

Rural Tourism Planning from the Perspective of Water Resource Protection and Regional Integration: Taking Villages along Tongji Lake as an Example

Pianpian Zhang, Qingping Luo

Abstract—Currently, there is a great tendency that more and more villages in China are trying to increase income by development of tourism. Especially in Zhejiang Province, 'Beautiful Rural Construction' provides an excellent opportunity for the development of tourism. In this context, development orientation, transportation routes and tourism service facilities are analyzed under the perspective of water resources protection and regional integration based on the development tourism industry of the six villages in Pujiang County, Zhejiang Province as a research object. In the program, the biggest issue is the contradiction between the ecological protection of the water and the development of economy. How to deal with the relationship between protection and development is the key to the design of this case. Furthermore, the six villages are regarded as a whole, connecting to each other by the system of five-path and the landscape along the lake. Every village has its own features, but cannot develop without one another. The article is actively exploring for suggestions and countermeasures to promote the development premised on protection and based on a regional view.

Keywords—Development, integration, protection, rural tourism.

I. INTRODUCTION

THE project, "Beautiful Rural Construction", takes promoting harmony between human and nature, and improving farmers' quality of life as the core, targets at the objectives and requirements, the "four beauties" - scientific planning, clean and tidy environment, increasing business income, physical and mental beauty. It makes great efforts to promote the four systems - rural ecological living system, rural ecological environment system, rural ecological economy system and rural ecological and cultural system, striving to build a number of villages suitable for living, working and traveling.

As the birthplace of the idea of "Beautiful Rural Construction", Zhejiang province is always at the forefront in the country. In 2003, Zhejiang Province started the project of "Village Renovation", opening the prelude to the Beautiful Rural Construction. At the end of 2012, twenty-six thousand villages had finished the environmental remediation, accounting for 89% [1]. At the same time, the income difference between urban and rural residents is the smallest in Zhejiang compared to all the provinces in China.

Pianpian Zhang is postgraduate student at Zhejiang University, Department of Architecture Design, 310058 Hangzhou, Zhejiang Province, China (phone: +8618768114199; e-mail: 1132526275@qq.com).

Qingping Luo is full professor at Zhejiang University, Department of Architecture Design, 310058 Hangzhou, Zhejiang Province, China (phone: +8613705811020; e-mail: lqpzju@163.com).

Within the context of "Beautiful Rural Construction", the villages along Tongji Lake ask for a plan for the future development of tourism. Usually, the planning range is constrained in one single village. But in this program, the range covers all the six villages. More importantly, Tongji Lake is Category II water source, imposing a series of regulations and restrictions for the plan.

First of all, the protection of water is at the most important point: Protection of water is to protect the lifeblood of human life which can never be more emphasized. Secondly, break the administrative boundaries of every single village. In other words, the six villages are regarded as a region. The idea of regional integration can be fully aware of every village's own conditions and the existing resources of the other villages and surrounding area, not only to achieve more efficient development and construction, but also to bring benefits for the entire region.

II. BRIEF INTRODUCTION OF VILLAGES ALONG TONGJI LAKE

With the improvement of traffic conditions, Pujiang County has entered Hangzhou's one-hour traffic radiation circle (Fig. 1) [2]. It means that tourists From Hangzhou can come to have a trip to Pujiang and return to Hangzhou in just half a day. The radiation of Tongji Lake Scenic Area will not only be limited to Pujiang County, but extended to urban areas in northern part of Zhejiang Province, and even to the Yangtze River Delta.

The site of the program locates in the west of Tongji Lake (Fig. 2). It includes six villages, from northeast to southwest, Tanglinjin, Shangzhao, Shimu, Qianwu, Guoshan and Maqiao. All of them make up Tongji Lake Scenic Area. The lake itself is a middle-level water reservoir which is one of the eight largest water reservoirs in Zhejiang Province.

III. OPTIMIZATION OF DEVELOPMENT ORIENTATION

The Scenic Area of Tongji Lake has a large amount of resources which can be sorted in two parts: Natural resources and cultural resources [3].

Natural Resources

The green space is mainly distributed around the reservoir and the mountains. Ponds and rich streams scatter over all the area. The lake, together with Niao stream, Shimu stream and Daruo stream running into it, forms a rich landscape coastline and marsh wetlands (Fig. 3).

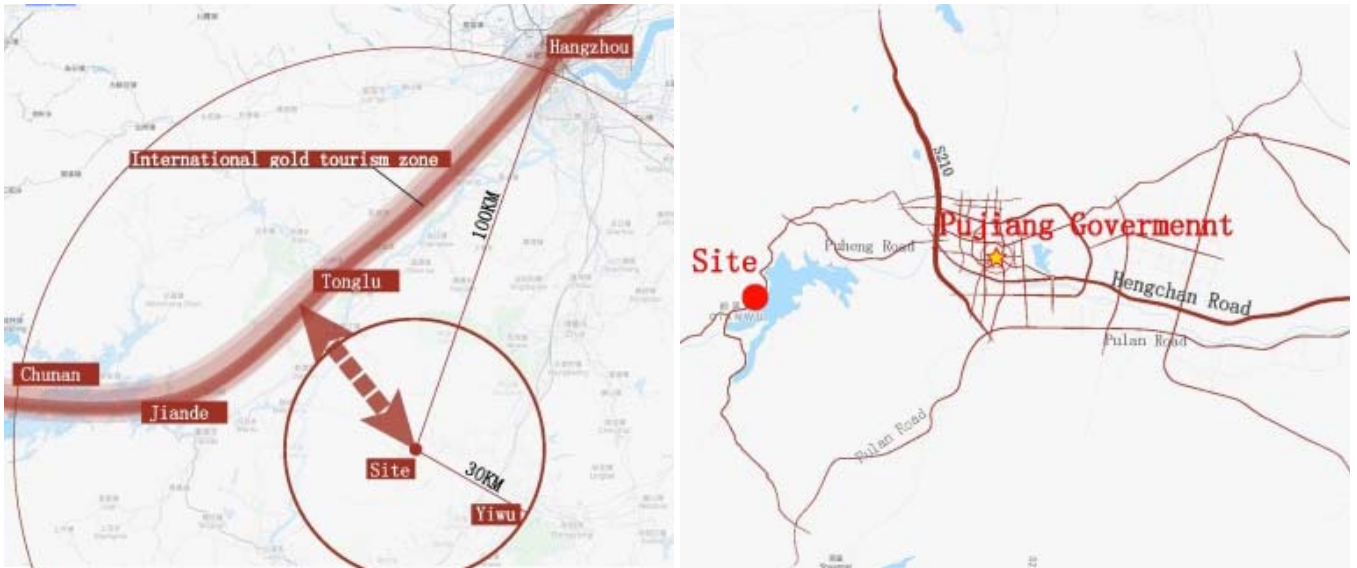


Fig. 1 The location of Pujiang County, Zhejiang Province

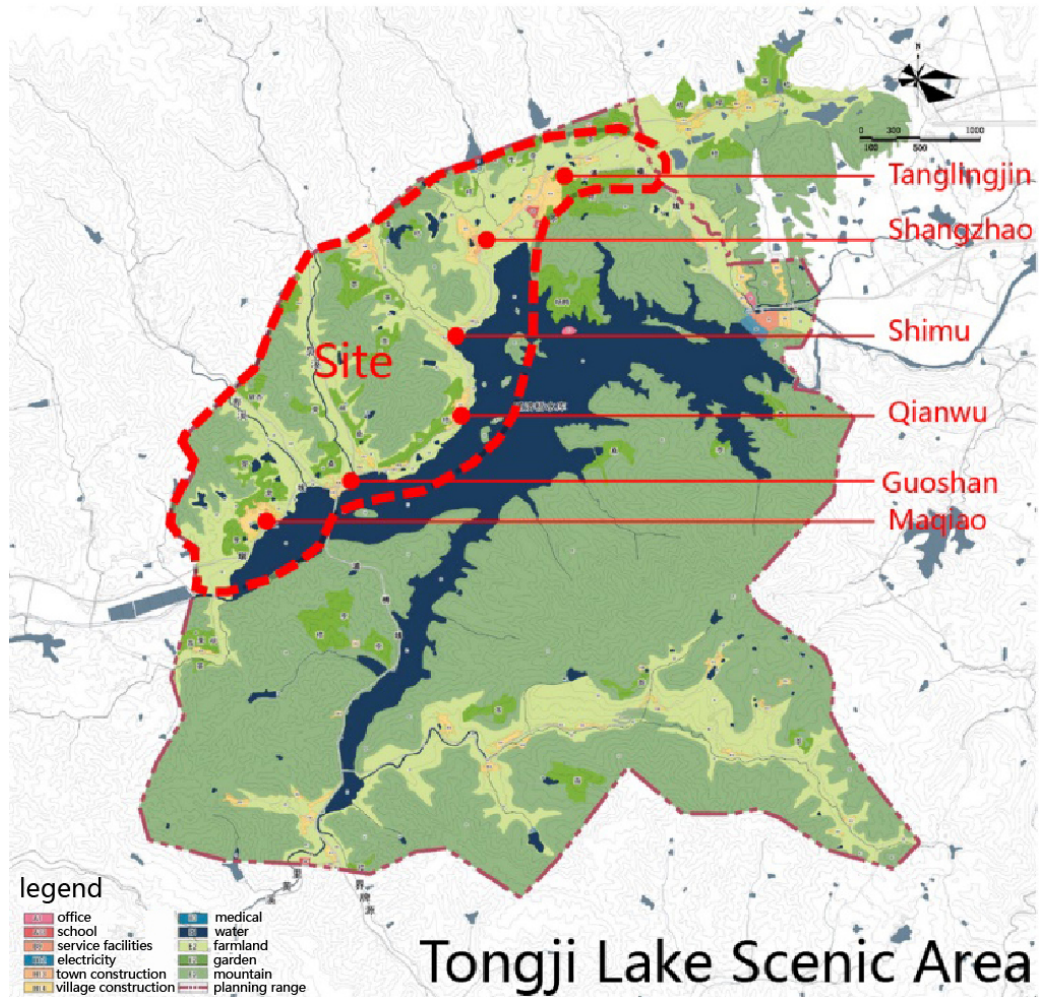


Fig. 2 The site in Tongji Lake Scenic Area



Fig. 3 The view from the shore to the islands in the lake



Fig. 4 Painting, calligraphy, traditional activities, manual work, traditional food

Cultural Resources

The villages have a long history, especially Qianwu whose history can be dated back to one thousand years ago. Its culture is the source of Pujiang County. Since then, a lot of famous painters and calligraphers are born there such as Wu Fuzhi, Wu Shanming. In addition, there are also large varieties of folk activities and festivals (Fig. 4).

But some factors may impede the development. The young and middle-aged migrant to the city, leaving the elderly and children at home, thus large tracts of farmland lay waste. Furthermore, it is necessary to build service facilities such as shops, toilets and restaurants for the tourists. Last but not least, most of the buildings are lack of maintenance where is really not easy to live.

The common mode of development of rural tourism is to develop B & B, farm food and so on. It cannot be denied that more tourists will bring more serious pollution. The purpose of this plan is to take ecological protection and industrial development into account, while respecting existing spatial patterns and resolve compatibility with living in tourism development. First of all, the protection of the water is the primary consideration. The program is designed upon the protection. The measures adopted are as follows:

1. The scales of construction of villages along the road are under control. The existing buildings near the lake are dismantled and the ecology of the landscape is intervened as little as possible.
2. Public outdoor spaces are pushed back to reduce the possibility of water pollution.
3. The villages are required to develop in the direction opposite the lake.
4. The abundant landscape along the lake is utilized to develop tourism.

Secondly, each village is away from the adjoining one for just several hundred meters. So it is necessary to take the development of all villages together into consideration, which in other words means the development of the full range is under a regional perspective. Then, the region is oriented as a rural leisure tourism resort.

When moved to the level of small range, the design of each village, not only the advantages and restrictions of the whole region are thought over, but also the special characters of each village are considered. The orientation of each village is based on the existing resources of each village. For example, the orientation of Tanglinjin Village is an area for experience of traditional village because there are a lot of traditional houses

left. Qianwu Village is famous for its calligraphy and painting culture. So the village is made a center for tasting calligraphy and painting, and etc. Each village has its own orientation, different from the others', relates to each other, and mutually supports each other. As a result, all villages form the abundant region.

Consequently, the perspective of water source protection and regional integration strengthens the reliability of the development goals and points out a way of sustainable development.

IV. OPTIMIZATION OF TRANSPORTATION ROUTES

The main roads in the area are the Puheng Road and Guoshang Road. The former connects the center of Pujiang County to the east and connects the Pulan Road to the south which leads to the adjoining county-Lanxi. The latter connects Puheng Road to the east and connects Huaqiao Town to the west. The width of the two main roads is 7 to 10 meters. They

are vehicle-pedestrian mixed traffic. There are other rural roads too. According to the data of the Water Conservancy Bureau [4], some parts of Puheng Road and Guoshang Road will be submerged when the water level in the rainy season is above 20-year flood level of 110.03 meters.

The current roads (Fig. 5) are about 7 meters in width. They are required to broaden to 12 meters according to the upper level planning of Pujiang County in which the Puheng Road is defined as the secondary road. On one hand, there are many parts of the current roads whose altitude is below the 20-year flood water level. On the other hand, the current roads are so close to the lake that broadening the roads will do great damage to the ecology of the water. Furthermore, the current traffic is vehicle-pedestrian which means it is unsafe for tourists to walk along the lake, enjoying the beautiful scenery. Considering all the conditions above, it is better to open up a new road replacing the current one.

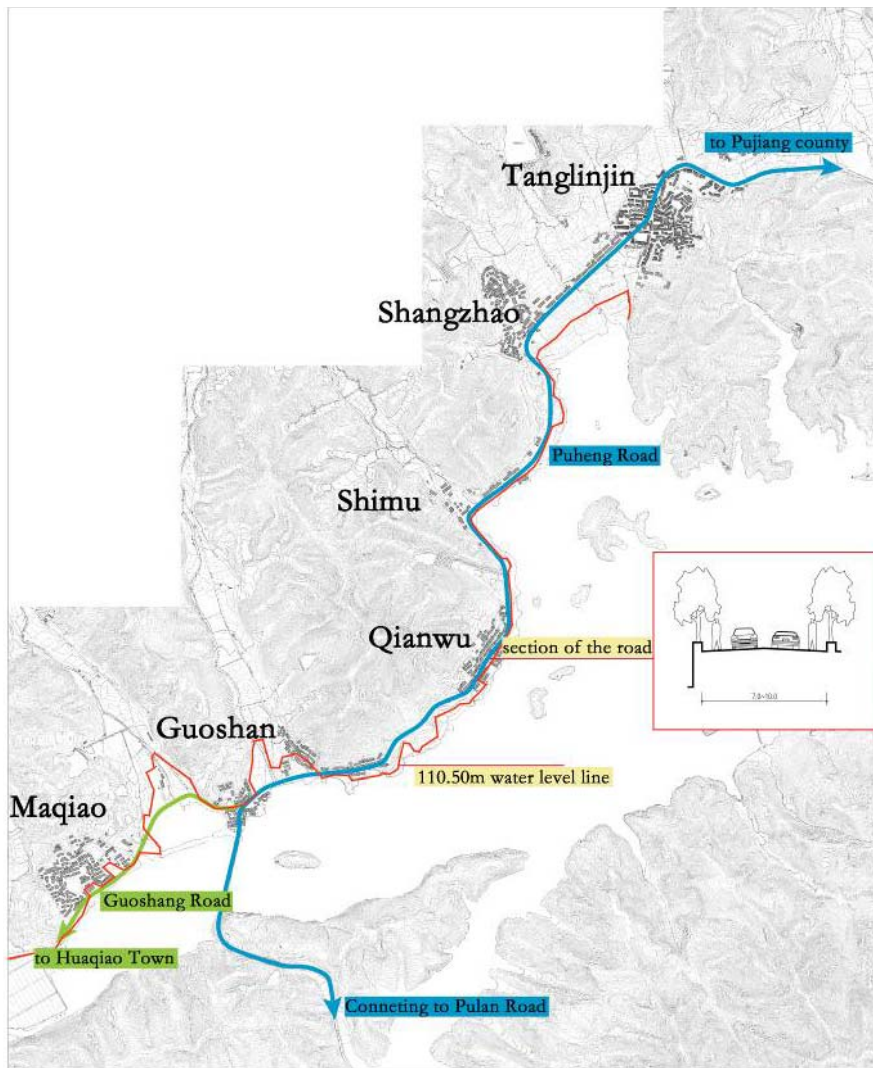


Fig. 5 Current road system



Fig. 6 Feasibility analysis of the new road



Fig. 7 Ferry-car path



Fig. 9 Hiking path



Fig. 8 Hydrophilic ramble path



Fig. 10 Boat path

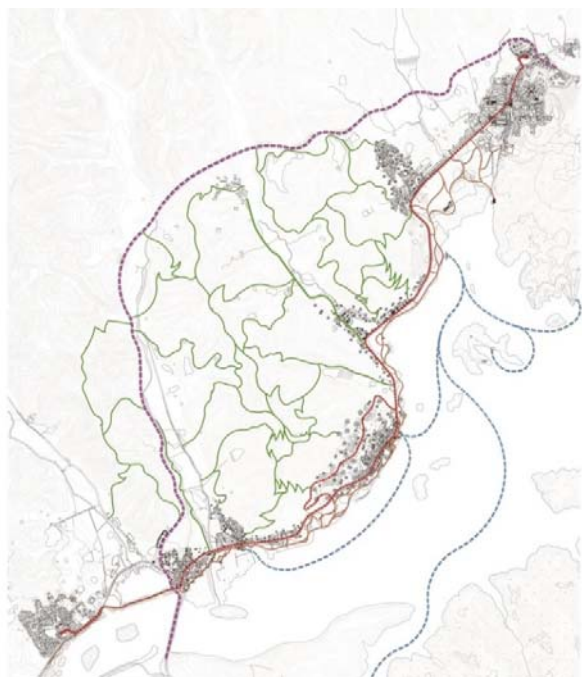


Fig. 11 Five-path System

According to the terrain, the new road is roughly 130 meters to 150 meters in elevation (Fig. 6). Bridges are built and tunnels are constructed where they are necessary. The cost is under control. As the core area of Tongji Lake Scenic Area, the new road (Fig. 6) improves the integrity, purity and safety of the area. Besides, it is a good way to reduce the pollution to the lake. In addition, it enhances the accessibility of the villages in the mountains and canyons, paving the way for the future development.

The original road – Puheng Road – is modified as a ferry-car path (Fig. 7). Only the cars of the villagers in the area are allowed in. Tourists are required to transfer to the ferry-car into the area. The Tanglinjin Village, as the starting village, has a tourism service center. Tourists park their car and take the ferry-car in the scenic spot. Fixed stations are set up along the villages and attractions. Besides, the tourists can get up and down at any place along the way. The final station is in Maoqiao Village. Cyclists can enjoy the beautiful scenery along the ferry-car path without worrying about the traffic.

There are already some greenways along the lake in Qianwu Village. Hydrophilic ramble path is constructed based on the existing greenways along the lake, which supplies leisure and rambling place for the tourists and residents in the area (Fig. 8).

The current mountain path is transformed into part of the network of hiking paths (Fig. 9). Tourists can easily climb to the top of the mountain and have a bird's eye view of the lake. They can also have an exploration of the mountain through the hiking paths.

Currently there are only vessels for reservoir management and a few of villagers' private boats on the lake which do not have the tourism function. Docks are built in Village Shimu, Qianwu and Guoshan for tourists. The boat path designed (Fig. 10) is just for electric boats and rowing boats to avoid pollution.

Electric boats are for fixed tour routes, connecting the village to attractions on the islands such as the tomb of Wu. Tour of rowing boats is not fixed, but is controlled by the tourists themselves.

In the overall area of the planning, core aspirations of the Five-path System includes three points, one from the linear inward expansion of lake space to enhance the landscape capacity; the second is to enrich the landscape experience, providing multi-dimensional experience of landscape; the third is to solve the contradiction between high-speed motor vehicle road and development of tourism in Tongji Lake Scenic Area.

All in all, the Five-path System (Fig. 11) is put forward under the perceptive of water resource protection and regional integration, which sets up the whole structure of the region. It moves the existing road away from the lake, avoiding the pollution from the vehicles. It also helps to strengthen the relationship among the villages to create integration and expand the capacity of scenic area.

V. OPTIMIZATION OF THE CONFIGURATION OF TOURISM SERVICE FACILITIES

The existing service facilities are far from meeting the needs of a scenic area which are set up just for the villagers' needs of life. For one thing, the number is so small. For example, there are just one or two small shops in one village; not enough restaurants for the tourists and so on. Besides, the existing service facilities are generally in a poor condition. Many restaurants even do not have the food and beverage business license. Last but not least, the existing service facilities are imbalanced among villages. Qianwu Village, for its good location for enjoying the scenery, long history and rich culture, develops better than the other villages. There are more and better service facilities in Qianwu than the other villages. What's worse, the current development of tourism results in water pollution. With the increase in number of tourists in recent years, more and more villagers return home from outside. They open restaurants and bars near the lake spontaneously. But they pay little attention to the pollution. Discharge of catering wastewater to the lake leads to serious organic pollution. Protection of water resources is extremely urgent.

On the basis of current condition mentioned above, firstly, the problem of water pollution is the primary consideration. Only the service facilities which make no damage to the water resource are allowed to open up. Secondly, it is necessary to have a regional integrated perceptive to realize the optimization of the configuration of tourism service facilities. The first is to refine the characteristic of each village according to the resources of each village. The second is to find suitable construction land for the construction of differentiated public tourism service facilities, leveraging the development of the characteristics of leisure industry. On the contrary, if the village is developed separately, it is necessary to invest financial resources to manpower, food, shopping, recreation, public service, security and rescue in each village to realize the perfect operation of the tourism industry, which leads to a waste of money. The configuration of tourism service is distributed as in

Fig. 12.

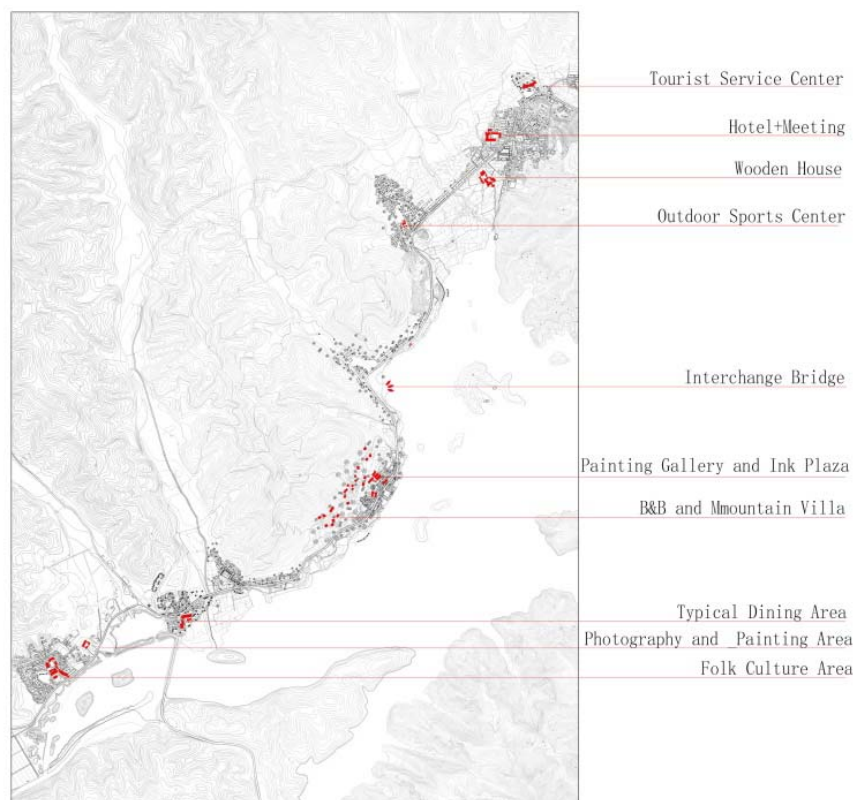


Fig. 12 Distribution of tourism service facilities

Tanglingjin Village takes advantage of the existing village texture, traditional architecture and the ancient path to the city, to build the area for experience of traditional village settlement. At the same time, new tourism service center is built and the original factory in the village is transformed into a business hotel to meet different market needs (Fig. 12).

Outdoor sports center is constructed by the pond in Shangzhao Village. In the future, more and more youth hostels are to open up in Shangzhao Village (Fig. 12).

The water sports center is located in Shimu Village for that it is close to the island. The interchange bridge is built across the inlet of the lake (Fig. 12).

Qianwu Village is the core of the region. Its goal is to explore the historical and cultural accumulation to create a cultural and leisure center. The painting gallery and ink Plaza are built by means of renovating the original cultural hall and the traditional houses around. The former residence of Wu who is a famous painter in last century is restored and Yuequan Poetry Club which is founded in Yuan Dynasty [4] is re-established. High-grade B&B and small scale of villa-type hotels with excellent landscape vision are to be imported in the mountains behind the village (Fig. 12).

The orientation of Guoshan Village is fostering typical dining area. The original hall is transformed into a farmhouse restaurant. Moreover, it is much more convenient to reach Guoshan Village than before through the new road. Thus, setting the characteristics of food and beverage can also attract

tourists from surrounding villages and towns (Fig. 12).

In the earlier renovation, Maqiao Village has been created as a colorful village. In the program, the original brick factory in east of the village is relocated to make land for the gallery of photography and painting. Some old houses are transformed for exhibiting crafts and typical food. The owners of these houses move out to the new residential quarters located in northwest of the village (Fig. 12).

Different characteristics are set based on the existing resources in each village. Ultimately, the network of tourism service facilities are formed overall the region.

VI. SUMMARY AND CONCLUSION

In the perceptive of water source protection, the protection of the water source, Tongji Lake, is the key to the program. The program whose theme is water and ecology protection avoids an unsustainable developing way. The five-path system puts an end to pollution from the car, leading the villages to develop outwards away from the lake. The existing houses along the lake are removed as many as possible and the existing lakeside restaurants are transformed into tea or coffee bars which are environmentally friendly, which minimizes the possibility of pollution.

In the perceptive of regional integration, all of the six villages are taken into account, avoiding competition with the surrounding areas. The focus on the whole range helps to make full use of all the existing resources in the six villages and the

resources such as the mountains and water in surrounding area, to achieve better tourism planning. With a more reasonable development orientation, transportation routes, tourism service facilities, region of Tongji Lake will be better to achieve tourism development. At the same time, the development of a single village will benefit from the development of the other villages: The development orientation of each village is different from each other, preventing homogeneous competition with other villages, but bringing some new tourists' resources [5]; The centralization and integration of the tourism service facilities and public service facilities contributes not only to give full play to its advantages, but also to fully share source all over the region.

This paper discusses the benefits of planning from the perspective of water source protection and regional integration in three aspects-the optimization of orientation, transportation routes and configuration of tourism service facilities. It puts forward the main content study of villages renovation for tourism based on the point of environmental protection and regional view which gives guidance to planning of other villages.

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