists both at home and abroad, only 3% foreign tourists and 5.1% Chinese tourist are unsatisfied with the local public safety. This, on one hand, attributes to the efficient regulation by public security bureau and on the other, to the local economic development. In in-depth interview with local residents, there's common understanding that tourism development brings to them with many benefits, for instance, their livelihood standard are improved, rate of crime decreased and public security became better.

4.4 Monitoring indicators related to health and safety

Table 3 Monitoring Indicators related to health and safety

Components of the Issue	Indicators	Yangshuo Application (research result)
Health	% of Employees in tourism businesses guaranteed with health certificate	99.4% employees in commercial food outlets obtained health certificate
	% of food safety and % of the cleaning procedure of dishware that meets the public health requirement	86.4% qualification rate of food and beverage and 93.3% qualification rate of dishware

	% of food guaranteed with quality in regular inspection	4204 food outlets were inspected, among which 4088 were qualified, accounting for 97.24% of all
	Water quality inspection	24 samples of tap water from 8 tap water factories were given, 87.5% of which were qualified.
	% of publications for visitors with health and safety warning by local government	There were 27 volumes of wallpaper, 3 times in TV, 4 times in Yangshuo's local newspaper and 11,363 brochures provided aiming to publicize health and safety.
	% staff in tourism business with first aid training	There're 96.86% of staffs having received training.
Coping with Epidemics and International Transmission of Disease	% of local residents receiving vaccination	There are 10 vaccination stations throughout the county.
	% of Epidemics being reported in time	According to local government website, the statistics is 74.2%
	Current report of epidemics	3,147 febrile respiratory diseases are reported in Yangshuo
	Public health training program provided on infectious diseases prevention	Public health training on Malaria prevention were held twice and more than 40 staffs in tourism businesses attend
	Health facilities monitoring	85.04% clinics were qualified under inspection in terms of facilities but air quality of clinics was poor, with only 25.71% of operating rooms qualified in that regard
Tourist Security	Prevention of incidents	<i>There are two regulations regarding the issue: "The Temporary Regulations for Family Hostels in Yangshuo" and "Regulations on enhancing safety and services of drifting activities"</i>
	Number of incidents reported in press	No data obtained
	Adequate protection of tourism facilities and sites	16 cameras and fire prevention facilities were installed to monitor the safety in West Street since 2005
	Tourist perception	65.1% Chinese tourists and 78.2% foreign tourists were satisfied with their health condition during the trip in Yangshuo
Local Public Safety	Crime	There were only 2 criminal cases in West Street from January to June in 2006
	Level of security facility	On Sep. 2005 a closed circuit monitoring system was set up in main roads and public commercial places in Yangshuo, which includes 16 cameras and 1 command centre.

	% of tourism businesses with a risk management plan	Only 36.5% of tourism businesses provided training on risk management to their employees. The awareness of risk need to be strengthened.
	Tourist satisfaction with the local public safety	Only 3% Chinese tourists and 5.1% foreign tourists were unsatisfied with the local public safety.

5 Capturing Economic Benefits from Tourism

This chapter adopts four indicators to measure the economic impacts of tourism in Yangshuo: the contribution of tourism to GDP and that to the local revenue, impact of tourism to local employment and livelihood standard of local people, and the impacts of tourism seasonality to the destination.

5.1 The Contribution of Tourism to GDP

To exam the contribution of tourism to GDP in Yangshuo, we compare the growth rate of tourism revenue and that of GDP from 2000 to 2005. The results are listed as follows,

Table 4 Comparison on the Increase of GDP and that of the Total Tourism Revenue in Yangshuo from 2000 to 2005

Year	GDP (by price then) (1 billion RMB)		Tourism revenue (by price then) (1 billion RMB)		The ratio of tourism revenue in GDP
	Total	Growth rate	Total	Growth 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%

Source: Yangshuo Statistics Bureau.

Table 4 shows that the increasing speed of tourism revenue is faster than that of GDP. While the development trend of Yangshuo tourism keeps path with the increase of GDP, the ratio of the

tourism in total of GDP is on rise.

The outbreak of SARS in 2003 has caused a great deal of decrease in tourism development in Yangshuo, with the growth rate of its tourism revenue reaching the lowest point 1.24%. After SARS, tourism development in Yangshuo begun to rebound. In 2004, domestic tourism in Yangshuo experienced a fast growing stage and the total tourism revenue thus increased largely. The revenue has been increased from the amount of 244,000,000 RMB in 2003 to 406,000,000 RMB in 2004, with the growth rate at 66.39%. In the meantime, the growth rate of GDP has also reached its peak point for last five years. The above analysis provides the evidence that tourism industry plays a crucial role in Yangshuo's economy and its GSP growth.

5.2 The contribution of tourism to local revenue

Table 5 measures the contribution of tourism of local revenue through the ratio of tax revenue generated by tourism in total local tax revenues.

Table 5 the Contribution of Tourism to Local Tax Revenue in Yangshuo in Jul. 2006
(Unit: RMB)

Item	The total amount of this month	Accumulated total amount by the end of this month	The total amount at the same period last year	The amount of the increase or decrease compared to the same period last year	% of increase or decrease compared to the same period last year
The total amount of tax revenue	6,144,297.14	46,605,725.19	32,275,418.45	14,330,306.74	44.65
.....
Food and beverage	318,875.62	2,012,058.22	1,553,372.00	458,686.22	29.53
Hotel	157,680.68	994,759.53	724,700.67	270,058.86	37.26
Lease	100,834.42	595,206.90	524,124.25	71,082.65	13.56
Tourism	239,279.55	743,836.92	232,546.96	511,289.96	219.87
Entertainment	23,287.70	127,232.34	119,948.06	7,284.28	6.07
.....

Source: Yangshuo local taxation bureau

Table 5 shows that “tourism” is listed as a separated taxation item. Taking July as an example, tax revenue generated by “tourism” accounts for 3.89% of total tax revenues, which is much higher than 1.6%, the average percentage of previous 7 months. One of the main reasons for that is tourism seasonality. July is the peak month for Yangshuo tourism, therefore the tax revenue is higher than average level. In addition, through comparison, we found that the increase rate of tour tax revenue this year is much higher than that of last year.

The rationale for the selection of the four items --- food and beverage, hotel, lease and entertainment is because they are inseparable from tourism. In statistics of tax revenue, the item of “tourism” mainly refers to those who are engaged in business relating to tour or travel, which can not thoroughly reflect the contribution of the whole tourism industry to local revenue.

5.3 Impacts of tourism to Employment and Livelihood Standard of Local Residents

5.3.1 The Employment Opportunity Created by Tourism

According to the survey of local residents, there are 211 engaging in tourism businesses, accounting for 72% of all. Among the employees in tourism businesses, there are 85.3% local community residents from Yangshuo, 6.2% from other regions of Guilin and 5.7% from other places outside Guilin. This shows that tourism development creates a large quantity of job opportunities for local communities of Yangshuo. Local Residents realize the significant role does tourism development play in increasing their income, more and more residents, therefore, are participating in tourism businesses. Take Li village of Gaotian town as an example, there are 107 families with 434 people in the village. At present there are 22 family hostels with 169 rooms and 339 beds and 25 peasant family restaurants, which can receive 2,000 visitors per day. In this village above 80% of residents engage in work related to tourism.

5.3.2 Small enterprises in Community

In villages near to tourist sites of Yangshuo, there are quite a number of small enterprises running “happy with peasant family” restaurants and hostels. Families own them all. To some

extent they have promoted the development of local economy. Research group did a questionnaire and interview among seven “happy with peasant family” enterprises regarding their employment and income, as table 6 shows,

**Table 6 Survey of Seven “Happy with Peasant Family”
Enterprises at Li Village of Gaotian Town, Yangshuo**

	Xiang man Lou	Shangyue Lou	Happy tour	Chen Shui you Moon Village	Moon family	Above moon	Longmen Shuiyan
number of employment	11	10	1	13	20	20	30
number of local employees	11	10	1	13	20	20	18
percentage of local employees to the total employees	100%	100%	100%	100%	100%	100%	60%
owner’s annual income	30,000 RMB	20,000 RMB	20,000 RMB	10,000 RMB	13,000 RMB	13,000RMB	10,000 RMB
other income resources for owner	no	no	farmland and orchard	no	run a hotel in Yangshuo	run a hotel in Yangshuo	art craft (Chinese Painting)

Source: interview note compiled by observation group from Zhongshan University, Aug., 2006

The total number of employees from above seven “happy with peasant family” enterprises is 105, among which 93 are locals, accounting for 88.6% of all. Those employees make up 24.19% of the labors of Li village. On the other hand, we can see from the table that the owners of those enterprises diversify their income-generating activities, which greatly increase their income. According to the data, their annual income range from 10,000RMB to 30,000 RMB. Those data illustrate that small tourism enterprises have had important contribution to the creation of employment opportunity and in the meantime, they also help to alleviate poverty in local communities. Nevertheless, it is worthwhile mentioning that government should monitor the pollution that those small enterprises might bring to local environment, in case unrepairable destruction happens.

5.4 The impacts of tourism seasonality

Yangshuo, like other tourist destinations, experiences seasonality. Largely dependent on climate and the source market, peak season of Yangshuo is when weather is warm, water levels are high on rivers and fixed holidays come both at the destinations and at the source markets. The majority of international tourists visit Yangshuo in July and August, and the domestic tourists mainly in July and August and during the “golden-week” of May and October.

Tourism seasonality has direct impact on local community earnings, number of employment and operation of tourism businesses. Moreover, it is responsible for the fluctuation of local economy.

5.5 Monitoring Indicators of Economic Benefits from Tourism

The indicators of economy benefits from tourism and their monitoring are presented in Table 7:

Table7 Indicators of economy impact for tourism

Issue	Indicators	Yangshuo Application
Economic Benefits	1.growth rate of tourism revenues	The average growth rate from 2000 to 2006 is 26.428%
	2.the ratio of tourism revenue in local GDP	In 2005 the ratio reaches its peak point within previous six years: 30.91 %
	3.growth rate of tourism tax revenue	In 2006 the growth rate of tourism tax revenue compared to the same period last year is 219.87%
	4.the ratio of tourism tax revenue in total tax revenues	In Jul. 2006 the ratio is 3.89% (not including its induced contribution to tax)
	5.number of employment	In selected samples --- seven peasant family restaurant in Li village of Gaotian town, 105 jobs are created, among which 93 are for local residents. That accounts for 24.19% of total population of the village
	6. Ratio of men to women employed in tourism	According to the randomly selected 210 samples, the ratio of men to women is 104:106. Men account for 49.3% of the total interviewees, and women 50.2%. The sample ratio of men to women in interview is thus nearly 1:1.
	7. Tourist arrivals by month	Influenced by climate and fixed holidays at the source market, peak season for Yangshuo is in July and August and two “golden-weeks” in May and October. But there is still lack of efficient data in tourist arrivals by the month.

	8.Tourism revenues by month	Tourism revenue remains a stable level from Jan. to Jun. and it reaches its peak point in Jul. and Aug. After that, it decreases to the level of Jan. to Jun.
	9.Turnover of employment	Management of employment adopted by rafting company: there are some fixed number of managers and staffs in shoulder season and low season; and in peak season they hire some more temporary bamboo-raft worker.
	10.change of number of tourism businesses due to tourism seasonality	During the “golden-week”, there is an increase of illegal business establishment to the number of 65 in Western Street and its surrounding areas, accounting for 23% of the total tourism businesses there.

6 Tourism resources and environmental protection

6.1 Tourism resources and environmental protection in Yangshuo

- Yangshuo local government attaches great importance to the protection of ancient architecture. It takes measures to repair and protect ancient architecture on the one hand; and enhance the planning of the historic sites on the other. The majority of local residents realize that ancient architecture is an important factor to attract tourists thus cannot be demolished. It should remain its traditional features.
- More than half of the local residents in survey agree that tourism can improve their living standard. That shows that there's good basis among grass-root for tourism development. Local residents' optimism and confidence will facilitate tourism development in Yangshuo.
- The majority of residents complain that water quality of Yulong River is getting worse. They suggest that government should dredge the river and get rid of the litter floating on the river.
- Observation group inspects that there are 14 bars still producing noise after 12pm in the midnight. The noise draws wide complaints from tourist. Government should work out some regulation to control the noise level.

- Air pollution of Yangshuo is mainly caused by used gas emission by transportation vehicles and the burning of fuel utilized by residents such as woods and coals.
- In the survey of tourist satisfaction on drinking water quality and water quality in Li river and Yulong River, international tourists' degree of the agreement of cleanliness of water is at the medium level; domestic tourists' level of agreement is a bit higher than that of international tourists. Survey shows that water quality does have impact on tourists' traveling experience in Yangshuo.
- When measuring level of crowding, majority of tourists both at home and abroad feel comfortable with the current use intensity of tourist sites. Nevertheless, government should work on crowd control at some popular sites, such as Western Street and Impression Liu San Jie.
- Energy consumption per capita by tourists are much higher than that by local residents. There is need, therefore, for publicizing energy saving among tourists.
- The promotion and implementation of energy saving programs are facing difficulties. That attributes mainly to the fact that tourism businesses haven't attach enough importance of energy saving. Most tourism businesses worry that energy saving will increase the cost of their business operation and misunderstand that energy saving would be troublesome. To respond, government should formulate some stimulus policies encouraging energy saving.

6.2 Monitoring indicators of tourism resources and environmental protection

**Table 8 Indicators of tourism resources and environmental
Protection and their monitoring**

Issue		Indicators	Yangshuo Application (research result)
Sustaining cultural assets		Perception of residents on the damage of ancient architecture due to tourism development	25.1% of interviewees agree with the change
		Tourist satisfaction on cultural values of local tourist sites	57% domestic tourists and 58.9% international tourists are satisfied.
Protection of Natural Assets	protecting ecosystems	Use intensity of some key tourist sites (number of tourist per square kilometre and number of boat and raft per kilometre)	Havn’t got the data yet.
	Protecting water quality	level of contamination of river water	In inspection of samples collected by environmental authority in 2005, water quality of Li river was good and all indicators reached the level of II according to “National Environment Quality standard for Surface Water”（GB3838—2002）
		tourist perception of water quality	Respectively 49.3% domestic tourists and 33.4% international tourists are satisfied with water quality of Li River.
		resident perception of water quality	Among 294 questionnaire on local residents, 55 think the water quality got worse, accounting for 18.7% of all.
Energy Management		Energy consumption per capita	In 2005 the consumption of electricity per capita for local residents is 227 KW per hour; the consumption of coal for the whole county of Yangshuo is 10,0600 ton. There’s lack of the data on energy consumption from tourist.

Limiting environmental impacts of tourism activities		% of tourism businesses participating in energy saving programs	Among 96 questionnaires on tourism businesses, 41.7% don't have energy saving program and also don't plan to participate in it.
		rate of popularizing the use of natural gas in the city	It reaches 98.5% in 2005.
	1.sewage treatment	percentage of sewage from the destination/site receiving treatment	In 2005, 65% of sewage from the county received treatment; the qualification rate for the discharge of industrial sewage is 100%.
		Percentage of sewage from the communities of Li river and Yulong river receiving treatment	There's no any treatment on sewage.
		% of tourism establishment with sewage treatment systems/ public toilets	No data obtained this time.
	2.solid waste management	percentage of waste recycled	In 2005 50% of waste in public places are disposed by appropriate method; There is 45% of solid waste recycled.
		% of tourist who complain on the waste alongside the road and at tourist sites	Respectively 9.4% domestic tourists and 15.6% international tourists complained the problem.
	3.air pollution	Air pollution index	The index in 2005 is 66-70.
		Qualified percentage of emission of industrial smoke and dust	In recent years it keeps at 100%.
	4.Controlling noise levels	Actual noise levels	In 2005 the monitoring of Guiyang road shows that the noise level during the day is 63.7 decibels and 58.9 decibels during the night.

		coverage of the area qualified with noise control	It reaches 91% in 2005.
		tourist satisfaction on noise level during the tour	Respectively 17% of domestic tourists and 43% of international tourist are unsatisfied with the noise level.
	5. controlling level of crowding	tourist satisfaction on the current level of crowding at tourist sites	Respectively 14.8% of domestic tourists and 16.6% of international tourist are unsatisfied.
		Resident perception on density of visitors and vehicles	14% of local residents think that the density is too intense.
	6. managing visual impact of tourism facilities	Height of buildings	Among 110 building in Western Street, there're 36 above two-floor height, accounting for 32.7% of all.
		Percentage of new buildings matching the local architecture style	There are 25 buildings built since 1980 in Western Street, among them there are only 2 whose shapes match with each other, making up 8% of all.
		percentage of site covered by natural plants	In 2005 the percentage reaches 31% within the county and 47% for the whole county (including countryside).
		Percentage of tourist considering Yangshuo sustaining a unique local style	The percentage is respectively 75.8% of domestic tourists and 41.5% of international tourists.

7 Tourism-related transport planning and control

7.1 Tourism-related transport planning

7.1.1 Tourism-related transport planning

In “Master Planning for Tourism Development of Yangshuo” revised in 2004, there is a detailed statement on objectives for tourism-related transport development, principles, road grading system, key points of planning, strategy for transport operation and management and action plans for the 5 coming years, as it is listed in table 9 below:

Table 9 Action plan for tourism-related transport construction in Yangshuo(2005--2010)

Issue area	key point
Access to Yangshuo	Construct highway connecting Yangshuo with outside.
Construct and consummate tourism-related road net within Yangshuo	Enhance the density of roads in Yangshuo and improve their quality.
	Reconstruct tour roads.
Consummate infrastructure system for tourism-related transportation	Construct bicycle lines and raise their quality
	Construct and improve the quality of pedestrian lines.
	Improve transport means
	Consummate bus stations and parking facilities.
Tourism-related transport management and service	Enhance the comprehensive management of tourism-related transport.
	Improve the quality of tourism transportation service

Source: "Master Planning for Tourism Development of Yangshuo"(2004) by Center for Tourism development and planning centre, Zhongshan University.

7.1.2 Control of tourism-related transport

Table 10 Monitoring Noise Level Produced by Transport

Selected road for measurement	The location	decibels during Day	decibels during Night
Guiyang Road	Alongside the road	70.8	66.2
Jinya Road	Corner of transport police station	74.3	69.1
Dongling Road	Meteorologic bureau	77.5	72.6
Shima Road	Monosodium glutamate factory	70.8	57.3
Yangli Park	Blue sky Hotel	69.7	62.9
Diecui Road	Beside Xilang hotel	75.9	69.8

Source: *Report on environmental status of Yangshuo, 2004*

Table 10 reveals that in 2004 alongside the road, noise decibels during the time of both day and night exceeded desired levels. In 2005, even though the noise control had been improved on Guiyang road, the noise level during night still exceeded the desired one.

Table 11 Atmospheric Pollution along Transportation Route

Place receiving monitoring	Air pollution index		key pollutant		Air quality rank	
	2004	2005	2004	2005	2004	2005
Shiyan Primary School	60	66	Pellet suspension	Pellet suspension	2	2
Bei Men Er	59	70	Sulphur dioxide	pellet suspension	2	2

source : *Report on environmental status of Yangshuo, 2004 and 2005*

Reports on environmental status of Yangshuo in both 2004 and 2005 reveal that atmospheric pollution along transportation route worsened within last two years (see table 11), the air pollution index arise by 7-11 units. Although air quality reaches the national environmental standard II, air pollution in Yangshuo cannot be ignored.

- **The marking system**

There is lack of marking system such as lack of names of scenic areas and spots along the main transportation route of Yangshuo. There is also no clear sign for the direction to the sites as well as for parking and prohibition for entering.

- **Management of bicycle tour**

Bicycle tour and hiking are popular in Yangshuo. Bicycle is now one of the main transportation means within Yangshuo but its management is still far lagged behind. It is suggested to speeds up the construction of bicycle line, including the set-up of marking plate in both Chinese and English, and the restoration of roads. There is also a need for infrastructure construction such as the construction of pavilion, and public toilet.

7.2 Monitoring indicators related to the control of tourism-related transport

Table 12 Indicators related to the control of tourism-related transport and their monitoring

Issue	indicators	Yangshuo Application (Research Result)
Control of tourism-related transport	1. noise pollution index	In 2005, decibels in Guiyang road during the time of day are 63.7 and during the time of night 58.9, which both exceeded the desired level.
	2. Air pollution index	In 2005, Yangshuo's air pollution index was 66-70, arise by 7-11 units compared to last year.
	3. The marking system	There's lack of sign for direction along the roads, to tourist sites and for parking.
	4. management of transportation vehicles	The management of bicycle tour is far lagged behind.

8 Conclusions

Throughout the survey, analysis and indicator-monitoring approaches applied on six research respects, which are referred to: 1) tourism and community, 2) degree of tourist satisfaction, 3) health and safety, 4) economic benefits from tourism, 5) tourism relating to resources and environment protection, and 6) tourism relating to transport planning and management, we come to the following conclusions.

8.1 Rapid development of tourism and its impacts on the region

The research suggests that the locals have been involved in every aspects of tourism activity. With enormous enthusiasm, the industry provides job opportunity and helps lift the living standard. And also to a large extent leads to gender equality and participation awareness for environment protection. However, the negative impacts cannot be neglected, price rising and the widening gap between the rich and the poor also affect the community life in many ways.

8.2 Overall assessment towards degree of satisfaction by tourists were intermediate

The overall grade of satisfaction for traveling in Yangshuo assessed by tourists are ranging from 0.5 to 0.6, which indicate an intermediate grade of satisfaction. Amongst three assessment areas which are natural landscape, service quality and price, natural landscape is the unique area

that domestic tourists give higher scores for. With regard to other two assessment areas, the grades judged by foreign tourists are distinctively higher. In addition, both inbound and outbound tourists chose highest scores for product price in comparison with scores given for other assessment area. This suggests the price is affordable by tourists in Yangshuo, which also accredits rational management in this aspect that satisfies the customers. Nevertheless, the overall grade of satisfaction exposes that the overall service quality in tourism management need to be improved in Yangshuo.

8.3 Health care and safety systems unevenly developed

Public health care systems are inspected yet the facilities of health care are in perfection. Proportion of tourism employees has received training, whereas the scope of training should be expanded. Likewise, despite that law and regulations are proclaimed to prevent the accidents from happening, the effective inspecting measures are not enforceable in the tourism industry. Crimes are low in Yangshuo, and security systems are ensured in good work order. Therefore, tourists very much appreciate the security environment in Yangshuo. A good image of safety built up in the region would facilitate Yangshuo to enter into international market of tourism.

8.4 Tourism in Yangshuo largely contributes to the local economy

The contribution of tourism to GDP has steadily increased in Yangshuo in the past five years. The development trend of Yangshuo tourism keeps path with the increase of GDP, while the increasing speed of the tourism is faster than that of GDP. The ratio of the tourism in total of GDP is on rise, and the contribution of tourism to local finance will continually increase alongside the development of tourism. The increasing rate of tour tax revenue is significantly higher than any other tax revenues. As a result of these, the tourism in Yangshuo has played an important role in creating jobs, which meant greatly to attract surplus labors force from urban-fringe area. Owing to the complement of sexual distinction among different professions, male and female employees' proportion presents balanceable trend of development in Yangshuo tourism. As some small enterprises in Yangshuo rapidly develop, authorities should properly control and prevent the small

enterprises from polluting local environment hence avoiding destruction.

8.5 Resources and environmental protection are most important in Yangshuo.

Yangshuo is distinctively rich in recreation resources. The protection of mountains and waters is not only the need of tourism development, but also the need of local people's livelihood. The architectures and other cultural elements in Yangshuo are in face of plight because of capital lacking coupled with unclear responsibility. However, the protection and renovation of the Western Street embody definite demonstrative significances. As the land resources are limited, there are some sharp conflicts between lands used for production and life. The boating sports bring about side effect on water quality. At present, there are no effect protective measures.

8.6 The transport planning comes first, but lack of controlled measures for development

In "Overall planning on tourism development of Yangshuo, 2004", detailed planning is made on aims, principles, road ranking systems, key points of planning, traffic operations, administrative strategy and latest action planning. The problems of noises and air pollution have become increasingly serious with the development of transportation in Yangshuo. Such cases of development should be properly implemented in the concrete plan stages. They should accelerate and perfect the construction of road-sign systems. In addition, management of Yangshuo bikes is lagged behind despite that bicycles are major tool for transport. Therefore, we should largely promote the construction of circle lane and walking path as well as those associated road sets.

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Dear Sir or Madam,

We are from the School of Tourism Management, Zhongshan University, Guangzhou. Requested by World Tourism Organization, we are now doing a research project relating to the sustainable tourism development of Yangshuo. We would be most grateful if you could spare several minutes to fill in the questionnaire below. Thank you very much for your time and support!

Project team

School of Tourism Management

Zhongshan University

=====

Please first give some of your personal information for research purpose. All the data will be kept confidential.

1. Your gender is: ☐ Male ☐ Female
2. Your age is ☐ Below 14 ☐ 15----24 ☐ 25----44 ☐ 45----64 ☐ Above 65
3. Your current living place is _____
4. Your education level is _____
5. Your occupation is: _____
6. Your average income per month is:
☐ Below 800 (about 100USD) ☐ 801---1500RMB (100---200USD) ☐ 1501----2500 RMB
(200---300USD) ☐ 2501---3500 RMB(300--- 450USD) ☐ 3501----5000RMB(450---550USD)
☐ Above 5000RMB (Above 550USD)

=====

Please indicate your opinion on each of the following questions:

1. How many times have you been to Yangshuo?
☐ once ☐ twice ☐ three times ☐ four times and above
2. With whom did you travel to Yangshuo?
☐ with a tour group ☐ with friend or family ☐ with an organization ☐ with an study or an investigation group ☐ I myself (self-packaged tour) ☐ none of above
3. By which means of transportation did you come to Yangshuo?
☐ private car ☐ long-distance coach ☐ bicycle ☐ ship ☐ none of above
4. What was the transportation you used in Yangshuo?
☐ private car ☐ bicycle ☐ taxi ☐ boat ☐ public bus (or sightseeing bus) ☐ none of above
5. How long have you stayed in Yangshuo? (Or how long do you plan to stay in Yangshuo?)
☐ 1---3 days ☐ 4---7 days ☐ 7---15 days ☐ above 15 days
6. How much have you spend during your stay in Yangshuo? (including accommodation, transportation, entertainment, shopping and other traveling expenses) (Or what is your budget for the tour in Yangshuo?)
☐ below 300 RMB ☐ 300---600 RMB ☐ 600---1000 RMB ☐ 1000---2000RMB
☐ above 2000 RMB
7. How many tourist sites have you visited in Yangshuo?
☐ one ☐ two ☐ three ☐ four or above

And what are they?

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
8. I thought the scenes in Yangshuo are beautiful.					
9.I found Yangshuo to be clean.					
10.The tourist sites were too crowded					
11.I think Yangshuo is a tourist place with great cultural value					
12.I found the water quality of Li River was good.					
13.I found the water quality of Yulong River was good.					
14. I found the transportation in Yangshuo was convenient.					
15.I was satisfied with the accommodation facilities in Yangshuo					
16.I found the local living water was good					
17.I thought the local food was sanitary					
18.I thought the local hotel was sanitary.					
19.I thought the local restaurant was sanitary					
20.I enjoyed local cuisine					
21.I found the service quality of travel enterprises was good					
22.I was able to buy good souvenirs and artifacts in Yangshuo					
23. I found tour marking system was clear					

24. I thought the management of the tourist sites was good..					
25 .I felt safe while in Yangshuo .					
26. I was satisfied with the medical facilities in Yangshuo.					
27.I felt the local people were friendly.					
28. I felt the ticket prices for the tourist sites were reasonable					
29.I felt the price for local accommodation was reasonable					
30.I felt the price for local transportation in Yangshuo was reasonable.					
31.I felt the prices for souvenirs and artifacts were reasonable.					
32.I felt the price for entertainment was reasonable.					
33.I felt the environment in Yangshuo was not noisy					
34.I had good health during my visit.					
35.I had a good experience involving the local culture.					
36.I enjoyed my traveling experience in Yangshuo					

37. Does your impression of Yangshuo after you stayed here match your imagination of it before?

☐very identical ☐fairly identical ☐identical ☐not too identical ☐not identical at all

If no, do you think it is better or worse?

☐better ☐worse

40.Will you recommend a visit to Yangshuo to your friends or relatives?

☐Yes ☐No ☐I'm not sure

41.Will you return to Yangshuo again?

☐Yes ☐No ☐I'm not sure

42.What could be done to improve your vacation next time in Yangshuo?

=====

Thank you again for your cooperation!