

Article

Multi-Stakeholder Involvement Mechanism in Tourism Management for Maintaining Terraced Landscape in Important Agricultural Heritage Systems (IAHS) Sites: A Case Study of Dazhai Village in Longji Terraces, China

Guannan Zhu ^{1,†}, Xiande Li ^{2,†} and Yongxun Zhang ^{2,*}

¹ College of Humanities and Social Development, Nanjing Agricultural University, No. 1 Weigang Road, Xuanwu District, Nanjing 210095, China; zhuguannan@njau.edu.cn

² Institute of Agricultural Economics and Development, Chinese Academy of Agricultural Sciences, No. 12 Zhongguancun South Street, Haidian District, Beijing 100081, China; gjmy6160@caas.cn

* Correspondence: zhangyongxun@caas.cn; Tel.: +86-010-8210-6193

† These authors have an equal contribution to this article.

Abstract: Terraced tourism sustainability depends on maintenance for terraced landscape. The effective measures for protecting terraces rest on the cooperation among multi-stakeholders. Therefore, a multi-stakeholder involvement mechanism (MSIM) is very important for terraced landscape conservation. Dazhai village in Longji Terraces, Guangxi Province, Southwest China, explored a MSIM to maintain terraced tourism sustainability in the past 20 years. Based on the statistical data and the data from household interviews, this study analyses the development history of Dazhai tourism. Comparing the changes in different stages in components of MSIM of Dazhai, we revealed the successful key factors of MSIM for maintaining terraces tourism sustainability includes identifying accurately core attractions and stakeholders, an effective communication strategy, a democratic decision-making mechanism, dynamic benefit distribution schemes (BDS) facing terraced conservation, coordination teams with foresight and selflessness, and the effective supervision and management. In the end, we conclude that economic income is the most important driver stimulating villagers in Dazhai to insist on growing rice. It is crucial factor to drive farmers to protect their terraces. but economic income improvement of the households depends on a systemic and dynamic MSIM. The most important causes for Dazhai MSIM success results from the wise coordination teams and the effective communication strategy.

Keywords: terraces; tourism; agricultural heritages; multi-stakeholder; agricultural landscape; Longji



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1. Introduction

Traditional agricultural landscapes (TAL) are the outcome that evolves from the co-adaptation of a community with its environment and its needs and aspirations for sustainable development [1], which usually have more values than modern conventional agriculture due to their aesthetic, historic, and ecological features [2,3]. However, with global industrialization and urbanization, rural decline and population outmigration are resulting in the disappearance of TAL, which have become a global challenge [4–7]. Currently, many protection projects involving TAL have been initiated by international organizations, for example, the World Cultural Heritage and the Intangible Cultural Heritage of Humanity designated by the United Nations Educational, Scientific, and Cultural Organization (UNESCO), the Globally Important Agricultural Cultural Heritage Systems (GIAHS) designated by the United Nations Food and Agriculture Organization (FAO). In China, the China-Nationally Important Agricultural Heritage Systems (China-NIAHS) was launched by the Ministry of Agriculture and Rural Affairs of the People's Republic of China based on GIAHS definition and selection criteria in 2012, and its selection criteria

were added the requirement that it has a history with at least 100 years. The first group of China-NIAHS was published in 2013, which includes 118 China-NIAHS by the end of August, 2021. Although the IAHS (including GIAHS and China-NIAHS) are still not more well-known than those conservation projects initiated by UNESCO such as world heritage, man and biosphere, and geopark due to its late starting time, they have been paid attention by more and more countries and researchers due to the relevant ecological, economic, socio-cultural sustainability [8,9]. The IAHS research on TAL conservation has also attracted wide concerns of researchers [10–15]. Protecting TAL is complex work, which needs farmers to participate in farming and social activities. Lots of farmers flowing into large cities have resulted that no enough farmers maintain those TAL. Thus, how to make farmers live in their villages to persist in farming remains the key issue.

Ancient terraces as a kind of typical TAL are distributed in mountainous areas around the world [16–20]. They are not just farmland but rather a compound system that consists of forest, farmland, villages, and ditch system, presenting human wisdom rationally using mountainous land [3,16]. These terraces play a crucial role in safeguarding global food security, maintaining local peasant livelihoods [13] and provide important ecosystem services for human [21–24] such as reserving biodiversity for human health and well-being [25] (for example, in the COP15 held in Kunming, China, 11 to 15 October 2021, <https://www.cbd.int/conferences/2021-2022> (accessed on 19 October 2021), the GIAHS site, Hani terraces, has been introduced by scientists through various media as a representative area of effectively protecting biodiversity), tangible and intangible cultural services [26]. They are regarded as the masterpiece that local people reshaped the natural environment to sustainable agricultural production systems. By the end of 2019, more than 7 terraced systems around the world have been designated by FAO as GIAHS (Agricultural heritage around the world: <http://www.fao.org/giahs/giahsaroundtheworld/en/> (accessed on 19 October 2021) and more than 15 systems related to water or dry terraces have been designated by the Ministry of Agricultural and Rural Affairs (MARA) of China as the China-NIAHS. On the one hand, these ancient terraces listed into IAHS must be preserved strictly. On the other hand, terraces are also a kind of precious landscape resource for developing rural tourism [27,28]. Balancing the relationship between tourism development and terraced landscape conservation through making effective tourism management institutions is extremely significant.

Terraced landscapes are confronting challenges. They are often abandoned or changed in land use due to the low agricultural economic benefits and hard work [6,29,30]. In China, the abandoned ratio of terraces varied from 5% to 45% in the southwest mountainous region, and between 10% and 20% in most regions [31]. Many terraces as tourist attractions are also facing abandonment or other kinds of destruction due to improper tourism management (for instance, the benefit conflicts in tourism development, or farmers working the non-farm jobs that tourism development creates) [27,32–35]. From the perspective of management, the critical problem is to identify the stakeholders protecting terraced landscapes and to make a reasonable multi-stakeholder involvement mechanism (MSIM) to stimulate them to actively maintain terraced landscapes.

In Southwest China, Dazhai village in Longji Terraces in Longsheng Various Nationalities Autonomous County (hereafter abbreviated as Longsheng County) kept a benign status of rural tourism development all the time since 2004. Its tourism management experiences are worthy of reference for other GIAHS sites, especially for other terraced areas to develop sustainable rural tourism. This article at first employs a narrative approach to introduce the tourism development experience of Longji Terraces, and then uses qualitative and quantitative method to analyze what benefit balance mechanism do farmers in Longji Terraces make? and how does the mechanism take effect? We aim to show a precious tourism management experience on multi-stakeholder participation mechanism for relevant researchers and managers. It aims to reveal the mysteries of Longji Terraces tourism sustainability based on the multi-stakeholder involvement (MSI) theory

and to provide relevant experiences for some tourist destinations related to agricultural landscape conservation.

The following section is a literature review on influences of rural tourism on terraced landscape conservation and MSI theory in sustainable tourism. Section 3 introduces methodologies of this study. Section 4 shows results that explain the current situation of Dazhai tourism and its historical development. Section 5 is a discussion that analyses the successful mysteries of Dazhai tourism. The last section is our conclusion, summarizing the findings of this study.

2. Literature Review

2.1. Rural Tourism as an Approach to Maintain Terraced Landscapes

Under the background of urbanization, terraces failure has become a common phenomenon [6,29,30,36,37]. The reasons include farmland abandonment, inappropriate management, lack of appropriate regulation on the design of terraces, and insufficient transmission of knowledge related to terraces construction [18,19]. For those ancient terraces which are hundreds or thousands of years old, the current main reasons for their failure are terrace abandonment and the insufficient transmission of terrace construction knowledge to youths. These reasons result from rural labor outmigration caused by low benefits of agriculture and the changes in traditional values and lifestyle of peasants. Hence, keeping a certain number of farmers to farm in terraces is a root conservation approach.

Terraces as a kind of resource have many other functions besides agricultural commodity production. For instance, they can be used as agricultural practice bases for students, research bases for scholars, beautiful attractions for tourists, and habitats for animals [37,38]. These functions can attract different kinds of people to visit terraces. Therefore, terraces have advantages in developing tourism. At present, many terraces around the world have become famous tourist destinations, for instance, Ifugao terrace in the Philippines [27], terraces in Qingtian County in Southeast China, terraces in Congjiang County in Southwest China [22], Hani terraces in Southwest China [39], terraces in Northern Vietnamese highlands [40], and Shiroyone Senmuida terraces located on the western coast of Noto Peninsula [28]. In these terraced areas, tourism development generates positive influences on terraced conservation. For example, it incentivized local farmers to continue farming due to price increase of agricultural products, created plenty of non-farm employment for the locals to add their income sources, or improved conservation awareness of farmers for terraces [22,27,39,40]. Therefore, these terraces got maintained better by tourism than those without tourism.

2.2. Problems of Terraced Landscape Conservation through Rural Tourism

Tourism also produced many negative effects on terraces although it promoted local farmers to protect terraces by farming. These negative effects show the following aspects: (1) tourism makes local people tend to change farming approaches for a higher income, for example, filling the terraced fields with water all year round for keeping the terraced landscape that tourists would like [39]; (2) tourism development drives part of farmers to abandon agriculture and to do full-time tourism, and then leads to another type of terraces abandonment such as the lack of regular reinforcement to terraces and their irrigation systems [40]; (3) tourism adds the water consumption of upstream villages that have developed tourist attractions, and then results in water use conflicts between the farmers in upstream and those in downstream or farmers planting dry crop instead of rice in terraces for reducing labor input [39,41]; (4) in tourism development, unplanned construction projects such as hotels and roads destroys a large area of head-water forest and traditional wooden handcrafts lead to deforestation due to increase of wood demand [13,42]; and (5) benefit conflicts triggered by the imbalance of tourism incomes accelerates terraced landscape changes, for example, part of local farmers planted deliberately dry crops to replace rice in terraces owing to not getting dividends from tourism companies [43]. Obviously, under the driver of benefits, tourism can also destroy terraced landscapes

through direct or indirect approaches if not having a fair and effective mechanism of benefit-sharing among stakeholders.

2.3. MSI Theory of Sustainable Tourism

Tourism is a comprehensive industry that involves the interests of different persons, groups, or organizations. Its sustainable development requires the cooperation of multiple stakeholders [44]. Therefore, MSI is becoming a hot research topic in tourism [35,45–49]. At present, there are two types of MSI studies. One type is theoretical exploration. For example, Sautter and Leisen introduced Freeman's stakeholder theory to tourism planning and systemically elaborated the application of stakeholder theory in planning for tourism sustainability. He stressed that stakeholder identification and distinction of their roles is the first step [45]. Waligo et al. built an MSI management framework (including six stages: scene-setting, recognizing stakeholders' involvement capacity, effectively managing stakeholder relationship, pursuing achievable objectives, influencing implementation capacity, and monitoring stakeholder involvement conditions) to guide tourism managers to achieve sustainable tourism and then mapped a traffic light route framework to explain the processes and results of sustainable tourism strategies with a stakeholder imperative and without one for showing the important role of MSI [47,50]. Wageningen University offered an overview of multi-stakeholder processes including the definition and benefits of multi-stakeholder processes and how to set up a multi-stakeholder process, guiding relevant researchers or managers to build a MSI mechanism for sustainable tourism [51].

The other type is empirical studies. Many studies present that benefit conflicts of stakeholders and the absence of a fair and effective MSIM are key factors leading to tourism unsustainability [35,52–55]. Especially, rural tourism characterized by rurality such as low population density, open space, small-scale settlements, land use dominated by farming, forestry and natural areas, and traditional societies is at risk from physical environment degradation, economic instability, and cultural heritage destruction due to ill-management [56]. Therefore, a lack of a fair and effective MSIM is usually the main cause. Currently, the available empirical studies usually use interviews or questionnaire methods and various analytical frameworks to explore existed problems of the MSIM in tourism development, for example, the analysis of obstacles and causes of sustainable tourism in Masouleh, the World Heritage Site, northern Iran from divergent perspectives of multiple stakeholders [48], the barriers of sustainable tourism in the Thrace Region in Turkey in MSIM [54], issues of MSIM influencing tourism sustainability in Dangjia, an ancient village in China [55], the analysis of power relations among the stakeholders in Xidi and Hongcun, the ancient villages in China [53].

Overall, available studies were divided into two isolated parts: theoretical studies and empirical studies. They could not be well integrated into a complete system. The former tried to explore different MSI frameworks to facilitate sustainable tourism development from the perspective of tourism planners or managers. The latter tends to reveal existing problems and good experiences by analyzing cases on MSIM in tourism development according to researchers' knowledge and thought rather than according to the former's theoretical results. The two types were not linked to each other. Hence, there is a lack of a paradigm that analyses MSI cases according to a universal MSI theoretical framework for sustainable tourism research and development. This hinders the MSI theoretical development and application.

3. Materials and Methods

3.1. Research Context

3.1.1. General Situation of Longsheng County

Longji Terraces are in Longji Township, Longsheng County where is seated in the southwest foothill of Yuechengling Mountain and near the northern boundary of Guangxi Zhuang Autonomous Region, Southwest China (Figure 1). Longji Township, situated at 25°42'–25°50' N and 110°04'–110°11' E, is the area of 237.3 km². Middle and low

mountains and hills constitute more than 70% of its topography. Its elevation varies from 238 m to 1916.4 m. The climate belongs to the subtropical monsoon, with an average temperature of 18.1 °C and precipitation between 1500 and 2400 mm. Longji Township is a multi-nationality region, which includes Zhuang, Yao, Han, Miao, and Dong nationalities. The population of Zhuang, Yao, Miao, and Dong nationality accounts for 84.5%, and the population of Han nationality accounts for 15.5%. Secondary industry and agriculture are the main industries of Longji Township. After 2003, rural tourism fast developed resting on terraced landscapes and ethnic minority cultures. In 2017, the tourist visiting Longji Township was up to 1.208 million, and the tourism income is about 8.166 million RMB [57].

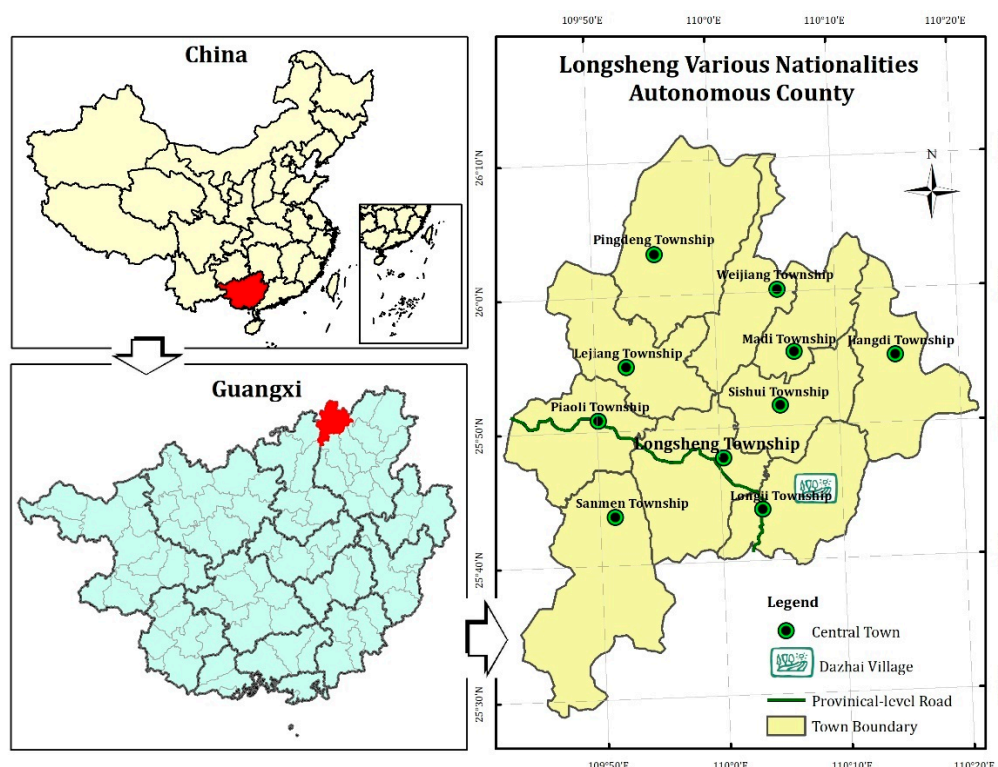


Figure 1. Location of Dazhai terraces.

3.1.2. Situations of Dazhai Administrative Village

The study area, the Dazhai administrative Village (hereafter called as Dazhai) affiliated to Longji Township (Figure 1), consists of 14 natural villages (In China, a natural village is a village formed by villagers spontaneously since they settled a place for a long time, which usually centers on the family. The villagers speak with the same pronunciation but different from people in other places, and have established common customs and habits. An administrative village usually consists of several natural villages.), a typical village in mountainous areas. Terraces in Dazhai concentrates the distribution in the hillside with the elevation from 800 to 1180 m, which is magnificent and beautiful (Figures 2 and 3). These terraces viewed as precious tourism resources are maintained very well. In 2007, the total terraced area was 78.07 ha, of which rice terraced and dry terraced area was 49.74 ha and 28.33 ha, respectively. In 2018, the rice terraced and dry terraced areas both increased slightly, which were 50.33 ha and 30.27 ha, respectively, and the total terraced area increased to 80.6 ha. The farmers persisted in farming all the time and hardly went out to do non-farm jobs after terraced tourism development. There were 1124 people in 246 households in 2007 and increased 1232 people in 271 households in 2018.



Figure 2. Dazhai terraces in spring-sowing season.



Figure 3. One natural village in Dazhai.

In Dazhai, 98% of villagers are the Red Yao Nationality due to wearing red traditional clothes. The rest are Han Nationality. Dazhai enjoys diverse traditional folk festivals and customs such as Ploughing Festival, Hanging Clothes Festival, and Folk Song Festival. Before 2003, it is an agricultural village. Villagers mainly lived on planting rice and some dry crops such as maize, sweet potatoes. They were very poor, about 500 RMB per person of yearly income just relying on a small area of farmland in 2003. Lots of young laborers went to cities for non-farm jobs for improving their living.

Since 2004, Dazhai began to develop tourism owing to the completion of the highway to the central place of Longji Town. It was developed as a charging tourism scenic spot of Longji Terraces Scenic Area operated by the Guilin Longji Tourism Limited Liability Company (Longji Tourism Company). The company was invested to build by a private enterprise and two national enterprises. The private enjoy 36% of the total share of the company, one national enterprise belonging to Longsheng County has 38%, and the other national enterprise belonging to Guilin Prefecture has 26%. In 2012, tourism cableway construction was finished by Guilin Jinkeng Passenger Cableway Limited Liability Company (GJP Cableway Company) in Dazhai. To prompt Dazhai villagers to protect terraces, the two companies provided a proportion of ticket income as tourism ticket income dividend (TID) for Dazhai. Meanwhile, Longji Tourism Company also gave Dazhai a dynamic compensation fund for maintaining terraces (CMT) for growing rice according to the tourist amount every year. With the increase of tourists, more and more relevant industries were appearing in the village. Dazhai villagers are become gradually rich due to terraces.

3.2. Methods and Data Collection

3.2.1. Theoretical Method

The multi-stakeholder involvement process created by Wageningen University provided a full guide of setting up a Multi-stakeholder Process consisting of three phases [51]. Phase 1 is to initiate the process which contains clarifying common objectives and the scope, analyzing initial situations (who are key stakeholders, what are their interests, etc.), establishing a coordination team, and selecting milestones. Phase 2 is to build sustainable collaboration, covering building consensus on a shared future vision, consultations and decision-making processes, creating trust, communicating outcomes to stakeholders regularly. Phase 3 is to manage collaboration, which refers to developing action plans, securing resources and support, developing capacities of each stakeholder, and establishing management mechanisms such as conflict-resolution mechanisms. For terraced tourism, terraces are the core resource and the object that tourism promotes farmers to maintain. As a result, the objective of building MSIM for sustainable terraced tourism is clear.

According to the Multi-stakeholder Process created by Wageningen University and referring to relevant literature [52], we took terraced tourism as an example and analyzed its MSIM and construction process as shown in Figure 4.

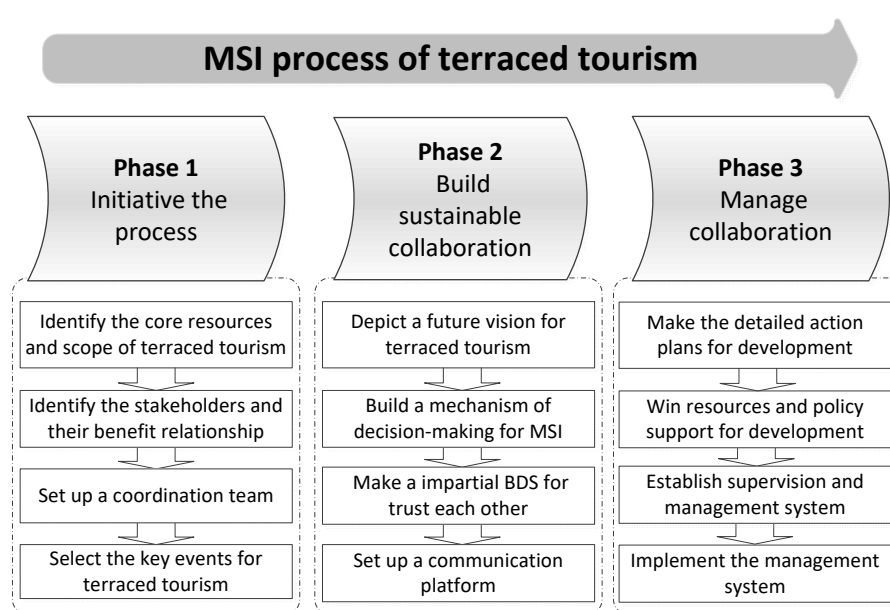


Figure 4. The route of exploring MSIM and its construction.

In this study, the theoretical framework of MSIM in terraced tourism and the analytical method are applied to analyze the components and the forming and evolution process of the MSIM according to the developing stage of Dazhai terraced tourism, Longsheng County. Then, the problems on terraced tourism development are pointed out and future strategies are proposed.

3.2.2. Data Collection

Based on the theoretical model of MSIM in the previous section, empirical research on Dazhai tourism was conducted through qualitative and quantitative methods. The qualitative method has been used widely for researching MSIM in rural tourism [55,58]. It can clearly be stated and explained by MSIM and is thus appropriate for this study. Using the combined qualitative with quantitative methods, this study can accurately demonstrate the MSIM of Dazhai tourism.

In this study, the materials and data include Dazhai basic conditions (farmland area, population amount and household amount in different years), tourism data (tourist amount, scenic ticket income, hotel/restaurant amount) and household tourism revenue data (compensation from tourism companies for maintaining rice terraces and tourism dividends) which were gained from the yearly statistic report of Dazhai and the yearly statistic report of tourism bureau of Longsheng County. The MSIM in Dazhai tourism, including the history of tourism development, industrial development change, villagers' income conditions, BDS among stakeholders, the decision-making process in tourism development, implementation of supervision and management scheme, was surveyed through a semi-structured interview. The outline of the semi-structured interview was designed for the tourism bureau of Longsheng County, management departments of the village, villagers, and villager leaders (Table 1). Besides, for examining the agricultural production period and agricultural labor inputs, a sample questionnaire survey was conducted to farmers.

Table 1. Outline of the semi-structured interview for village officials and villagers.

No.	Interviewed Content	Details
1	Process of tourism development	<ul style="list-style-type: none"> • When did Dazhai begin to develop terraced tourism? • Who and when participated in Dazhai tourism? • How did they/he take part in the tourism?
2	Industrial development change	<ul style="list-style-type: none"> • In Dazhai, aside from agriculture, how are other industries changing, for example, tourism scenery ticket income, agricultural product processing and hotels and restaurants? • Which jobs are the villagers mainly occupied in?
3	Villagers' Income conditions	<ul style="list-style-type: none"> • Which parts does the income of villagers consist of? • Since the tourism development in 2004, how change did villagers' income?
4	BDS among stakeholders	<ul style="list-style-type: none"> • How to develop tourism yet? And now? • What role did the villagers, governments and companies play in industrial development? • How do they allocate the benefits from industrial development?
5	Decision-making mechanism in Dazhai development	<ul style="list-style-type: none"> • How to initiate the cooperation between Dazhai and companies to develop tourism yet? • How was the benefit allocation principle made by villagers? • What about the participation way of villagers?

Table 1. Cont.

No.	Interviewed Content	Details
6	Implementation of supervision and management scheme	<ul style="list-style-type: none"> • How do they supervise the villagers to plant rice according to the contract? • If some villagers do not plant rice, how to punish them?

The field interviews were conducted four times. The first time is from 29 to 31 January 2018. During this time, our research team collected basic information of Dazhai including the tourism development history of the village, terraced conservation condition, stakeholders and their cooperation approaches, benefit distribution, and decision-making mechanism of Dazhai. The informants include leaders of Dazhai, managers of Longji Tourism Company, leaders of the tourism bureau of the county, staffs of the terraced tourism management committee and the agricultural bureau, and 10 households. The second time is from 17 to 21 May 2018. In this time, we mainly surveyed BDS and the process of making BDS. Due to a lack of documents that recorded establishment process of MSIM, we had to gain the information by interviewing different stakeholders who participated in setting up the MSIM. To ensure the accuracy and objectivity of information to really reflect the MSIM evolution process and how it reacted on the terraced maintenance, we interviewed staffs of the tourism bureau of the County, the Chief Executive Officer (CEO) of Longji Tourism Company, staff of the terraced tourism management committee, leaders of the management departments of Dazhai, and five farmers with higher education level who are familiar with the information above and can narrate it by themselves, respectively (most farmers who just accepted low school education could not state clearly the happened event in the past years according to our surveys). Then we checked whether their words are consistent. If their words were not consistent, we confirmed repeatedly the information with them according to others' words and do not stop interviewing until they have consistent words about the same question. Besides, our research team also interviewed 24 villagers for collecting boom season of tourism Dazhai, income conditions. The third time is from 18 to 20 September 2019. During this time, we supplemented some contents including the history of tourism development and the process of making BDS through return interview. To ensure the accuracy of collected information on Dazhai tourism development, we interviewed leaders of Dazhai, leaders of the tourism bureau of the county, CEO of Longji Tourism Company through telephone to verify them. The fourth time is from 26 to 28 September 2020. At this time, we interviewed four farmers for their terrace rice farming and family livelihood conditions and leaders of Dazhai and the staffs of the terraced tourism management committee for the tourism development and MSIM change in 2019.

4. Results

The tourism development of Dazhai went through three stages: a primary stage (2003–2006); a rapid development stage (2007–2012); and an upgrading stage (2013–now). In each stage, different stakeholders try to obtain more benefits from tourism development. Their benefit distribution relationships were adjusted continually in the benefit game.

4.1. The Primary Stage, 2003 to 2006, Constructing Infrastructures for Tourism Development

4.1.1. MSIM Construction Process

- Initiating the MSIM process

All of the natural villages of Dazhai are in a closed valley. The terraces in these natural villages jointly constitute a magnificent landscape, which had attracted some individual tourists as core tourism attractions before 2001. However, Dazhai tourism did not get developed due to low accessibility. Inadequate infrastructure was the main factor hindering Dazhai's development in tourism. For solving the problem, the Dazhai villagers

committee and village's communist party committee (abbreviated as two-committee), as the MSIM initiator and coordination team, decided to request the government of Longsheng County to invest to build a highway from Dazhai to the central place of Longji Township. Eventually, the county government agreed to build the highway in 2001, but ask Dazhai to pay the compensation fund for requisition land considering the limited financial funds of the county.

- Building sustainable collaboration

For the poor village at that time, raising funds was a key event to develop tourism in this stage. To solve the fund problem and other collective problems of Dazhai, two-committee built a democratic decision-making approach and supervision system. All the events about the village collective would be decided by villagers-meeting. Behaviors of leaders and villagers in Dazhai would be supervised by each other. As the deputy of Dazhai villagers and a coordination team, two-committee strived to promote cooperation among different stakeholders through negotiations with external stakeholders and villagers-meetings for internal stakeholders.

For the fund collection, two-committee held a villagers-meeting to discuss the solution. They proposed two financing approaches. One approach was to collect the fund from all villagers of Dazhai. The other approach was to sell the tourism ticket income right of Dazhai to a private individual such as a person or a company in exchange for the fund. In the end, the latter approach was agreed upon by villagers. However, villagers generated a divergence in using how many years of ticket income for the fund. There were two schemes that villagers put forward. The first one supported by a quite part of villagers is to use the ticket income right from 2004 to 2014 for the fund. The second one is to use the right from 2004 to 2006 for the fund. The villagers supporting the first scheme were unaware of the development prospect of Dazhai tourism. They thought no one would accept the second scheme since just a few tourists visited Dazhai at that time. But other villagers considered Dazhai tourism would bring high ticket income soon. Through repeated argument, all the villagers expressed to support the second scheme if two-committee could find the purchaser. At last, two-committee found Longji Tourism Company and reached a cooperation agreement with it on the second scheme. The agreement regulated that Longji Tourism Company pays 128,000 RMB as compensation fund to Dazhai and get Dazhai ticket income from 2004 to 2006. The compensation fund was distributed to the villagers whose land was occupied in building the highway. In sum, two-committee was in coordination with stakeholders repeatedly and help Dazhai solved the problem of fund shortage through selling ticket income right of three years.

- Manage collaborations

To ensure the agreement to implement, Dazhai and Longji Tourism Company established a fund payment scheme that Longji Tourism Company would pay 53,000 RMB to Dazhai when the contract was taken effect and then pay 25,000 RMB per year when terraces were maintained well from 2004 to 2006. The local government would supervise that the contract was implemented by two parties according to relevant regulations and laws. Two-committee supervised villagers to grow rice and protect terraces.

4.1.2. Development Situations

In 2003, the first year of business, more than 20,000 tourists visited Dazhai from 16 September to the end of that year. Capita income of the village increased to more than 600 RMB. Since that year, tourists have continually increased. Dazhai tourism had enjoyed a certain famous reputation when the ticket income right of Longji Tourism Company expired at the end of 2006. The tourist number was 42,142 persons in 2006. Industries related to tourism appeared, for example, restaurants, hotels, tourist commodity store, and carrying luggage services for tourists. A large part of villagers in Dazhai was engaged in carrying luggage services for tourists due to the high relative altitude of terraces. During this stage, just a few households operated other industries. All the villagers must grow rice

in terraces to maintain the terraced landscape according to the contract. Two-committee and Longji Tourism Company supervised those villagers to grow rice in terraces.

4.2. The Rapid Development Stage, 2007 to 2012, Building BDS to Maintain Tourism Sustainability

4.2.1. MSIM Adjustment

The first contract between Dazhai and Longji Tourism Company expired at the end of 2006. A new contract must be made for the cooperation continuing. With the fast increase of tourists, the Dazhai ticket income greatly rises and the industrial types also became diverse. Part of the villagers began to do non-farm jobs aside from growing rice. Therefore, the new contract must drive all the villagers to grow rice for the sustainable development of tourism. The most important key factor is making fair and effective BDS among stakeholders.

- Making a new sustainable collaboration

Rice terraces as a core attraction were stressed by the two-committee in developing tourism all the time. For terraced landscape conservation, two-committee at first had drawn up a new draft scheme and held villagers-meeting to discuss it. The key content of the contract is how much Longji Tourism Company should pay the TID to Dazhai per year. Through joint discussion by villagers, the new draft scheme indicating that Longji Tourism Company pays the ticket income to Dazhai as TID was agreed by villagers in Dazhai. The draft scheme was then discussed by two-committee, Longji Tourism Company, and the Longsheng county government. At last, a new scheme was reached by Longji Tourism Company and Dazhai. For letting villagers cultivating rice, the TID fund was paid according to a dynamic standard (Table 2), which depends on the tourist amount entering Dazhai per year. In this stage, Dazhai just got a TID fund from Longji Tourism Company. In September 2007, the county government established a scenic management committee (SMC) for the Longji terraces scenic region. SMC works on maintaining the road, building infrastructures, and managing scenic regions such as monitoring terraced landscape conservation and villager's house construction.

Table 2. The scheme that TID was paid by Longji Tourism Company to Dazhai.

Component	Payment Scheme	Condition
TID	pays 7% of Dazhai ticket income 150,000 RMB	When 7% of the ticket income \geq 150,000 RMB When 7% of the ticket income $<$ 150,000 RMB

The TID from Longji Tourism Company belongs to a collective income and needs to be distributed again inside Dazhai. In order to sustainably maintain terraces in Dazhai, a reasonable TID distribution scheme is also quite important to prompt villagers to grow rice. According to the convention, two-committee drafted the distribution scheme based on the situation at that time and held villagers-meeting to discuss it. Ultimately, a new BDS was agreed upon among villagers as shown in Table 3. The cultivated area of rice accounted for the highest right weight of TID distribution inside Dazhai. Households need to sign the contract with the Longji Tourism Company and two-committee to ensure they continue to grow rice in their terraces during the contract period.

Table 3. The distribution scheme of TID.

TID Distribution Standards	Ratio (%)
According to the cultivated area of rice	50
According to the population amount per household	20
According to the household amount in Dazhai	20
Dazhai Village management fund	5
Expenses for maintaining roads in Dazhai	5

- Manage collaborations and seek new development

SMC was responsible for managing the whole landscape of the scenic region, supervising other stakeholders to perform the contracts. It also charged the TID fund from Longji Tourism Company and paying the fund to Dazhai according to the conservation status of the terraced landscape. Two-committee coordinated the relationship between villagers and other stakeholders and supervised villagers to grow rice and reinforce terraces.

With Dazhai tourism fame increasing, the tourist amount continued to fast rise. GJP Cableway Company found the cableway requirement of tourists in Dazhai and wanted to invest to build a cableway connecting the gate of the scenic spot to the top of the terraces. However, the project confronted tremendous resistance from most villagers. Most villagers opposed the cableway building since they considered that the cableway construction would make them lose the job of carrying luggage for tourists. Leaders of the two-committee saw through clearly the cableway construction would bring more development opportunities to Dazhai. They convened villagers-meeting to explain the project would produce lots of benefits for villagers. At last, those villagers with disagreement were persuaded one by one. Most villagers agree to support cableway construction. In October 2011, the cableway began to be built. In September 2012, the cableway construction was finished by GJP Cableway Company although the project was forced to halt many times due to disturbance of a small part of villagers who still opposed.

4.2.2. Development Situations

In this stage, Dazhai tourism developed rapidly and improved the income of villagers. The tourist number was from 52,858 persons in 2007 to 128,119 persons in 2012 (Figure 5). Dazhai got a TID of 158,400 RMB, just exceeding the lowest standard (Table 2), from Longji Tourism Company in 2007, but got 577,700 RMB in 2012. Aside from the income from Longji Tourism Company, more and more villagers began to operate restaurants or hotels. There were 53 restaurants/hotels in 2011 according to our interviews. The capita income of Dazhai villagers also ascended sharply, from 2000 RMB in 2007 to more than 4000 RMB in 2012. According to leaders introducing, terraces are the root of Dazhai tourism development, half the tourism income being used to prompt terraced landscape conservation. During this stage, Longji Tourism Company also invested lots of money to build the tourism facilities in Dazhai. In a whole, the rice terraces got maintained very well under the BDS.

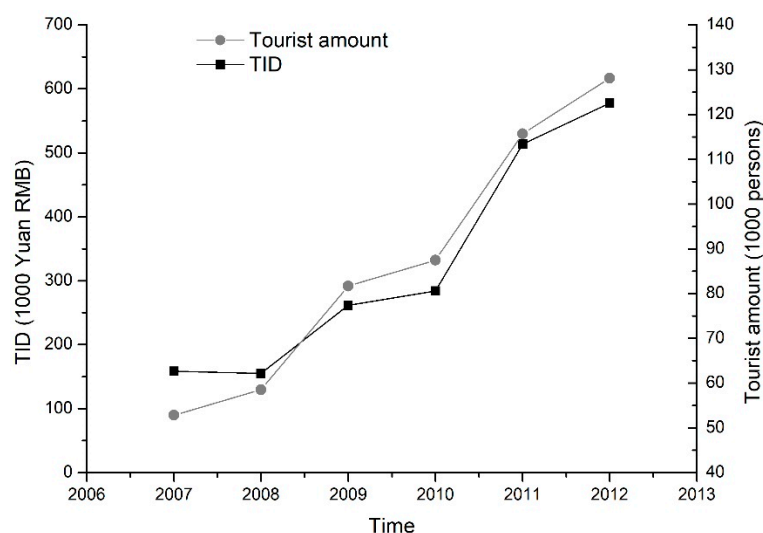


Figure 5. The tourist number and TID change from 2007 to 2012.

Note: After the first contract expired in 2006, a new contract between Dazhai and Longji Tourism Company from 2007 to 2012 was signed. Of which the TID is a dynamic number that was decided by the tourist amount into Dazhai in a year.

4.3. The Upgrading Stage, 2013-Now, Improving BDS to Consolidate Terraced Landscape Conservation and Tourism Sustainability

4.3.1. MSIM Adjustment and Development

- Renew the sustainable collaboration

When the cableway construction was finished, how to share the income from the cableway ticket with GJP Cableway Company is a new question to resolve. According to the previous process of making a BDS for the ticket income, GJP Cableway Company and Dazhai drafted and reached the BDS for cableway tickets. Considering the cableway cost recovery needs a long period, 4% of the ticket income of cableway per year as TID was paid to Dazhai. Therefore, since 2013, Dazhai's TID consisted of two parts from Longji Tourism Company and GJP Cableway Company (Table 4).

Table 4. The scheme that TID and CMT were paid by Longji Tourism Company and GJP Cableway Company to Dazhai from 2013 to now.

Component	Payment Scheme	Condition
Part 1: TID	pays 7% of Dazhai ticket income 150,000 RMB	When 7% of the ticket income \geq 150,000 RMB When 7% of the ticket income $<$ 150,000 RMB
Part 2: CMT	7500 RMB per ha 15,000 RMB per ha	When tourist number $<$ 360,000 persons When tourist number \geq 360,000 persons
Part 3: TID	pays 4% of cableway ticket income	No

The cableway's operation made more people know Dazhai terraces. In 2013, the tourist number to Dazhai increased by 53.8% compared with 2012. More and more villagers began to do non-farm jobs on tourism services. To enhance terraced conservation, Longji Tourism Company signed another contract with Dazhai to encourage villagers to grow rice. The contract indicated that Longji Tourism Company would pay extra money to households in Dazhai based on their cultivated rice area according to a dynamic standard (Table 3). With the increase of tourists and more convenience going up to the top of terraces, more and more households distributing in different places of Dazhai terraces began to operate restaurants and hotels. The ratio of TID decreased in the tourism income of households. The existed BDSs were not effective to prompt villagers to protect terraces. Hence, two-committee decided to adjust the BDS.

At the end of 2013, a new BDS inside Dazhai was made by two-committee and passed in villagers-meeting. All the households signed a new contract on growing rice with two-committee. In the new BDS (Table 5), 70% of TID was allocated according to the cultivated area of rice per household, 12% equally divided according to the household amount of Dazhai, 12% allocated according to the population amount per household, 3% used as the public fund for the expenditure of village committees, and the rest 3% used for building new roads or maintaining old roads. Comparing with the old BDS, the new one increased the allocated ratio of TID according to rice terraced areas. All others' ratio was reduced.

Table 5. The distribution scheme of TID.

TID Distribution Standards	Ratio (%)
According to the cultivated area of rice	70
According to the population amount per household	12
According to the household amount in Dazhai	12
Dazhai Village management fund	3
Expenses for maintaining roads in Dazhai	3

In this stage, to promote terraced tourism development in the whole county, the SMC on behalf of the local government began to get 1% of the entrance ticket from Longji Tourism Company and GJP Cableway Company. For helping more villages to develop rural tourism, SMC began to take 40% of the TID from Longji Tourism Company and GJP Cableway Company since 2019. These funds were used to maintain roads outside scenic spots, to build infrastructures between different scenic spots, and to manage the whole scenic region.

- Manage collaborations

In 2018, Longji Terraces was designated by FAO as GIAHS. Dazhai as a part of the GIAHS attracted more tourists from the world. Dazhai tourism industries were also more diverse. The income of villagers was faster rising. Terraced landscape conservation was facing new problems. For example, many farmers did not want to grow rice since they were busy with the operation of restaurants and hotels. According to the GIAHS conservation requirement, traditional agriculture and relevant culture should be done by indigenous farmers. At the same time, to effectively protect the terraced landscape, two-committee made a new village regulation that Dazhai villagers are only allowed to rent out their farmlands to other villagers in Dazhai. The CMT is also paid to those farmland's tenants. The regulation got agreement from all the villagers, which encouraged those who cannot be engaged in non-farm jobs to plant rice.

Under the supervision of stakeholders, the SMC got TID from Longji Tourism Company and GJP Cableway Company and invested to build infrastructure. It accumulatively invested 1,896,400 RMB from 2014 to 2017. Longji Tourism Company and GJP Cableway Company also inputted a quite ratio of tourism income for maintaining roads and facilities in Dazhai. Besides, since September 2019, the operation right of sightseeing bus in Dazhai scenic spot was contracted to Zhenxin Limited Liability Company for reducing the civil dispute between tourists and Dazhai villagers owing to traffic accidents. The benefit share scheme of the sightseeing bus operation has been agreed by Dazhai villagers, SMC, and the transport company. But many villagers were still dissatisfied with some items in the contract, for example, villagers were not allowed to carry their guests by private car.

4.3.2. Development Situations

As far as the households' income was concerned, it was changing greatly in the third stage. The tourist amount to Dazhai continued increasingly. Tourists in 2018, 797,465 persons, were approximate 4 times of that in 2013 (Figure 6). In 2015, tourist amount first exceeded 360,000 persons, up to 462,601 persons. Dazhai got the CMT of 15,000 RMB per ha from Longji Tourism Company. The TID that Dazhai got from the two companies also continually went up, which reached 6,527,800 RMB in 2018, 5.8 times of that in 2013. In 2019, Dazhai TID decreased to some extent since SMC shared 40% of the TID. In addition, CMT and restaurants/hotels were also important income sources for Dazhai villagers. Dazhai had been 187 restaurants/hotels. Due to tourism development, the hollowing village had changed to a famous rich village in China, where villagers work in their village. Terraces as a core attraction were also protected very well under the dynamic BDS.

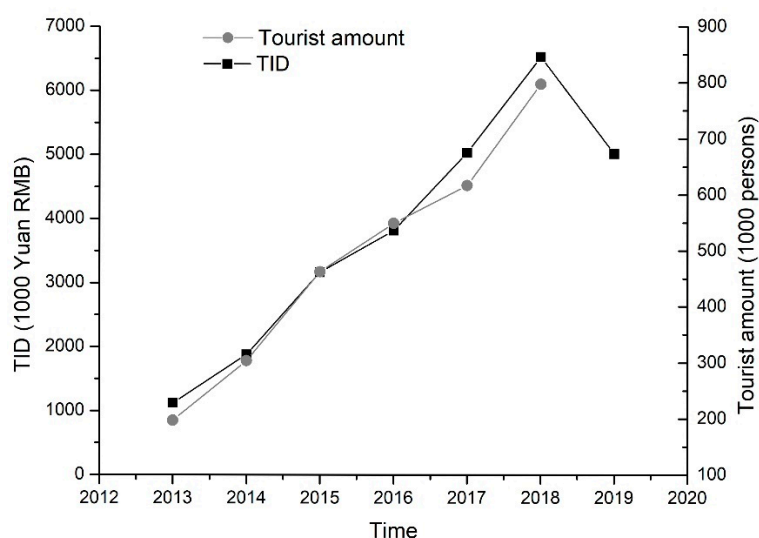


Figure 6. The tourist number and TID change from 2013 to 2019.

5. Discussion

Terraces abandonment is a common phenomenon in many countries due to comparative economic disadvantage of agriculture with population urbanization [36,37,59,60]. To this phenomenon, there are different views in scholarship. Some think terrace abandonment is inevitable and terraces should be allowed to change their agricultural use (for example, using for afforestation to improve their other ecosystem services) [61]. Others think terraces must be protected through payment for ecosystem services, ecotourism, and production of special agricultural products considering their food security and farming cultural functions [3,17,52]. To develop terraced tourism using to improve the income of farmers is a universal notion. However, keeping the balance between tourism development and terraced landscape conservation is a complex issue. Many cases showed that tourism brings negative effects on the terraced landscape due to the failure to balance the benefit between different stakeholders. For example, In Ifugao terraces, the Philippines, tourism development resulted in terraced abandonment due to farmers engaging in wood carving and serving as tourist guides full-time or water shortage posed by deforestation for wood carving [29]. Before 2004, in Ping'anzhai, another scenic spot of Longji scenery, some phenomenon such as villagers expelling tourism companies, terrace abandonment, and the confrontation between governments and villagers happened frequently yet due to no fair and effective MSIM [32]. Since 2004, when a dynamic MSIM was implemented, Longji terraced tourism came into a benign development status. The Dazhai tourism development experience showed its MSIM played a critical role in the sustainability of terraced tourism.

According to the MSI theory proposed by Wageningen University and other stakeholder study, a successful MSIM can grasp some critical issues [51,52]. Dazhai tourism went through an evolution process from simple sightseeing to diverse industries (Figure 7). In every stage, it had a key goal despite increasing diversification of its industrial type. For example, in initiating stage, building a highway was the most important event to develop tourism for Dazhai. Once tourism had developed, protecting terraced landscape became the most important event for tourism sustainability of Dazhai no matter how the industries and stakeholders were diverse. The BDS adjustment aimed to stimulate villagers to protect terraces by growing rice. Overall, the success of MSIM for Dazhai sustainability tourism was presented in six aspects: (1) identifying accurately core attractions and stakeholders; (2) an effective communication strategy; (3) a democratic decision-making mechanism; (4) dynamic BDSs facing terraced conservation; (5) coordination teams with foresight and selflessness; and (6) effective supervision and management.

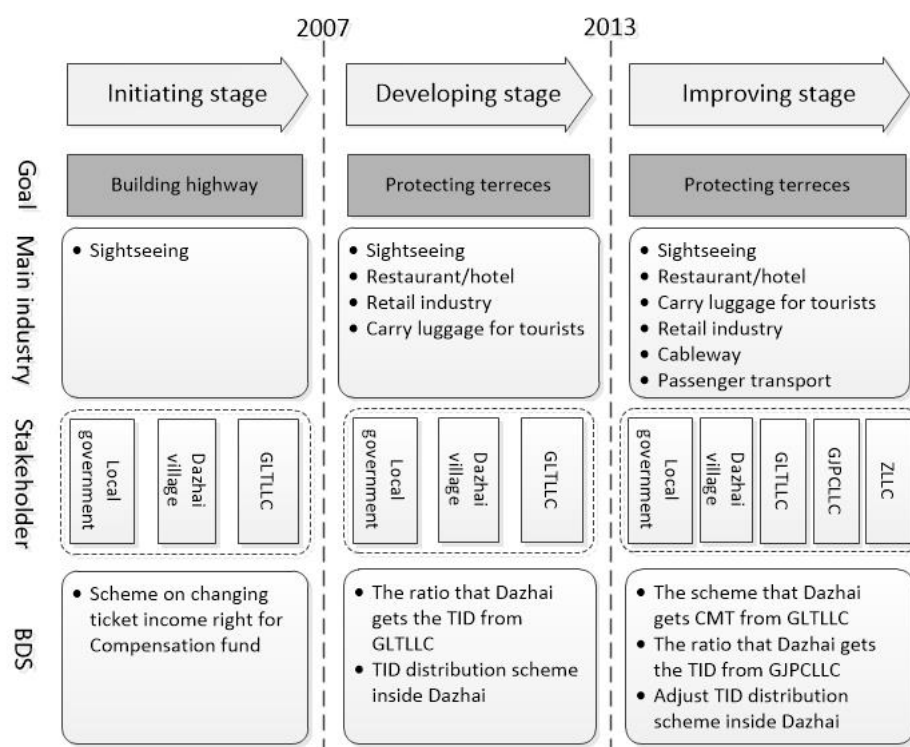


Figure 7. Evolution of Dazhai terraced tourism.

Identifying accurately core attractions and stakeholders contributes to the fair and effective MSIM construction. In Dazhai tourism development, the magnificent terraced landscape as the core attraction was regarded as the most important element and was stressed all the time. Key stakeholders related to Dazhai tourism were identified accurately. Each stakeholder's role and benefit could be recognized in-depth in different development stages. Therefore, those fair and effective dynamic BDS were made to meet the requirement of every party. Every stakeholder played its role in terraced tourism. From the development history of Dazhai tourism above, the terraced landscape was considered as the most important conservation goal (Figure 7). Making and adjusting BDS aim also to improve the effect of terraces conservation.

An effective communication strategy promotes the stakeholders to cooperate continually. In different development stages of Dazhai tourism, two-committee, as the initiator of MSIM, coordination team, and deputy of Dazhai villagers, communicated repeatedly with the villagers, local government, and enterprises to achieve the cooperation of multi-stakeholders. It made Dazhai tourism development feasible. For example, the highway construction was supported by the Longji county government and Longji Tourism Company in the first stage. Stakeholders reached a new contract to continue to develop tourism in the second stage. Villagers were persuaded to accept the cableway project and reached a benefit allocation scheme between GJP Cableway Company and Dazhai. The project helped Dazhai to welcome a new development opportunity of tourism.

A democratic decision-making mechanism allows stakeholders to express their interest appeals. The villagers-meeting as a platform provided discussion opportunities on important events for Dazhai villagers. The collective decision-making system gave every villager the right of expressing his/her opinion and participating in decision-making. It benefits the contracts to fulfill once cooperation is reached between Dazhai and stakeholders. The SMC as the deputy of the county government is another coordinator in benefits between Dazhai and enterprises, which actively prompted their cooperation through negotiation.

The dynamic BDS ensure the balance of benefits among different stakeholders at every stage and stimulates them to actively take part in the sustainable development of Dazhai tourism. For example, the BDS' change between Longji Tourism Company and Dazhai in

every stage made them get relatively satisfying benefits from the tourism development. The BDS changes among Dazhai villagers more effectively run villagers to grow rice and reinforce terraces. The balance of benefits relationship among stakeholders ensured they continued to cooperate. Besides, the benign cooperation relationship made the Dazhai tourism industry thrive and attracted lots of villagers to work at home. Dazhai thus had enough labor to maintain rice terraces.

The coordination teams play a leading role in the terraced tourism development. They can make a more accurate judgment of the development trend [62] and exchange views with different stakeholders for reaching a consensus. In Dazhai tourism development, the coordination teams consisted of dual committee of Dazhai and the Longsheng county government (Figure 8). They took on the coordination among stakeholders at different levels. The two-committee system, as a deputy of Dazhai villagers, strived to coordinate the benefits among villagers inside Dazhai and to find new development opportunities for Dazhai. It managed to build a democratic decision-making approach, supervision system, and village management system in which villagers participated commonly. These systems benefit the villagers by helping them reach an agreement on events about tourism development. They also drove villagers to grow rice to protect terraced landscapes. Two-committee tried to seek cooperation with enterprises and governments and won benefits for villagers through negotiation. Longsheng county government (or its deputy, SMC) was responsible for coordinating benefits among Dazhai, enterprises, and other villages in the scenic region. It also supervised these stakeholders to fulfill their obligations and managed the production and operation of the stakeholders. Besides, it invested in repairing infrastructures, building new ones to facilitate tourism development for other villages, and making policies concerning tourism development and GIAHS conservation.

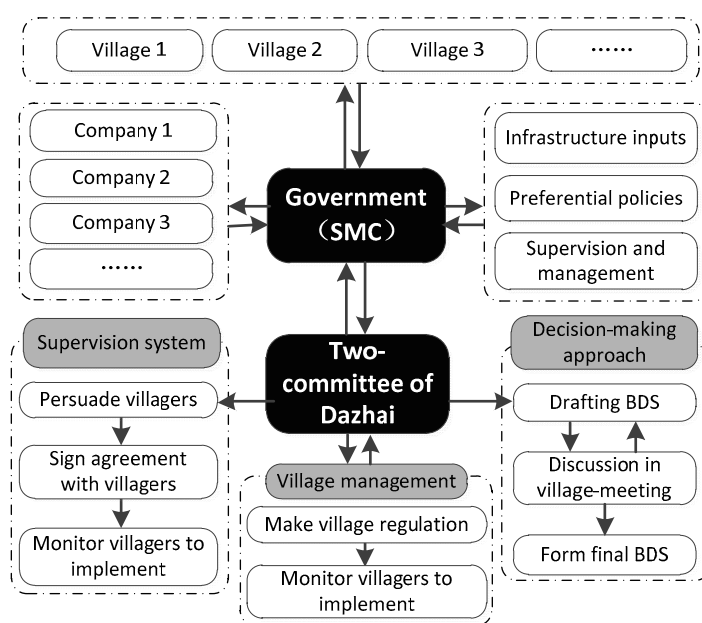


Figure 8. Diagram of multi-stakeholder participation mechanism of Dazhai.

The effective supervision and management in the MSIM ensured stakeholders to perform their contracts. The enterprises, government, and two-committee supervised Dazhai villagers to protect terraces. Dazhai villagers also supervised each other. If some villagers destroyed the rice terraces, Dazhai not only lost CMT but also would be decreased in TID. It then led to other villagers' TID reduction. The management status of enterprises also influences the income of villagers and the work achievements of the government. Therefore, the close benefit relationship among these stakeholders drove them to supervise each other all the time and to fulfill their promise.

In conclusion, the sustainable development of Dazhai tourism was benefited by the fair and effective MSIM. The six aspects of MSIM jointly promoted terraced tourism development. In China, rural tourism often exists a series of conflicts. Two-committee (villages and local government) are the main conflict parties to villagers due to limitations in maintaining local people's interests or unjust treatment to villagers [35]. Some cases on terraced tourism show that interest conflicts or ineffective BDS led to terraces abandonment due to lack of a wise and selfless leading group as the coordinator [25,34,63]. These cases have proved that unreasonable MSIM does not protect terraces and even accumulates terraced destruction. Dazhai is also confronting new conflicts with increasing stakeholders. For example, the government began to charge a part of TID and introduced new stakeholders. These conflicts will be dealt with through making new BDS.

This study systemically introduces the experiences of Dazhai on MSIM to readers. It is successful that the MSIM of Dazhai prompt villagers to maintain terraced landscape through developing diverse industries and timely adjusting BDSs. The dynamic MSIM continually improved the income of those villagers who persisted in growing rice. They were thus willing to protect terraces. In this study, we elaborate on the MSIM of Dazhai through a theoretically analyzing method and aim to make it be understood easily and more widely understood. The systemic MSIM enriches the case of stakeholder study in rural tourism and contributes to improvement of MSI theory, especially in identification of key elements. It is also able to provide implications for the researchers and governments in some agricultural landscape reserves.

This study mainly presents the evolution history of MSIM of Dazhai and terraced landscape conservation from the perspective of social management. Thus, it did not consider collecting lots of samples to make statistical analysis research. MSIM for sustainable terraced tourism is a quite complex issue. Lots of other topics on MSIM of Longji terraces need to be studied to reveal its reasonability and sustainability. For example, when villagers' income continues to increase rapidly from the secondary or/and the tertiary industry and they will not want to grow rice no matter how high the TID is, how does one adjust the current BDS of terraced landscape conservation? Currently, Dazhai still does not have a famous brand for agriculture products. The green local characteristic agricultural products are sold at low prices. When the brand value of agricultural products from terraces rises sharply, will villagers tend to farm rice or not? Based on these studies, a more complete MSIM may be explored and used widely in the future.

6. Conclusions

In this study, we conclude that continually economic increase from tourism development and the MSIM stimulates Dazhai villagers to insist on growing rice, companies to strive to operate the scenic spot, and government to build infrastructures for and give preferential policies to Dazhai, and then promote sustainable development of the Dazhai tourism. Dazhai tourism sustainability results from the dynamic and systemic MSIM that is presented in identifying accurately core attractions and stakeholders, an effective communication strategy, a democratic decision-making mechanism, dynamic BDSs facing terraced conservation, coordination teams with foresight and selflessness, and effective supervision and management. Of these, key factors are the powerful coordinators, two-committee of Dazhai, and the local government. The coordinators play a guiding, organizing, and coordinating role in sustainable terraced tourism. They can accurately judge the industrial development trend; make and timely adjust development strategies and BDS; organize, coordinate, and manage civil affairs; and strive for benefits for villagers through bargaining with other stakeholders. The democratic decision-making in villages lets villagers easily accept the contract/agreement and monitor each other. The supervising system ensures the contracts are performed successfully. Multi-stakeholder cooperation means that local economic development depends on the striving of stakeholders (e.g., governments, enterprises, and villagers).

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