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Tourism Space Reconstruction of a World Heritage Site Based on Actor Network Theory:

A Case Study of the Shibing Karst of the South China Karst World Heritage Site

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Abstract: The number of world heritage sites is increasing daily, and China has become one of the countries with the largest number of world heritage sites. However, the study of complex geographic spatial processes before and after the successful inscription of heritage sites is relatively rare. The Shibing Karst component of the serial South China Karst World Natural Heritage Site was taken as a case study, and actor network theory and qualitative research methods were used to analyze the space reconstruction processes and mechanisms of the Shibing Karst. The findings indicated that (1) the Shibing Karst experienced two sequential space reconstruction processes, the normal tourism destination construction phase and the world heritage site construction phase; (2) in the tourism destination construction phase, there was a heterogeneous actor network in which the People's Government of Shibing County played a focal role in promoting the restructuring of production, living and ecological space and realizing a space for the production and consumption of tourism products and experiences; (3) in the world heritage site construction phase, foreign enterprises became new actors, and residents gradually gained more decision-making rights, with the UNESCO World Heritage Committee and the World Heritage Centre having supervisory rights, which promoted the transformation of the area into a world heritage production and consumption tourism space, indicating that the actor network had changed; and (4) the mechanisms of the actor network transformation were mainly changes in key actors' intentions, the adoption of the governance mechanism (changes in the means of enrollment), and changes in the actors' roles as part of the actor network transformation. Research on the process of space reconstruction showed that changes in the actor network and interest relations and adjustments of the power relations among actors, which can affect the sustainable development of tourism and the economy of heritage sites, occurred.

Keywords: Actor network theory (ANT); space reconstruction; world heritage site; Shibing Karst

1. Introduction

As of July 2019, China had 55 world heritage sites, ranking first in the world

together with Italy. Chinese tourism destinations such as Zhangjiajie, Lijiang, Libo, and Wulong have benefited greatly from nomination to and inscription on the World Heritage List. Most tourism destinations have undergone different degrees of development, and inscription on the World Heritage List means the involvement of the UNESCO World Heritage Committee and the World Heritage Centre, outstanding universal value (OUV), more complex interests, and power, capital and other elements entering tourism destination spaces so that tourism destinations have more complex interactions and relationships. The continuous generation, disappearance or resetting of the spatial elements of a tourism destination leads to the evolution of the spatial structure, function combination, scale and social form, and the space reconstruction of the tourism destination (heritage site) is carried out on the basis of these changes.

Tourism destinations are regarded as spatial relationship aggregates of production, living, ecology, consumption and other elements. With rapid economic development and the sharp increase in consumer demand, the transformation and development of tourism destinations have entered a new stage, and spatial production, evolution and restructuring have become common scientific issues in the study of tourism destinations of different scales and types. Actor network theory (ANT), proposed by Latour as a powerful sociological and theoretical method or a methodological toolkit (Ai & Miao, 2010), can effectively connect spatial element relationships and complex networks, deepen the understanding of spatial phenomena in the field of geography, and provide new ideas to explain the formation and reconstruction of space (Murdoch J, 1998, 2000). Therefore, it has been widely used in various branches of human geography (Liu & Wang, 2013). Van der Duim (2007) used ANT to explain “tourismscapes” and argued that people and things become entangled via complex processes of translation and that people, organizations, objects, technologies, and spaces are all concurrently brought together in the performance of tourismscapes. Within a tourism destination, ANT has been used to understand how the existing resources can be reconfigured to create unique and innovative products (Paget, Dimanche, & Mounet, 2010). Different types, attributes, functions, energy levels, and scales of spatial production have led to different approaches to spatial structural evolution and reconstruction (Huang & Lu, 2015). ANT has contributed to analyses of structural problems of fluid ordering and conflicting development programs (Povilanskas & Armaitiene, 2011). In recent years, some scholars in China have introduced ANT; compared it with traditional social theory paradigms by generalizing its ontology, epistemology and methodology; and pointed out that ANT can achieve heterogeneous objectives and find connections between them (Zhu, Bao, & Xiang, 2012). To some extent, ANT contributes to the spatial turn of tourism

research (Li, Fu, & Liu, 2014). The tourism research from the perspective of ANT has a relatively short history, and most studies have focused on the different spatial processes of ordinary rural tourism destinations (Chen & Zhang, 2015; Wang, 2017; Hu & Bao, 2016; Yang, Xu, Zhou, & Chen, 2018; Zheng, 2018; Zou, Zhou, & Pan, 2019). However, studies on other types or attributes of tourism destinations are still rare. As a special kind of tourism destination, world heritage sites acquire value recognition and protection standards that the civilized countries in the world impose consistently, and relevant organizations such as the UNESCO World Heritage Committee can contribute to inviting and organizing more tourists to carry out tourism consumption activities, which benefits the economic development and brand publicity of world heritage sites. Therefore, the nomination to world heritage inscription and subsequent development of heritage tourism has gradually become a transformation channel for tourism destinations. Furthermore, on the basis of the improvement of the environmental infrastructure, integration of tourism resources, recognition and protection of OUVs, and economic growth, the development of heritage tourism has allowed the space reconstruction of tourism destinations (Huang et al., 2015); that is, a tourism destination space is restructured into a tourism consumption space that incorporates the heritage space. What are the processes and mechanisms of this space reconstruction? What role do the various elements of space play? How do they make connections, and what effects do they have on the process and influence mechanisms of space reconstruction? To explore the mechanisms of the elements of the space reconstruction of world heritage sites, the phases and modes of the space reconstruction of tourism destinations need to be systematically analyzed. Taking the Shibing Karst component (hereafter referred to as the Shibing Karst) of the South China Karst World Natural Heritage Site (hereafter the South China Karst) as an example, ANT was used to analyze the mechanisms of the elements of space reconstruction with a view to deconstructing the translation process, governance mechanism and transformation method of the actor network of space reconstruction. This study has theoretical and practical significance for the space reconstruction and development of world heritage sites as a special type of tourism destination.

2. Study area

The Shibing Karst, which includes the Yuntai Mountain Scenic Area, Shanmu River Scenic Area and upstream water conservation area, is located within Wuyanghe National Park in Shibing County in eastern Guizhou Province, China, and is an important part of the South China Karst, which is a serial property that contains some of the best-known examples of subtropical fengcong karst in dolomite, deep gorges

and spine-like hills that are often shrouded in clouds and mist. The total area of the Shibing Karst is 28,295 ha, of which the property area is 10,280 ha and the buffer zone is 18,015 ha, and it is situated between the latitudes of 27°13′56.02″N-27°04′51.53″N and longitudes of 108°01′36.80″E-108°10′52.06″E (Fig. 1). Under the classification and assessment of quality standards of tourist attractions in the People's Republic of China, the quality classes of tourist attractions are divided into five levels in order from high to low: AAAAA, AAAA, AAA, AA, and A. The Shibing Karst is a Class AAAA tourism destination in China. In 2014, it became an integral part of the second phase of the South China Karst World Natural Heritage Site because it met world natural heritage criteria (vii) and (viii); then, it was included in the World Heritage List. That year, the Shibing Karst World Natural Heritage Site received 1.427 million tourists, and in 2015, it received 2.5563 million tourists. In 2018, the Shibing Karst received 5.301 million tourists; thus, the number of tourists after it became a world heritage cite showed an obvious upward trend.

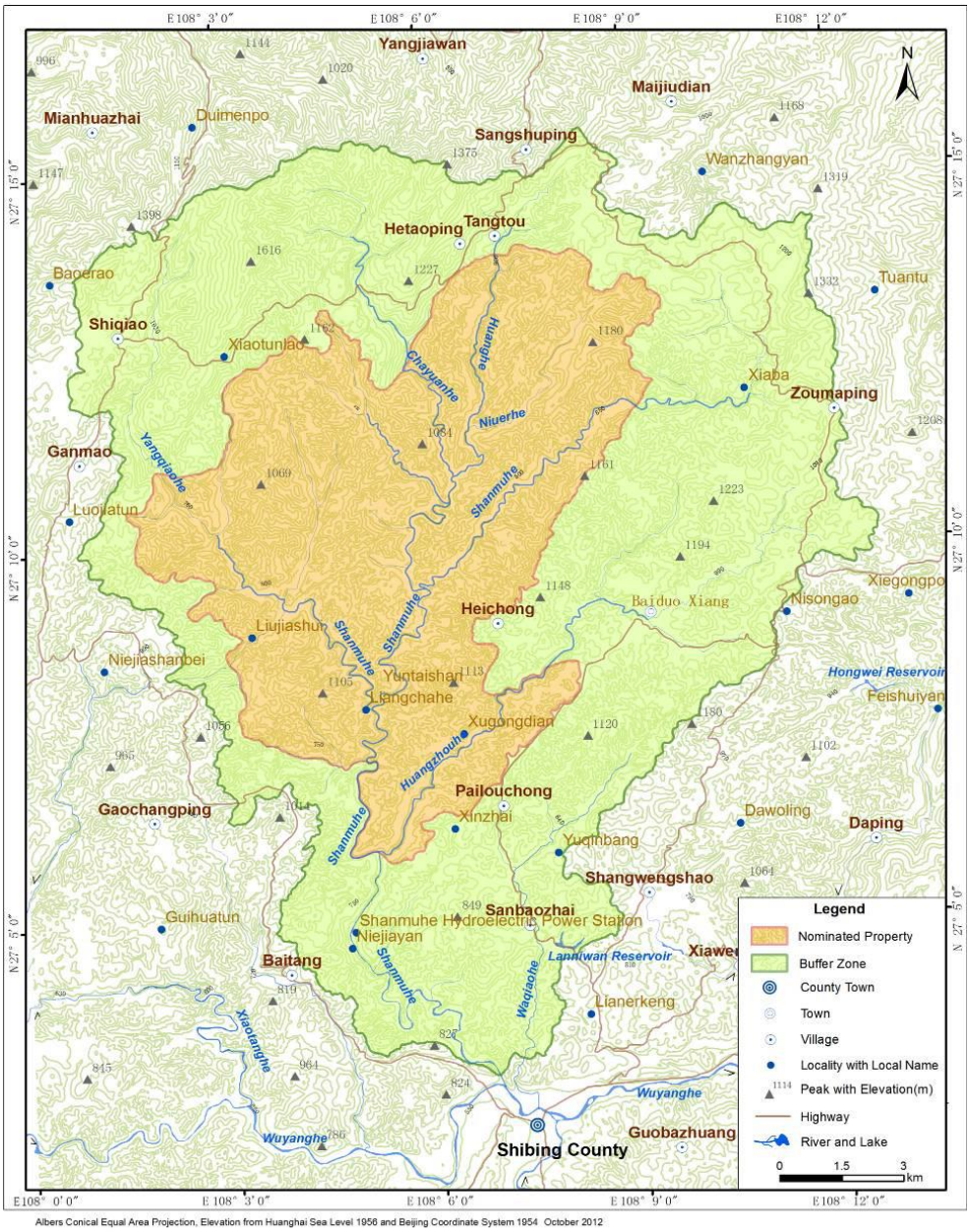

Fig. 1. Detail of Shibing Karst World Natural Heritage Site

3. Study theory and methodology

ANT, also called the sociology of translation, was proposed by scholars represented by Latour as a scientific practical research method that emphasizes the processes of work, interaction and change (Latour & Woolgar, 1986; Callon, 1986; Latour, 1987; Wu, Lu, Chen, & Wang, 2008). In terms of methodology of ANT, it stipulates describing and interpreting everything in terms of the complex heterogeneous relationships and interactions of entities (Povilanskas et al., 2011) and

provides opportunities to better explain complex processes. The researchers need to record and know why and how actors did what they did (Zhu et al., 2012). There are three focal ANT components: actor, translation, and heterogeneous network. Based on the general symmetry principle, the actor network includes not only humans but also nonhuman factors such as natural landscapes, infrastructure, housing, funds, policies, and land. The processes of translation, which play a focal role in ANT, have four parts: problematization, interessement, enrollment and mobilization (Liu et al., 2013). Problematization refers mainly to the problems or target obstacles encountered by actors in the process of achieving different intentions. Interessement strengthens the definition of the role of actors through various actions and strategies during problematization (Liu et al., 2013) and is the technical means used by key actors to stabilize the alliance of interests (Zhao, 2011). Heterogeneous actors adopt various methods of enrolling and being enrolled in the process of network construction, and each actor is mobilized and given corresponding responsibilities. Translation means that the actor expresses the language, questions and interests of other actors through his or her own language, questions or interests (Liu, 2006) and defines their respective roles through questions and interests; these are the ties that connect actors to the network (Li, Zhang, & Chen, 2014). In the initial stage of translation, all actors' problems are gathered at the obligatory passage point (OPP), and a collective consensus is reached with a view to obtaining the expected benefits (Liu et al., 2013). ANT proposes that heterogeneous actors, both human and nonhuman, are mediators rather than intermediaries. Through the unfolding and mutual embedding of the translation process, actors jointly connect heterogeneous networks, which is not a result but a series of actions (Wu et al., 2008). In addition, actions are not solidified and have fuzzy boundaries, and they are constantly defined, influenced and transformed; that is, the translation process is a manifestation of dynamic changes in the network. The tourism development process of the Shibing Karst can be divided into the tourism destination construction phase (mid-1980s-2008) and the heritage site construction phase (2008-present). As a heterogeneous, complex and dynamic spatial relationship aggregation, the Shibing Karst is constantly being integrated, and it is always undergoing a dynamic process of space reconstruction. Therefore, the general symmetry principle and the dynamic and interactive perspective of the translation of ANT are chosen in this paper. ANT is applied to analyze the constructions of the actor network of the tourism destination construction phase and the world heritage site construction phase of the Shibing Karst and the change from the first phase to the second phase; in addition, it is used to explore the space reconstruction processes and mechanisms of the Shibing Karst.

The research was qualitative, and different investigative methods were used.

First, in-depth interviewing was the main method of collecting information for this research. Twenty-one interviews were conducted in relation to the tourism development process of the Shibing Karst and the participation of various actors. The interviewees were representatives of the government (one spokesperson), the World Natural Heritage and Scenic Area Administration Bureau of Shibing County (four spokespersons), community residents (ten spokespersons), and tourists (four spokespersons), as well as a heritage conservation expert of the UNESCO World Heritage Committee and the World Heritage Centre (one spokesperson) and a scholar (one spokesperson), who had participated in the Shibing Karst tourism development process. They were interviewed between January 2018 and February 2020. The interviews lasted 30 to 60 minutes and were recorded with permission from the actors, and the data were transcribed by the researcher. Second, some data were derived from documents such as local chronicles, the government work report and statistical yearbook of Shibing County, the official UNESCO website and research publications on this topic. The documents were used to verify the actors' comments and provided evidence to validate the research and support the analysis. In addition, participant observation was used. The research team has participated in the project of the world heritage nomination of the Shibing Karst since 2008, which facilitated its access to data. The collected data were subjected to a content analysis, specifically to a thematic analysis of the interview transcriptions and collected documents.

Utilizing the data obtained from interviews and documents and based on ANT, the process of the Shibing Karst from a production, living, and ecological space to a tourism destination and then a heritage site was regarded as the result of dynamic change in the actor network. The translation component of ANT was used to expound the formation mechanism of the tourism destination and heritage space of the Shibing Karst. Based on changes in the heterogeneous actors after the formation of the Shibing Karst tourism destination, a comprehensive analysis was performed of the dynamic mechanisms of the tourism destination being reconstructed as a tourism destination consumption space that integrated the heritage space. The research used the ANT translation process to analyze the problems and interests of various heterogeneous actors and their effects on the construction process of the Shibing Karst tourism destination (mid-1980s-2008) and the subsequent heritage site space and elaborated how the actors reached a collective consensus and achieved the space reconstruction of the Shibing Karst. According to the general symmetry principle of ANT, actors include the People's Government of Shibing County, community residents, tourists and other human actors as well as the natural landscape, land, housing and other nonhuman actors. Therefore, the actor network, which contains both human and nonhuman actors, is the space reconstruction mechanism of the

Shibing Karst.

4. Results and discussion

The Shibing Karst has undergone a process of spatial transformation and restructuring that can be divided into the tourism destination construction phase and the heritage site construction phase: in the tourism destination construction phase (mid-1980s-2008), the Shibing Karst was transformed from a production, living and ecological space with out-of-date infrastructure facilities and a damaged environment to a tourism destination that had an increasingly complete infrastructure, beautiful environment and suitable living conditions. As a result, the consumption space was increased. In the heritage site construction phase (2008-present), the Shibing Karst is being reconstructed from a tourism destination to a tourism consumption space with heritage space. ANT is used to analyze those contents as follows.

4.1 Research on the mechanism of the tourism destination construction phase: the formation of the actor network

(1) Related actors. Based on the general symmetry principle, the actor network includes not only humans but also nonhuman entities such as natural landscapes, infrastructure, housing, funds, policies, and land. Therefore, during the phase of the tourism destination construction of the Shibing Karst, the main human actors were the People's Government of Shibing County, Shibing County Landscape Management Office, Shibing County Shanmu River Tourism Development Co., Ltd., community residents, foreign enterprises, and tourists. Nonhuman actors, such as natural landscapes, land, housing, policies, and funds, were also selected.

(2) The main actors' problems were as followed. **a.** People's Government of Shibing County. The spokesperson of the People's Government of Shibing County said, *"Due to the Shibing Karst being located in the mountainous area of southwest China, the economic development was relatively backward, with agricultural production as the mainstay. The land utilization rate was low, the industry and structure of the local space urgently needed to be optimized and reorganized, and the construction of tourism destinations was an important issue in the current development of the Shibing Karst".* **b.** Shibing County Landscape Management Office. The spokespersons of the Shibing County Landscape Management Office said that the office tried to improve the situation by developing tourism, but there were problems such as lack of funds and infrastructure support for tourism. Moreover, the chaotic production and lifestyle of community residents, such as dumping garbage and

discharging sewage into the river, had destructive effects on the environment. **c.** Community residents. The main problems emphasized by community residents were "insufficient quality of life and lack of job opportunities". The local chronicles of Shibing County show that residents in local communities worked mainly in agriculture and abroad, and agricultural production income and wage income were the main sources of income. The environment in the karst area is sensitive and fragile, so community residents who performed mainly agricultural production had low productivity and benefits. **d.** Tourists. With the acceleration of urbanization, pressure on people gradually increased, and a demand emerged for places with an attractive environment and high accessibility to provide recreational tourism activities, but there were few destinations for tourists. **e.** Nonhuman actors. Natural landscapes, for example, had been destroyed and had not been properly protected and used; land and housing were not effectively used and lacked attractive features.

In ANT, different actors present different problems, and the actor with the greatest demand for solving his or her problems is most likely to become the focal actor that guides other actors to the network (Yang et al., 2018). In the initial stage of the translation process, each of the problems or different targets of the actors is aggregated into the OPP, and the actors try to solve the problems based on the relevance of their interests to achieve the intention. To solve the problems of different actors and satisfy different interests, all actors must eventually arrive at a common goal, namely, the construction of the tourism destination of the Shibing Karst. At this time, as a result of negotiation among the actors, the OPP was improving the environment of the Shibing Karst and developing tourism (Fig. 2).

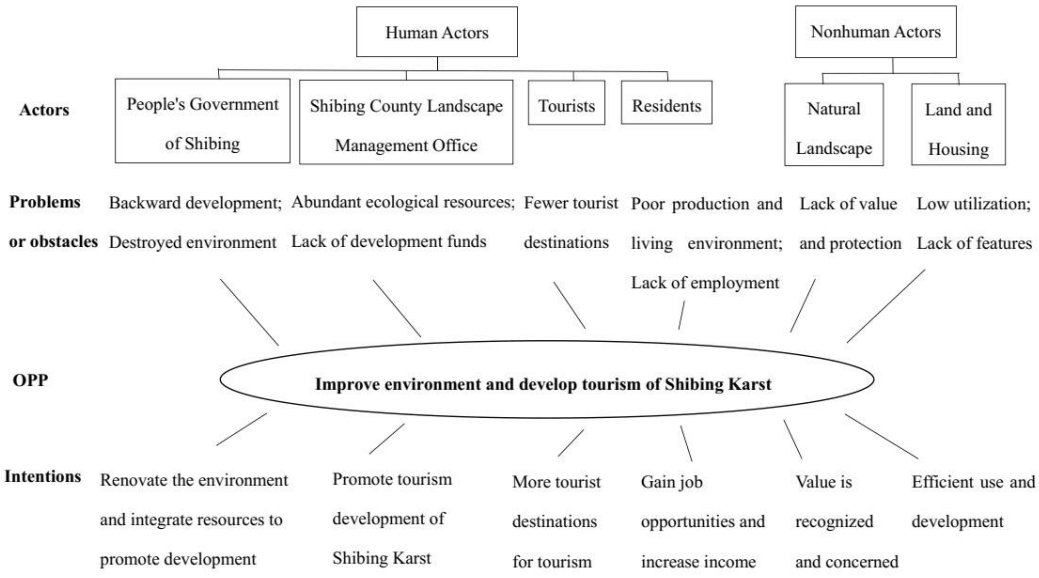

Fig. 2. The main actors and OPP in the process of tourism destination construction in the Shibing Karst

4.2 Tourism destination construction: connecting the actor network

To realize the transformation and development of the Shibing Karst and meet the expected interests of the heterogeneous actors, it is necessary to translate the interests and objectives and satisfy the interests of the actors to eliminate obstacles to action. The heterogeneous actors perform a series of actions in response to the call of the key actors. Diverse ways of enrollment were adopted by the actors during the construction of the tourism destination, and the People's Government of Shibing County played a key role in the enrollment phase, conferring with other actors and realizing the alliance of interests by the environmental improvement and tourism development of the Shibing Karst.

Enrollment and mobilization included the following main categories. Administrative enrollment. The incentives for the construction of the tourism destination of the Shibing Karst were provided mainly by the central government. In the mid-1980s, the People's Government of Shibing County began to attach importance to the tourism industry of the Shibing Karst and organized a development plan for the area. The administrative resources of multiple departments, such as the Bureau of Forestry, Bureau of Ecology and Environment, Bureau of Water Resources, and Bureau of Housing and Urban-Rural Development, were integrated by the government to participate in the actor network of tourism destination construction. Environmental enrollment. Under the guidance of tourism development policy, the

People's Government of Shibing County called for creating the "Drifting City" and "Tourism Service City with Landscape Garden" by improving the quality of the landscape environment and community living environment and promoting resource integration, facility construction, ecological environmental improvement, and land and housing enrollment. Low land rents attracted some foreign enterprises, part of the land was expropriated for the construction of tourism infrastructure, and some community residents returned home to build housing due to the development of hometown tourism. Landscape enrollment. The wonderful natural landscapes in the Shibing Karst attracted media, such as *Guizhou Daily*, *Guiyang Daily*, and *Colorful Guizhou*.

Actions performed by actors to build the actor network were as follows. Policy and financial support. The People's Government of Shibing County integrated the resources of multiple departments and took administrative control as the driving force to implement the development strategy of promoting the tourism industry to drive agricultural improvement, urbanization, and industrialization. In addition, it developed scenic spots such as Yuntai Mountain and Shanmu River by issuing the "General Planning of Wuyang River Scenic Area" and creating a tourism image. Another manifestation of policy support was the investment of funds. The People's Government of Shibing County provided funds that were regarded as a representation of policy support for the construction of a tourism destination to solve the problem of the shortage of funds for infrastructure construction and environmental improvement. Resource integration and environmental improvement. The Shibing County Shanmu River Tourism Development Co., Ltd. was established by the government to help manage scenic spot resources such as Yuntai Mountain and Shanmu River. The Bureau of Forestry, Bureau of Ecology and Environment, Bureau of Water Resources, and Bureau of Housing and Urban-Rural Development and other government departments supported the comprehensive improvement of the quality of rivers, land, forests, etc., by establishing environmental management stations and hiring forest workers to take charge of sanitation and fire prevention in scenic spots. Additionally, promotion and education by signage, broadcasting and other means were carried out to strengthen the environmental awareness and participation of community residents and tourists. Supporting tourism infrastructure. Service stations for Shanmu River, Yuntai Mountain and other scenic spots were opened with implementing infrastructure construction such as public toilets, signboards, trails, and parking lots as well as farmhouses, food stalls, retail shops and other tourism projects. The food and retail concessions were obtained by community residents in a lottery, which resolved possible disputes caused by unfair distribution of store addresses and disorganization. Training for tourism staff in the scenic areas, especially for guides in the Shanmu

River, was developed to ensure the safety of tourists. Moreover, due to the fragility and uniqueness of the natural environment of the Shibing Karst, the county government invited a research team from South China University of Technology to plan tourism landscape resources and facilities to create a tourism destination space where tourists and community residents could perform activities. Land development and utilization. There were many types of residential buildings in the Shibing Karst that were not in harmony with the environment of the scenic area. Under the planning of the People's Government of Shibing County, the Bureau of Housing and Urban-Rural Development was responsible for demolishing and transforming the existing concrete buildings and some livestock sheds to improve the landscape environment. In addition, the government attracted foreign enterprises to build some tourism facilities, and some migrant workers returned home to rebuild structures. Brand publicity. The government of Shibing County promoted the brand image of the Shibing Karst through the Internet, tickets, radio, billboards, etc., and tourist visits also played a role in brand promotion.

Consequently, during the construction of the tourism destination, the People's Government of Shibing County was the leading actor, and administrative enrollment was the main driving force. As a key actor, the People's Government of Shibing County gave other actors corresponding benefits and tasks from top to bottom and gradually formed a relatively stable action network (Fig. 3). Through the mobilization of the government and the landscape management office and the voluntary use of existing resources by community residents, each heterogeneous actor played a role in the actor network, the specific construction mechanism was continuously improved, and stable network relationships were established. In terms of governance mechanisms, administrative power was the key driving force for the formation of the entire governance mechanism, which was mainly reflected in the financial allocations by the People's Government of Shibing County and the implementation of the Shibing County Landscape Management Office and Shibing County Shanmu River Tourism Development Co., Ltd. At the same time, resource reorganization, environmental remediation, infrastructure support and land development and utilization were completed. Community residents participated in the governance process, but they acted mainly as followers of government and did not have sufficient speaking rights. Regarding the space reconstruction of tourism destinations, the actors paved the way through environmental remediation and resource integration, and the changes in land utilization added supporting tourism infrastructure and projects to provide conditions for the complexity of the tourism destination space. By renovating resources such as Shanmu River, Yuntai Mountain, land and housing, increasing public space in the community and achieving large-scale monitoring and management, some community

residents changed their production methods. As a result, the quality of local ecology, production and living space improved, and the space was upgraded and reconstructed. Parts of the production, living and ecological spaces were transformed into higher-quality production spaces and tourism consumption spaces by implementing the tourism development strategy and adopting the land-levying policy of the local government.

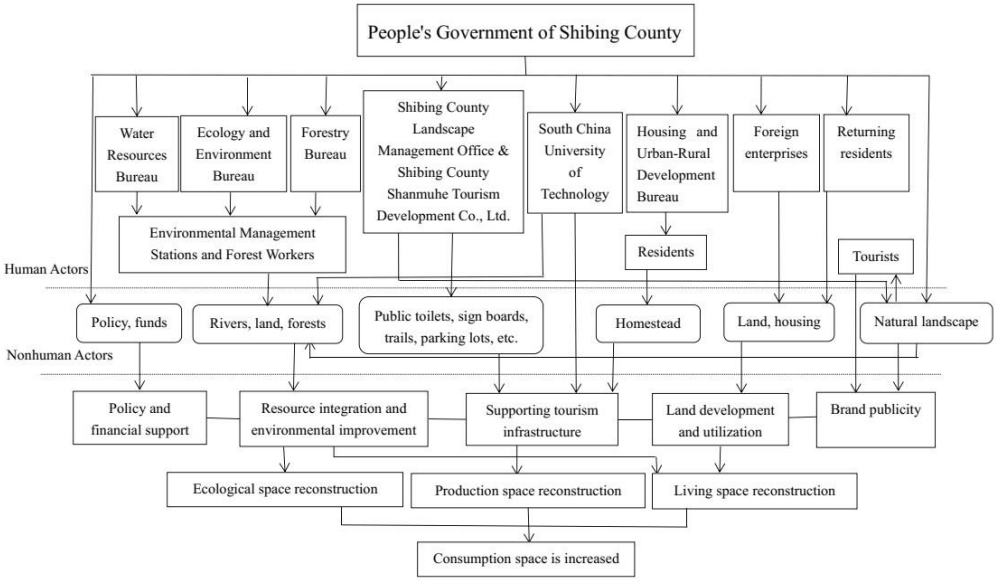

Fig. 3. Logistics diagram of actor network and space reconstruction in the tourism destination construction phase

4.3 Research on the mechanism of the heritage site construction phase: the transformation of the actor network

(1) Changes in the goals of key actors. The goals of the actor network are consistent with the goals of the key actors, which determine the meaningful actions of the recruited actors; all of them can form an interest alliance, but the actors who dissent will be excluded from the actor network. The South China Karst World Natural Heritage Site nomination project was a series of projects. After the first phase of the South China Karst World Natural Heritage Site was successfully completed in 2007, the second phase of the nomination project was demanded to achieve the integrity of the site. The government entrusted an expert panel with the South China Karst World Natural Heritage Site declaration project, including some international authorities on karst, who investigated and concluded that the Shibing Karst met world natural heritage assessment criteria (vii) and (viii). After the Shibing Karst was included in the candidate list, the People's Government of Shibing County, as a key

actor in the phase of tourism destination construction, changed the tourism development direction of the Shibing Karst to the development of heritage tourism by highlighting the recognition, exhibition, protection and utilization of the OUVs, which was considered a strategy of local tourism sustainable development. Becoming a world heritage site implied that the space of heritage sites was produced, which could promote the developing diversification of tourism space to maintain the superiority of the Shibing Karst when compared with other tourism destinations and improve the quality of life of residents. In general, at this time, the OPP of the actor network changed, and the goal of the actor network changed from improving the environment and tourism development to attracting tourists to the Shibing Karst for tourism consumption with the OUVs of recognition, exhibition, protection and utilization to promote local economic benefits and improve the quality of life of community residents.

The actors in the original actor network who dissented quit the network when the goals and intentions of the key actors changed. These changes were manifested in closing some farmhouses, food stalls and retail shops because of poor management. In addition, some new actors who were beneficial to the development of heritage tourism in the Shibing Karst, such as the World Heritage Committee and the World Heritage Centre, the expert panel, international experts studying karst, and the Guizhou Province Maka Cultural Tourism Investment Co., Ltd., joined the network. After the improvement of the environment and infrastructure of tourism destinations, the governance of the Shibing Karst by the People's Government of Shibing County changed. To develop heritage tourism and build a new governance mechanism, the local government granted the power of designing, governing, and protecting the production and living spaces to community residents, who had lacked sufficient rights in the constructing tourism destination phase, as the spatial main body of the Shibing Karst. Additionally, the government encouraged and guided social organizations to join the spatial coconstruction of the Shibing Karst heritage site and initiated a new governance model. In 2018, the second phase of the South China Karst World Natural Heritage Site declaration project was launched, research on the aesthetic value of the Yuntai Mountain Scenic Area was included in the scientific and technological research program, and work related to the nomination and development of the world heritage site was proposed. With the successful inscription of the property in 2014, the Shibing Karst added the heritage space, and the brand effect of world natural heritage site gradually formed (Fig. 4).

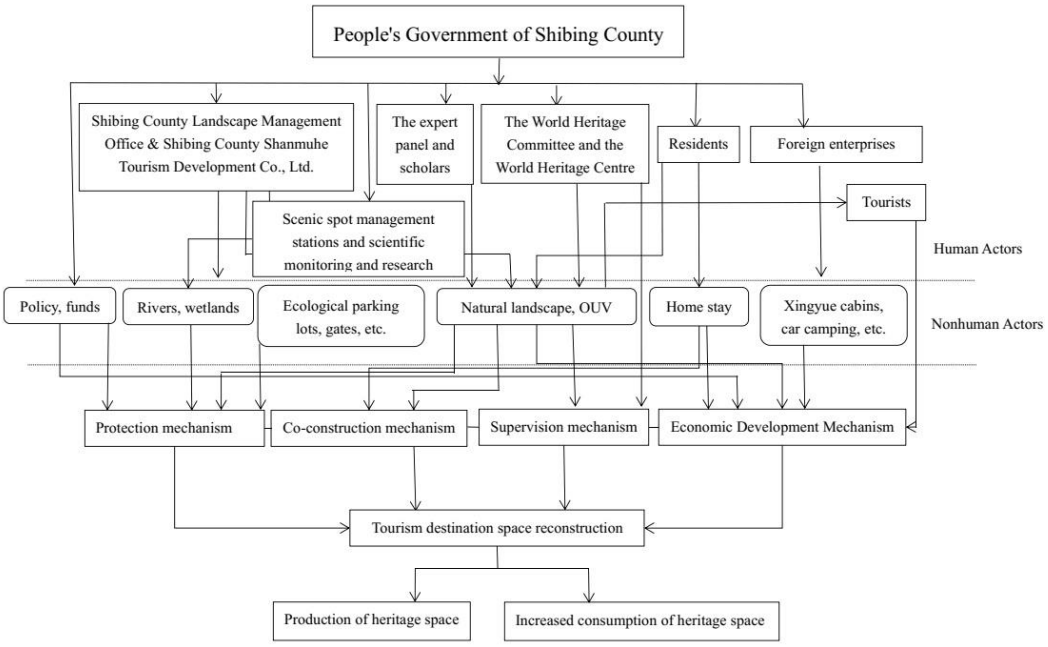

Fig. 4. Logistics diagram of actor network and space reconstruction in the heritage site construction phase

(2) Introduction of governance mechanism for construction of the heritage site. The governance mechanism is actually manifested in the translation process of the heterogeneous actor network. The key actor initiates a call to other actors in a new mobilization and interessement effort to negotiate and reach an alliance of interests with ties to the actor network (Yang et al., 2018). The People's Government of Shibing County transferred some power to other actors; in other words, the government decentralized authority and allowed other actors to form an autonomous mechanism within a certain range that could supplement and limit administrative organizations in the process of heritage site construction. First, the government initiated an organization to provide human resources and financial support: an office was established to assist the government in protecting and managing tourism destination resources and organizing and planning the declaration. The expert panel and scientific research team were entrusted with operating the office to carry out jobs related to the declaration and jointly build the declaration working team. Some of the ticket income of the scenic spots was used to fund the spatial construction and development of heritage tourism. Second, during the process, relevant documents and data were submitted to the World Heritage Committee and the World Heritage Centre, and these organizations had the power to evaluate, supervise and publicize the Shibing Karst. Third, food stalls and retail shops planned and constructed by the government were operated and managed spontaneously by community residents on the basis of maintaining cleanliness. Fourth, the residents formed and agreed to the

"Regulations on the Protection of Shibing Karst Ecological Environment". Fifth, foreign enterprises such as Guizhou Maka Cultural Tourism Investment Co., Ltd. were allowed to legally use land, build tourism consumption facilities and exercise management power.

(3) Coconstruction mechanism for construction of the heritage site. Nonprofit organizations and professional teams and scholars were invited by the People's Government of Shibing County to join the construction of the Shibing Karst heritage site and to form the declaration working team to provide scientific and technological support. Community residents, who were the main body of the space reconstruction, continued to learn and accumulate experience and achieved a collective consciousness of the heritage site construction process. Therefore, the government invited international experts such as Williams and Kyung Sik Woo, who studied karst, to visit the Shibing Karst area and recognized the potential OUVs of the Shibing Karst. Then, the expert panel was commissioned to compile documents referring to nomination for world natural heritage site status; to raise the awareness of community residents about the potential OUVs, ecological protection, cultural quality, and tourism services; and to provide scientific and technological support and help the government to encourage residents to regulate the management of farmhouses, actively participate in tourism management activities, and solve their own development problems. In addition, the slogan for the nomination was posted by the government so that the nomination work would be well known to many people and more people would join it. In general, declaration working team members are actors who cannot be ignored in the space reconstruction of the heritage site construction phase. Through their participation in and interpretation of the heritage site construction, the potential OUVs of the Shibing Karst were evaluated and recognized by the World Heritage Committee and the World Heritage Centre, and knowledge and perceptions of residents improved.

(4) Supervision mechanism for construction of the heritage site. After the Shibing Karst became a world natural heritage site, the actors and their actions were supervised by the World Heritage Committee and the World Heritage Centre. Projects that violate the Convention Concerning the Protection of the World Cultural and Natural Heritage and the Operational Guidelines for the implementation of the World Heritage Convention receive warnings and to some extent are prohibited from operating , which restricts and supervises the rights of other actors.

(5) Economic development mechanism for heritage site construction. Based on the concept of coconstruction and sharing, the interest community was fostered through the construction of world heritage projects, project assistance for community residents, and cooperative agency. The economic development of the Shibing Karst

relies mainly on heritage tourism with the target of promoting sustainable tourism development and improving the quality of life of residents. After the successful inscription, the OUVs were shared through more agencies, such as the World Heritage Committee and the World Heritage Centre, to attract tourists from other regions. With the organization of the government and the implementation and assistance of the Shibing County Landscape Management Office and Shanmu River Tourism Development Co., Ltd., residents and foreign enterprises are regulated. Additionally, the People's Government of Shibing County supports community residents in joining microenterprises, provides financial subsidies and technical assistance for community residents to operate farmhouses, develops local tourism souvenirs, and provides job opportunities to community residents in the process of tourism construction and development and protection of ecological resources. *"The government encouraged us to join microenterprises, and they gave us 50,000 yuan (RMB) to decorate the farmhouse and organized free training courses on cooking. And now, our income has increased from more than 100 yuan (RMB) per meal in the past to 320 yuan (RMB) per meal"*, said the community resident spokespersons. Currently, there are 24 farmhouses in the Shibing Karst. Guizhou Maka Cultural Tourism Investment Co., Ltd. and community residents were cultivated to form cooperative organizations, jointly create new consumption spaces such as home stays, harvest parks, and carry out tourism activities such as bonfire parties to meet consumer demand. In addition, some lands of community residents were rented at a price of RMB 42 per square meter by Guizhou Maka Cultural Tourism Investment Co., Ltd. to build new tourism consumption products such as Xingyue cabins and car camping. Community residents commented, *"We sometimes do temporary work such as build or decorate houses (Xingyue cabins) for the company for 100 yuan (RMB) per day"* and *"I am responsible for part of the procurement work in the company with a monthly salary of 4,500 yuan (RMB). Other community residents have a monthly salary of more than 2,000 yuan (RMB), and they are mainly responsible for cleaning or cooking. The company rents our empty room at a price of 20,000 yuan (RMB) per room to build a homestay. Moreover, the price of a homestay is 268 yuan (RMB) per night, and we can obtain 10% of the profits. In this way, residents can get more income, so we are willing to cooperate with the company"*. In general, the construction, operation and economic development of these products have brought more job opportunities, which helped actors join the network.

(6) Protection mechanism for construction of the heritage site. The protected objects of the Shibing Karst are mainly the material space and the OUVs of the property. For the Shibing Karst material space, construction, repair and improvement are the main protective actions. For example, the county government and the

Landscape Management Office established ecological parking lots and dustbins at the gates of scenic spots and organized the use of low-carbon, energy-saving and environmentally friendly vehicles in the Yuntai Mountain Scenic Area. The government invested RMB 20 million in the construction of residential sewage treatment pools and RMB 8 hundred thousand in the ecological wetland sewage treatment system in residential areas and the removal of rubbish in scenic spots to maintain cleanliness and protect the ecological environment of the Shibing Karst area. Residents protect the natural landscape environment in accordance with the "Regulations on the Protection of Shibing Karst Eco-environment". Furthermore, the Shibing County Landscape Management Office was responsible for organizing the construction of tourism infrastructure, such as tourist service centers, restrooms, and medical centers, the restoration of scenic gates, and the upgrading of scenic roads (Plate 1), which are actions for material spatial restoration. Regarding the protection of the OUVs, protective actions were carried out in accordance with the Convention Concerning the Protection of the World Cultural and Natural Heritage and the Operational Guidelines for the implementation of the World Heritage Convention to establish scenic spot management stations for the daily management and protection of resources and to establish biological hydrology, dolomite karst scientific monitoring and a research station to detect natural landscape resources.

With the OPP changing from the environmental improvement of a tourism destination and tourism development to the promotion of heritage tourism consumption, the intentions of the key actors have changed, thereby spurring changes in the goals of the entire actor network. New actors and interests, such as the World Heritage Committee and the World Heritage Centre, the expert panel, Guizhou Maka Cultural Tourism Investment Co., Ltd. and other human actors as well as nonhuman actors, such as the OUVs, Xingyue cabins, car camping and open-air bonfire areas, harvest parks and home stay locations, were recruited by the key actors and governance methods to enter the actor network of heritage construction (Plate 2).

In summary, by changing the original governance mechanism of the tourism destination, the roles of the original actors were changed. Satisfying their interests was the primary reason for actors to join the network, and the collective identification of all actors on the basis of negotiating an interest alliance was the foundation for building interacting relationships; that is, the process of spatial construction of the Shibing Karst heritage site was also a process of exploring the common interests of

the actors.

In the actor network of the spatial construction phase of the tourism destination, the community residents did not play the role of key actors and mainly represented followers of the government. With the change in governance mechanisms, the government granted some power to other actors, and some actors, such as community residents, Guizhou Maka Cultural Tourism Investment Co., Ltd. and other foreign enterprises, also changed their roles in the network. The decision-making power in the planning, design, reconstruction, and business model of the tourism destination space was gradually transferred to community residents and Guizhou Maka Cultural Tourism Investment Co., Ltd., and the two actors slowly moved towards the center of the network through the governance mechanism of spatial construction and obtained the possibility of becoming key actors. The World Heritage Committee and World Heritage Centre became the supervisors of the other actors and imposed power constraints on other actors, especially the government. With the introduction of new governance mechanisms, more actors joined the network, and the space reconstruction of the tourism destination became more complicated network (Fig. 5). As nonhuman actors, the renovated housing of community residents and the land expropriated for the construction of supporting infrastructure, and the tourism infrastructure are regarded as consumer space; the natural resources and OUVs are regarded as distinctive heritage space consumer productions; and Xingyue cabins and car camping and other tourism facilities are translated into special consumer products. Nonhuman actors are continuously defined and redefined during the translation process and assume more consumption characteristics through renovation, exhibition or protection. In terms of ANT, there is exclusivity, and some actors are excluded from the network due to disagreement with the goals of the actor network. For example, some community residents who did not participate in tourism management activities regarded tourists as "destroyers of the heritage site environment" and raised objections, and some owners of poorly managed farmhouses, food stalls and retail shops quit performing these functions and withdrew from the network.

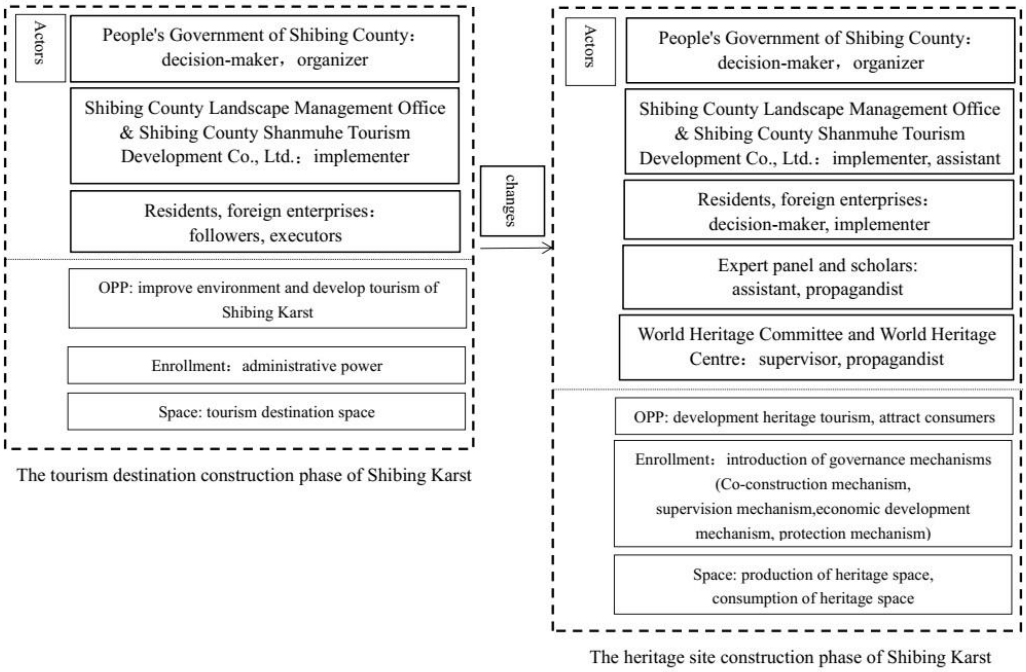

Fig. 5. Changes in the actor network

5. Conclusions

Currently, world heritage nomination has become a popular path for the space reconstruction of tourism destinations. Taking the Shibing Karst of the South China Karst World Natural Heritage Site as an example, ANT was used to analyze the space reconstruction process. The findings indicated that during the construction of the tourism destination and the world heritage site nomination, nonhuman actors such as natural landscapes, land, housing, tourism infrastructure, and funds and human actors such as the government, community residents, the World Heritage Committee and the World Heritage Centre, the expert panel, foreign enterprises, and tourists were driven by their own interests to connect to the actor network through the OPP, and the actor network kept changing with changes in key actors, the intentions of the key actors, the means of enrollment (governance methods), and changes in the actors' roles. As a result, the actor network phases correspond to tourism destination construction and heritage site construction. Through the analysis of the translation process and mechanisms of the actor network, the governance mechanism of the space reconstruction of tourism destinations was described, and the main conclusions are as follows:

(1) During the space reconstruction process of the Shibing Karst, human actors such as the People's Government of Shibing County, community residents, the World Heritage Committee and the World Heritage Centre, the expert panel, foreign

enterprises, and tourists and nonhuman actors such as natural landscapes, land, housing, tourism infrastructure, and funds were driven by their own interests to connect to the actor network through the OPP.

(2) In the actor network of the tourism destination construction phase of the Shibing Karst, the People's Government of Shibing County, the key actor with administrative power, launched enrollment in the translation process to other heterogeneous actors from top to bottom, which transformed the Shibing Karst from a space of production, living, and ecology that had a damaged environment and out-of-date infrastructure into a tourism destination that had diversified production modes and a beautiful ecological environment and was suitable for living. This transformation realized the restructuring of the Shibing Karst production, living, and ecological spaces and increased the consumption space, thus preparing for the heritage site construction phase.

(3) In the actor network of the heritage site space construction phase, the intentions of the actor network changed with the changes in the intentions of the key actors. The People's Government of Shibing County, the key actor, integrated the world heritage space into the tourism destination space during the heritage site construction process, and more varied heterogeneous actors with more complex interests joined the actor network, enrolling through the government. Through the establishment of the governance mechanism, some powers were transferred by the government, the key actor, to other actors. Changes in the roles of community residents and foreign enterprises such as Guizhou Maka Cultural Tourism Investment Co., Ltd. in the actor network took place, and there was a tendency to become key actors. In addition, the World Heritage Committee and the World Heritage Centre become supervisors of other actors and imposed limitations and balances on other actors, especially the government, and their actions.

(4) The space reconstruction mechanisms of the Shibing Karst were interessement, enrollment and the mobilization of the translation process. The government recruited heterogeneous actors to connect to the actor network with new enrollment and interessement. The key actors and their intentions, the transformation of enrollment, and the joining and departure of actors can be referred to the restructuring of space. During the process of space reconstruction, the actors continuously adjusted their power relations with others and realized the sustainable development of tourism and the economy of the Shibing Karst.

Due to a tendency towards nomination to world heritage, there are new opportunities for the development of tourism destinations because they can be given

new functions, levels and stronger driving effects through nomination to world heritage. With the entrance of heritage space, more heterogeneous actors are attracted into the actor networks of tourism destinations, the actors are constantly redefined, and the space is continuously restructured. In this article, the space reconstruction mechanism was analyzed with ANT from the perspective of the governance mechanism and its function in tourism destinations. In terms of ANT, the space reconstruction of the tourism destination was the result of changes in the actor network. In the environmental renovation process of the tourism destination construction phase, the government and its administrative power played a key role, but in the heritage site construction phase, a new governance mechanism was created so that the rights of the heterogeneous actors were limited and supervised. Some rights were granted by the government to other actors to better protect and display the OUVs and promote local development, which can be used as a reference by other tourism destinations. From the perspective of ANT, a world natural heritage site, a special tourism destination, is not only a space for community residents to produce and live and tourists to relax and consume but also an actor network with power interactions and dynamic changes in which the government, the World Heritage Committee and the World Heritage Centre, community residents, tourists, natural landscapes, housing, land, infrastructure and other heterogeneous actors and their actions are included. This paper focused on changes in the interests and power of the government, community residents, the World Heritage Committee and the World Heritage Centre, but the analysis of the role of tourists and their impact on other actors needs to be strengthened. In addition, different tourism destinations have different space reconstruction processes and mechanisms due to different natural and humane conditions, and case studies on different types of tourism destinations should be deepened to enrich the theoretical connotations of tourism geography. How to better mobilize resources, establish an appropriate governance mechanism to coordinate the interests of relevant subjects, and achieve the sustainable development of local tourism and economy should be further explored.

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Highlights

1. Behind the spatial restructuring process of Shibing Karst, the human actors and non-human actors were driven by their own interests to connect actors network through OPP.

2. The actors network kept changing with the changes of key actors, the intentions of key actors, and the way of enrolment (governance methods), and the change of the actor's role.

3. The spatial restructuring mechanisms of Shibing Karst are actually interestement, enrolment and mobilization of the translation process.