

**World Natural Heritage Site**

**State Party: China**

**Report on the State of Conservation of  
South China Karst (China)**



**National Forestry and Grassland Administration (NFGA)**

**The People's Republic of China**

**November 2020**

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# 1. Executive Summary

The State Party's government has always attached great importance to the conservation of world natural heritage. In June 2019, the Central Party Committee and the State Council jointly published the "Guidelines for developing the protected area system with national parks as the cornerstone". The seven serial heritage sites of the South China Karst have actively promoted environmental protection of their heritage sites, continuously protecting the geological heritage, and improving the management level. In general, the conservation and management status of the heritage properties of South China Karst has been in a good state, especially the Outstanding Universal Values (OUV) of the sites.

With regard to the relevant requests of the Decision of the World Heritage Committee at 43rd session, this report notes that: Through joint efforts from the administrative organizations of the seven sites, orderly implementation of *The Conservation and Management Plan of South China Karst World Natural Heritage Site (CMP-SCK)*, positive outputs have been achieved in the areas of environmental protection, tourism management, community development, publicity and education, resource conservation, as well as safeguard implementation at the sites. The State Party will continue to carry out rigorous management of construction projects in the heritage site and its buffer zone, and strictly implement the report on the state of conservation submitted to the World Heritage Committee in 2018, the UNESCO World Heritage Center will be informed of any major construction project in conformity with Paragraph 172 of The Operational Guidelines; the State Party indicates that Guiyang-Nanning High-speed Railway Crossing the Buffer Zone of Libo Karst is under construction and has no impact on the OUV and integrity of the Libo Karst heritage site. Through the implementation of relevant impact control measures, the negative impact of the project on the buffer zone of Libo Karst can be minimized. The State Party indicates that any future relocation within the site will be carried out in strict accordance with the World Heritage and Sustainable Development Policy 2015 and relevant international standards.

## **2. Response to the Decision of the World Heritage Committee at 43rd session (Baku, 2019)**

2.1 Having examined Document WHC/19/43.COM/7B.Add.

2.2 Recalling Decision 41 COM 7B.26, adopted at its 41st session (Krakow, 2017).

2.3 Welcomes the State Party's progress towards an integrated, coordinated management system for the property, including the ongoing implementation of the 2016 Conservation and Management Plan of South China Karst World Natural Heritage Site (CMP-SCK).

2.4 Notes with appreciation the continued progress in addressing impacts from tourism, water pollution, agriculture and urban development through the implementation of the CMP-SCK, and urges again the State Party to closely monitor the effectiveness of measures taken.

### **Response of the State Party:**

According to *The Measures for the Nomination and Management of the World Natural Heritage, Natural and Cultural Heritage*, the new CMP-SCK submitted in 2016 forms an important foundation for implementing relevant conservation management and construction utilization in South China Karst, and all management measures and construction activities within the sites and their buffer zones shall be in line with the CMP-SCK. The CMP-SCK is organized and implemented by the administrative organizations of the heritage sites. The State Party closely monitor the

implementation of the plan, and the main monitoring activities include:

1) Supervision and management at the national level

- By implementing remote sensing monitoring and law enforcement inspections of *the Regulations on Scenic and Historic Areas* in conjunction with the planning of national-level scenic and historic areas, multiple rounds of the monitoring and verification of the dynamics have been carried out in the resource protection, implementation of the CMP-SCK, construction activities, etc.
- In March 2019, the Chinese government issued the “Guidelines for developing the protected area system with national parks as the cornerstone”, explicitly proposing the implementation of the strictest system of ecological environmental protection, strengthening the monitoring, evaluation, assessment, law enforcement and supervision of natural protected areas, and forming a set of well-systemized and powerful supervision and management systems.
- Regularly carrying out "Green Shield" special operations to monitor and inspect natural protected areas, and promptly discovering violations of the law involving natural protected areas.
- In May 2020, the Ministry of Ecology and Environment officially launched a system for monitoring human activities in natural protected areas.

2) Supervision and management at the provincial level

The competent authority in the province, in collaboration with the national competent authority to carry out monitoring with satellite remote sensing and selective inspection, has also conducted the supervision, inspection and assessment of the resource protection and management at the heritage sites periodically, and requested the individual sites to resolve the issues identified. In addition, the provincial competent authority has also embarked on dynamic monitoring of the heritage sites gradually.

3) Monitoring by management agencies at heritage sites

- The administrative organizations of the seven sites have set up functional

offices and sections specialized in resources protection, and conservation management and planning.

- The reports on the implementation of CMP-SCK are submitted annually to the provincial management authorities for world heritages.
- A monitoring indicator system have been progressively established for the individual sites, and a series of monitoring activities have been carried out by satellite remote sensing, station observation, instrument monitoring, community patrol, and statistical analysis which covered the constituents of the OUV, exhibition and environmental factors of and threats to the heritage sites, and the relevant data are compiled and submitted to the management departments concerned. Meanwhile, colleges and universities or research institutes are commissioned to analyze and evaluate the monitoring outputs.

The CMP-SCK proposes conservation management goals and measures in eight areas, including zoning management, environmental protection and management, visitor and business management, local community management, display publicity and education, scientific research, monitoring and feedback, and safeguards, etc. The planning period for the CMP-SCK is 2016-2025, with the near term of 2016-2020. The implementation is considered to be good against the immediate objectives of the CMP-SCK, as follows.

**Objective 1: Threats to the OUV of the heritage sites are researched into and identified; and the human activities in the properties are effectively regulated, coordinated and controlled.**

**Implementation status:** The heritage properties of South China Karst ensure that the zoning management of the heritage properties are implemented with strict observance to the CMP-SCK; that the construction projects are reviewed and ratified in accordance with the CMP-SCK and the relevant laws and regulations, as well as the statutory plans of the scenic and historic areas, nature reserves and geoparks; that the anthropogenic disturbance is forbidden in the strict protection areas; that the supervision over the implementation of key construction projects is enhanced. Effective

results have also been achieved in the control measures taken in tourism, water pollution, agriculture, and urban development.

In response to water pollution, the water environment of the heritage properties of South China Karst has shown a gradual improvement through the implementation of a series of measures in recent years, which has a positive impact on the protection and maintenance of the OUV of the heritage sites. For example, Shilin Karst strictly plans and carries out the drainage system of the tourism area, and in 2019, the surface water complies with the Class II standard limit value in the Surface Water Environmental Quality Standards (GB3838-2002), and the sewage discharged from the scenic area reaches the Class I standard of the highest permissible concentration of Class II pollutants of Comprehensive Emission Standard for Sewage after treatment.

The local government of Jinfoshan Karst is upgrading the integrated sewage treatment system of tourism facilities. In 2019, the overall water quality of the Jinfoshan Karst heritage site is excellent, with sulfate and chloride concentrations reaching the Groundwater Quality Standard (GB/T 14848-2017) Class I standard and ammonia nitrogen concentrations reaching Class II standard.

Furong Cave Area of Wulong Karst has significantly improved the water quality of Furong River by continuously carrying out environmental remediation actions, and from January to December 2019, the pH value of 5 water quality indicators of Furong River was always maintained at Class I water quality standard, and the other four items reached Class II and above water quality standard, and was awarded the title of "the most beautiful river" in Chongqing (the city where the heritage site is located).

Shibing Karst has established a wastewater treatment system by professionally monitoring the whole process of wastewater discharge. The water quality at the section of the Wuyang River has reached the III water quality standard of the Surface Water Environmental Quality Standards (GB3838-2002).

Libo Karst has been closely monitoring environmental supervision, monitoring and management since 2016, and the water quality of the heritage site has improved significantly (Figure 1). At present, the wastewater treatment plant in the county where



the heritage site is located is connected to the online monitoring platform for controlling pollution sources in the province where the heritage site is located. The water quality of the centralized drinking water sources in the counties where the heritage sites are located (involving the heritage sites and the five centralized drinking water sources with a population of 1,000 in the buffer zone) also meets the III or higher standards of the Surface Water Environmental Quality Standards (GB3838-2002), with the water quality compliance rate of 100%.



Figure 1 Water quality improvement in the Libo Karst Heritage Site

The Huanjiang Karst heritage site is uninhabited in the core area, and the population density in the buffer zone is only 7 people / km<sup>2</sup>. The heritage site is less disturbed by anthropogenic activities, and in 2019, the water quality of the heritage site will meet the "Surface Water Environmental Quality Standards" (GB3838-2002) Class I standard.

Since 2016, Guilin Karst has improved the water quality year by year through the strict implementation of measures such as the ecological restoration project of the heritage site and the ecological renovation project of the Lijiang River protection bank. In the past five years, the Lijiang River has completed 27.6 km of ecological embankment bank protection works, completed the urban section of the Lijiang River

upstream of the heritage site and the comprehensive control of sewage interception and discharge of six tributaries, including Xiaodong River, Lingjian River, Qingfenggou, Taohua River, Nanxi River, and Wayao River, eliminating urban surface water of poor V category, and the centralized sewage treatment rate in the built-up area of Guilin (the city where the heritage site is located) has increased from 95% to 100% from 2016. The comprehensive pollution index of water quality dropped from 0.14 in 2015 to 0.09 in 2019, which reduced by 36%. From January to July 2020, Guilin was ranked fourth in the water environment quality status of national surface water assessment sections mainly in the principal tributaries of Lijiang River, and the annual water quality of Lijiang River monitoring sections in the past five years has been Class II.

In response to tourism pressures, the main measures to mitigate the potential threats of tourism activities to the value of heritage properties adopted by the individual properties include setting tourism carrying capacity, strict control on tourism facilities, optimizing the organization of tour routes, etc. For instance, Libo Karst relocated all the business shops in the scope of the property to the tourism services center for centralized and standardized management; Wulong Karst relocated two visitor centers at Tianshengsanqiao and the Furong Cave to places outside the property, which effectively enhanced the tourism management of heritage sites and also provided a guarantee for the better protection of heritage values.

In terms of agriculture and urban development, the heritage sites mainly control the impact of agricultural development through measures such as restructure the agricultural industry, extend ecological agriculture, and the impact of urban development is controlled through measures such as increased enforcement and high-tech assistance to improve regulatory capacity. For example, Shilin Karst has carried out ecological restoration by planting trees and grasses in barren mountain and wasteland areas and by returning farmland in the heritage area to forest on a rental basis, and the area of mountain land that has been rented for ecological restoration has reached more than 660 hectares since the implementation of the CMP-SCK. Guilin Karst has put the satellite remote sensing monitoring system into application at the heritage site

since July 2018, ensuring that the heritage site can promptly detect ecological damage, illegal construction and other phenomena that harm the ecological environment and landscape, and strengthening the control and management of unreasonable construction at the heritage site.

**Objective 2: A stable and integrative coordination and management mechanism between the heritage management institutions and the properties is established and operational.**

**Implementation status:** This objective has been largely achieved through the implementation of safeguards in the CMP-SCK.

### **1) Institutions establishment**

In 2018, the State Party's government reformed and restructured the entire national administration institutions. All the management institutions for various categories of natural protected areas, including the national parks, nature reserves, scenic and historic areas, etc. were incorporated into the National Forestry and Grassland Administration (NFGA) (the National Parks Administration, NPA). It fully reflects the importance that the State Party's government addressed to the unified and coordinated management of all categories of protected areas, providing a favorable opportunity and a strong guarantee for the conservation and management of South China Karst that involves multiple designations of various types of protected areas.

Presently, the competent central authority and its mandates for the management of the world natural heritage sites, cultural and natural heritages is NFGA, which is mandated to take charge of the conservation, supervision and professional guidance for the national scenic and historic areas, nature reserves and national geoparks and other types of designations that the world heritage sites may involve.

At the provincial level, the departments responsible for the conservation and management of natural world heritage sites are the provincial forestry and grassland departments in charge of the sites, namely the Forestry and Grassland Bureau of Yunnan Province, the Forestry Bureau of Guizhou Province, the Forestry Bureau of Chongqing City and the Forestry Bureau of Guangxi Zhuang Autonomous Region.

At the site level, the individual SCK sites have established their own specialized institutions and enhanced the mandates and staffing of these management institutions, as shown in Table 1.

Table 1. The Management Institutions and Staffing of the SCK World Natural Heritage Properties

<b>World Natural Heritage Site</b>	<b>Management institutions</b>	<b>Institutional affiliation</b>	<b>Staff</b>
Shilin Karst	Shilin Scenic Area Administration Bureau	Public services agency	192
Jinfoshan Karst	Jinfoshan Administration Committee of Nanchuan District, Chongqing Municipality (Jinfoshan World Natural Heritage Administration Bureau of Nanchuan District, Chongqing Municipality)	Government agency	29
Wulong Karst	World Natural Heritage Conservation Center of Wulong District, Chongqing Municipality	Public services agency	21
Shibing Karst	Shibing Karst World Natural Heritage and Scenic Area Administration Bureau	Public services agency	33
Libo Karst	Libo County World Natural Heritage Administration Bureau	Public services agency	14
Huanjiang Karst	World Natural Heritage Conservation Center of Huanjiang Maonan Ethnic People's Autonomous County	Public services agency	5
Guilin Karst	Guilin Lijiang River Scenic Area Administration Committee	Dispatched agency	203

## 2) Financial support

The management agencies of the World Natural Heritage Sites of South China Karst all have stable financial support to carry out daily management, which is clearly specified in the relevant local laws and regulations and normative documents.

Article 7 of *The Regulations on the Management of Shilin Karst World Natural Heritage Site in Shilin Yi Ethnic People's Autonomous County of Yunnan Province* stipulates that the People's Government of the Autonomous County shall establish a fund for the conservation and management of the Shilin Heritage Site, specifically for the conservation and management of the Shilin Heritage Site.

The Measures on the Protection of the Jinfoshan Karst World Natural Heritage of Chongqing Municipality explicitly include the funds for the protection of the Jinfoshan

Karst World Natural Heritage Site in the district-level budget.

Article 4 of *The Measures on the Management of the Wulong Karst World Natural Heritage of Chongqing Municipality* provides for the inclusion of natural heritage conservation in the national economic development plans of local governments; and Article 25 clearly includes Wulong Karst World Natural Heritage Site protection funds into the county-level budget. Two lines of revenue and expenditure will be implemented for scenic area tickets. The scenic area operator pays a proportional share of the resource reimbursement fee. The special fund is for the heritage site conservation management. Meanwhile, funds are also sought from various sources to strengthen the conservation and management of heritage sites.

Shibing Karst uses national policy to fully integrate heritage sites into key ecological project stewardship compensation. In the area of compensation for national public welfare forests, all heritage lands are included in the scope of compensation for national public welfare forests at the rate of RMB 236.25 per hectare. For 75 poor households with documented cards, each household will have an average annual income compensation of more than 3,000 yuan.

The Guangxi Zhuang Autonomous Region allocates a certain amount of special funds each year for ecological protection of the Lijiang River basin; Guilin Lijiang River Scenic Area Administration Committee and the Representative Office of the China Environmental Protection Foundation in Guilin established a “special fund for the ecological and environmental protection of the Lijiang River”.

### **3) Mechanisms for coordination and management**

To strengthen the collaborative conservation management among the series of heritage sites, the Protection and Administration Coordinating Committee of South China Karst (hereinafter referred to as "the Coordinating Committee") was established in 2015, which has played a very good role in the integrated management, services and publicity of the World Natural Heritage of South China Karst, and has achieved good results. In accordance with the working charter formulated by the Coordinating Committee, the annual work plan is formulated and implemented every year; many

training sessions on the conservation and management of the World Natural Heritage of China South Karst have been organized; the Report on the State of Conservation of South China Karst (China), submitted in 2016 and 2018 has been prepared; Cultural and Natural Heritage Days has been held to highlight the value and conservation achievements of the South China Karst; and the South China Karst logo has been designed and made available for use by the heritage sites. The heritage properties of South China Karst have provided voluntary funding for the work of the Coordinating Committee and have formulated management measures for the use of the funds to ensure that the Coordinating Committee can carry out its work.

Exchanges and cooperation have also been carried out among heritage sites. For example, Wulong in Chongqing has signed friendship and cooperation agreements with sister organizations such as Shilin in Yunnan and Jinfushan in Nanchuan to carry out exchanges and cooperation in resource conservation and management, science education, management personnel, information resource sharing and sustainable development of heritage sites.

**Objective 3: The conservation law enforcement personnel and professional technical staff are recruited and mobilized.**

The annual training sessions on conservation management of South China Karst World Natural Heritage Site organized by the Coordinating Committee have provided a platform for experience sharing and cooperation exchange among conservation managers of the heritage properties of South China Karst. The content of the training includes policies and systems related to the conservation of the World Natural Heritage, the sustainable development of tourism in the South China Karst World Natural Heritage Site, community management and coordinated development, conservation monitoring systems and information construction, studies on countermeasures for disaster prevention and control, and control requirements for construction projects. At the same time, each heritage site also organizes training for staff of management agencies, grass-roots cadres and ecotourism practitioners to improve their conservation and management capabilities.

- Wulong Karst: It has carried out multi-faceted, multi-level and all-round training and learning, organizing on average five outbound training courses on the conservation and management of scenic beauty spots and world heritage sites, three comprehensive training courses for the whole region, and five independent training courses for management agencies, realizing full staff training for the staff of the agencies involved in heritage sites and comprehensively improving the capacity and level of conservation management.
- Shibing Karst: The Shibing Karst Management Manual for World Heritage Sites (Figure 2) was completed and distributed to site conservation managers, enhancing the capacity of site conservation managers.



Figure 2 Shibing Karst Management Manual of World Natural Heritage Site

- Guilin Karst: 50 people from heritage management and practitioners went to the Institute of Karst Geology of the Chinese Academy of Geological Sciences to learn about karst landform conservation; in each township government within a heritage site, conservation management knowledge training was provided to village group leaders and above within the site, and six training courses were held, training more than 600 grass-roots cadres and distributing 6,000 pamphlets and 30,000 copies of materials.

**Objective 4: Monitoring systems targeting at the OUV, environmental factors and important human activities are established.**

**Implementation status:** A monitoring system for outstanding universal values,

environmental factors and important human activities has been initially established at each heritage site.

Table 2. The Monitoring Systems of the SCK World Natural Heritage Properties

<b>World Natural Heritage Site</b>	<b>Outstanding Universal Values</b>	<b>Environmental factors</b>	<b>Important human activities</b>
General Monitoring System	<ul style="list-style-type: none"> <li>● Conservation and monitoring of geological relics</li> <li>● Biodiversity monitoring</li> </ul>	<ul style="list-style-type: none"> <li>● Environmental monitoring of water quality, atmosphere, noise, etc.</li> </ul>	<ul style="list-style-type: none"> <li>● Population monitoring</li> <li>● Visitor volume monitoring</li> </ul>
Shilin Karst	<ul style="list-style-type: none"> <li>● Established a video monitoring system to provide real-time conservation observation and safety monitoring of geological relics and other resources</li> <li>● Shilin Karst hydrogeological research and monitoring</li> </ul>	<ul style="list-style-type: none"> <li>● Continuously carry out environmental monitoring of surface water, atmosphere and noise every year</li> <li>● Implement water environment monitoring in the basin</li> </ul>	<ul style="list-style-type: none"> <li>● Visitor volume monitoring</li> <li>● Established a resource management office, a professional protection inspection team and a county comprehensive law enforcement team, and set up 10 resource protection stations to conduct daily dynamic monitoring of Shilin Karst</li> <li>● Population monitoring</li> <li>● Remote sensing monitoring of human activities</li> </ul>
Jinfoshan Karst	<ul style="list-style-type: none"> <li>● Established the Jinfo Karst and Cave Monitoring Station of UNESCO International</li> </ul>	<ul style="list-style-type: none"> <li>● Establish a long-term cooperation mechanism with Southwest University of China, set up 6 monitoring points in the heritage site and</li> </ul>	<ul style="list-style-type: none"> <li>● Visitor volume monitoring</li> <li>● Population monitoring</li> <li>● Remote sensing monitoring of</li> </ul>



World Natural Heritage Site	Outstanding Universal Values	Environmental factors	Important human activities
General Monitoring System	<ul style="list-style-type: none"> <li>● Conservation and monitoring of geological relics</li> <li>● Biodiversity monitoring</li> </ul>	<ul style="list-style-type: none"> <li>● Environmental monitoring of water quality, atmosphere, noise, etc.</li> </ul>	<ul style="list-style-type: none"> <li>● Population monitoring</li> <li>● Visitor volume monitoring</li> </ul>
	<p>Research Center on Karst</p> <ul style="list-style-type: none"> <li>● Conduct field research and monitoring of wild animals such as <i>Trachypithecus francoisi</i>, <i>Macaca mulatta</i>, birds, frogs, etc.</li> <li>● Artificial Patrol of Geological Landforms</li> </ul>	<p>the outer protected areas, and conduct regular sampling and testing of groundwater</p>	<p>human activities</p>
Wulong Karst	<ul style="list-style-type: none"> <li>● Furong Cave automatic environmental monitoring system</li> <li>● Regularly record the dynamic changes of rare animal populations, biodiversity and habitat, and monitor the dynamic changes of habitat and vegetation.</li> </ul>	<ul style="list-style-type: none"> <li>● Monitor the ecological environment every quarter (mainly Furong River)</li> <li>● Monitoring of surface water quantity and quality, ambient air quality, and pollution sources at designated locations</li> </ul>	<ul style="list-style-type: none"> <li>● Visitor volume monitoring</li> <li>● Monitoring the impact of tourism activities on landscapes, water bodies, animals and plants, and the ecological environment; monitoring the integrity and safety of main facilities in tourist attractions</li> <li>● Regularly investigate the population and land use status of the heritage site and its buffer zone</li> </ul>

<b>World Natural Heritage Site</b>	<b>Outstanding Universal Values</b>	<b>Environmental factors</b>	<b>Important human activities</b>
General Monitoring System	<ul style="list-style-type: none"> <li>● Conservation and monitoring of geological relics</li> <li>● Biodiversity monitoring</li> </ul>	<ul style="list-style-type: none"> <li>● Environmental monitoring of water quality, atmosphere, noise, etc.</li> </ul>	<ul style="list-style-type: none"> <li>● Population monitoring</li> <li>● Visitor volume monitoring</li> </ul>
			<ul style="list-style-type: none"> <li>● Monitoring of the degree of community co-management and participation from time to time</li> <li>● Population monitoring</li> </ul>
Shibing Karst	<ul style="list-style-type: none"> <li>● Karst process</li> <li>● Species and quantity of animals and plants</li> <li>● Forest fire</li> </ul>	<ul style="list-style-type: none"> <li>● Quality monitoring of air and water</li> <li>● Hydrometeorological monitoring of major rivers and some scenic spots</li> <li>● Changes in soil physical and chemical properties</li> </ul>	<ul style="list-style-type: none"> <li>● Changes in land use types</li> <li>● Visitor volume, Tourist and entertainment facilities</li> <li>● The status of community residents</li> <li>● Remote sensing monitoring of human activities</li> <li>● Population monitoring</li> </ul>
Libo Karst	<ul style="list-style-type: none"> <li>● Infrared camera monitoring of large and medium-sized beasts and ground birds within the heritage site</li> </ul>	<ul style="list-style-type: none"> <li>● Hydrology and water quality monitoring of major rivers and some scenic spots</li> <li>● Monitoring of surface water quantity, water quality, and ambient air quality at designated locations</li> </ul>	<ul style="list-style-type: none"> <li>● Visitor volume monitoring</li> <li>● Remote sensing monitoring of human activities</li> <li>● Population monitoring</li> </ul>
Huanjiang Karst	<ul style="list-style-type: none"> <li>● Cooperate with South China Agricultural</li> </ul>	<ul style="list-style-type: none"> <li>● Atmosphere, soil and water quality monitoring</li> </ul>	

<b>World Natural Heritage Site</b>	<b>Outstanding Universal Values</b>	<b>Environmental factors</b>	<b>Important human activities</b>
General Monitoring System	<ul style="list-style-type: none"> <li>● Conservation and monitoring of geological relics</li> <li>● Biodiversity monitoring</li> </ul>	<ul style="list-style-type: none"> <li>● Environmental monitoring of water quality, atmosphere, noise, etc.</li> </ul>	<ul style="list-style-type: none"> <li>● Population monitoring</li> <li>● Visitor volume monitoring</li> </ul>
	<p>University to implement the project</p> <p>"Monitoring of biodiversity of caves in the Huanjiang Karst World Natural Heritage Property" to monitor cave creatures in the heritage site</p>		
Guilin Karst	<ul style="list-style-type: none"> <li>● Established a comprehensive monitoring platform for the Lijiang River Scenic and Historic Areas to realize a three-dimensional "space, sky and ground" monitoring</li> <li>● Conduct on-site field research and records of cultural and natural landscape resources, cultural relics and historic sites in the heritage site.</li> </ul>	<ul style="list-style-type: none"> <li>● Regularly carry out the monitoring of the water quality of the buffer zone and Lijiang River section.</li> <li>● Using satellite remote sensing regularly monitors the ecological environment</li> </ul>	<ul style="list-style-type: none"> <li>● Established pilot monitoring points of Wuzhishan in Putao Town and Xianggongshan World Natural Heritage Property in Xingping Town within the heritage site</li> <li>● Set up surveillance cameras in key areas of the heritage site</li> <li>● Population monitoring</li> </ul>

**Objective 5: The systems and mechanisms for resources protection, review and ratification of infrastructure planning, tourism activities, presentation and interpretations, as well as research cooperation are established.**

**(1) Laws and regulations**

**Implementation status:** In accordance with the requirements of the *Convention Concerning the Protection of the World Cultural and Natural Heritage*, and taking into account the actual situation of the protection and management of World Heritage sites, the Government has continued to improve the existing system of laws and regulations and relevant local laws and regulations, and has formulated a series of targeted management measures to strengthen the protection of heritage sites, so as to provide institutional safeguards for protection and management. Since the implementation of the CMP-SCK, *The Regulations on the Management of Shilin Karst World Natural Heritage Site in Shilin Yi Ethnic People's Autonomous County of Yunnan Province*, *The Measures on the Management of the Jinfoshan Karst World Natural Heritage of Chongqing Municipality*, *The Measures on the Management of the Wulong Karst World Natural Heritage of Chongqing Municipality*, *The Regulations on the Management of Shibing Karst World Natural Heritage Site in Qiandongnan Miao and Dong Ethnic People's Autonomous Prefecture*, and *The Regulations on the Management of Lijiang River Scenic and Historic Areas in Guilin* have been issued and implemented as planned. Legislative work is under way on *The Regulations on the Protection of the Wulong Karst World Natural Heritage Site in Chongqing City*, *The Regulations on the Protection of the Libo World Natural Heritage Site in Buyi and Miao Ethnic People's Autonomous Prefecture of Qiannan Prefecture*, and *The Regulations on the Protection of the Huanjiang Karst World Natural Heritage Site*. These regulations and measures provide a management basis for resource protection, planning and construction approval, tourism activities, exhibition and interpretation, and scientific research cooperation within the heritage sites. Each heritage site has also established a supporting system.

Table 3. Protection laws and normative documents formulated by the SCK World Natural Heritage Properties

<b>Title</b>	<b>Promulgating agency</b>	<b>Type of document</b>	<b>Year promulgated</b>
The Regulations on the Management of Shilin Karst World Natural Heritage Site in Shilin Yi Ethnic People's Autonomous County of Yunnan Province	Standing Committee of the 12th People's Congress of Yunnan Province	Local laws and regulations	2016
The Measures on the Management of the Jinfoshan Karst World Natural Heritage of Chongqing Municipality	Chongqing Municipal People's Government	Administrative rules and ordinances of the local government	2016
The Measures on the Management of the Wulong Karst World Natural Heritage of Chongqing Municipality	Chongqing Municipal People's Government	Administrative rules and ordinances of the local government	2010
The Regulations on the Management of Shibing Karst World Natural Heritage Site in Qiandongnan Miao and Dong Ethnic People's Autonomous Prefecture	Standing Committee of the 13th People's Congress of Guizhou Province	Local laws and regulations	2018
The Interim Measures on the Management of Huanjiang Karst World Natural Heritage	Standing Committee of the 7th People's Congress of Huanjiang Maonan Autonomous County	Administrative rules and ordinances of the local government	2015
The Regulations on the Management of Lijiang River Scenic and Historic Areas in Guilin	Standing Committee of the 13th People's Congress of Guangxi Zhuang Autonomous Region	Local laws and regulations	2020

## **(2) Publicity and Education**

**Implementation status:** Through publicity activities and establishment of volunteer mechanisms, the individual sites enables the public to better understand the heritage site, use natural resources sustainably, and participate more consciously in resource protection.

### **(a) To raise public awareness**

In September 2016, with the approval of the State Council of the People's Republic of China, the second Saturday of June each year was established as the "Cultural and Natural Heritage Day". From 2017 to 2020, each heritage site of South China Karst has carried out "Cultural and Natural Heritage Day", highlighting the publicity and display of the value and conservation achievements of South China Karst.

In 2019, the National Forestry and Grassland Administration issued the "Notice on Giving Full Play to the Social Functions of Various Natural Protected Areas and Vigorously Carrying out Nature Education Work" to support and guide various natural protected areas to carry out nature education. The notice stated that "all kinds of natural protected areas are the areas with the most beautiful natural landscapes, the richest natural resources, and the most important ecological status in China. They are important carriers for protecting biodiversity and maintaining ecological balance, and are the main form of embodying the scientific development concept and realizing harmonious coexistence between man and nature. Moreover, the nature protected areas with outstanding global value could become World Natural Heritage or World Natural and Cultural Double Heritage awarded by UNESCO, which is an irreplaceable unique advantage of developing nature education." The notice will help South China Karst to carry out nature education.

The individual site of South China Karst has carried out publicity and education activities to raise public awareness, including:

- Shilin Karst: In the past five years, more than 200 full-time interpreters in the site have popularized the knowledge of karst geology during the guided tour. The Shilin Karst has designed and produced 10 sets of schematic models about development and evolution of Shilin Karst, which are placed at the Karst Museum for free visits by the public. This not only allows the public to fully understand the geological evolution process, but also enhances the public's awareness of the OUV and stimulates the people's protecting consciousness of the Shilin Karst. *The Regulations on the Management of Shilin Karst World Natural Heritage Site in Shilin Yi Ethnic People's Autonomous County of Yunnan Province* specify that June 27 is the conservation day of Shilin Karst each year, and the administrative organization organizes relevant protection publicity activities.
- Jinfoshan Karst: Since the successful application for the World Natural Heritage Site, the conservation and management institutions where the heritage site is located have attached great importance to the publicity and resource protection. In

2017, the Jinfoshan Karst Exhibition Center was established, which organizes science publicity and exhibition activities for youths twice a year (Figure 3). Since 2018, a series of protection and publicity activities have been carried out on the "Cultural and Natural Heritage Day" every year. More than 40,000 brochures are printed and distributed every year, and more than 15,000 publicity materials are produced. This makes the Jinfoshan Karst deeply rooted in the hearts of the people, and at the same time, the ecological protection awareness of the people around the site has been greatly improved. *The Measures on the Management of the Jinfoshan Karst World Natural Heritage of Chongqing Municipality* clarified that June 23 is designated as the Jinfoshan Karst World Natural Heritage Protection Publicity Day.



Figure 3 Publicity activities for primary and middle school students to protect the heritage properties at Jinfoshan Karst

- Wulong Karst: The area where the site is located has carried out 25 large-scale publicity activities for natural heritage protection (including 5 international conferences) and 14 thematic lectures, with an audience of more than 150,000. Meanwhile, 100,000 publicity materials have been distributed and 25500 copies of science books of "Wulong Karst and World Heritage" have been presented to tourists, villagers and students.
- Shibing Karst: To continually strengthen the publicity of natural resources and ecological protection of the site, the Shibing Karst has successively published books such as "Shibing Culture", "Shibing Literature and History Materials", "The

Charm of Cloud Dance", etc. These books fully demonstrated the biology, geomorphology and aesthetic landscape of the site, and deepened people's understanding of Shibing Karst.



Figure 4 Popularization of heritage knowledge conducted by Shibing Heritage Bureau

- Huanjiang Karst: *The Interim Measures on the Management of Huanjiang Karst World Natural Heritage* clarified that June 23 is The Huanjiang Karst World Natural Heritage Protection Day.

(b) To establish volunteer mechanism

- Shilin Karst: The management institution recruits volunteer every year to carry out the publicity of the knowledge of Shilin Karst World Natural Heritage and its geological relics, laws and regulations on Shilin Karst protection and management, and conservation of Shilin ethnic traditional culture.
- Wulong Karst: The launching ceremony of Wulong Karst World Natural Heritage Protection Volunteer Action was held in 2017.
- Shibing Karst: Guizhou Shibing's volunteer service management platform was launched in 2020. Shibing County's 2020 "Cultural and Natural Heritage Day" Into the World Natural Heritage Site- Yuntai Mountain recruited volunteers through the platform to conduct the publicity activities.

(3) Scientific research cooperation

The individual site of SCK have cooperated with universities and scientific



research institutions to give full play to the scientific research functions and provide technical support for the scientific protection of SCK.

- Shilin Karst: Teaching practice bases of geography and geology were established with Southwest University, Yunnan University, Kunming University of Science and Technology and other universities in China, and projects were carried out in the site such as “Study on Sustainable Development of Tourism in the Rural Community of Shilin Karst”, “Study on Ecosystem Mechanism of stone Mountain in Shilin Karst”, etc.
- Jinfoshan Karst: Two long-term hydrological observation stations of Shuifang and Bitan spring and 25 artificial monitoring points have been set up with the Karst Research Institute of Chinese Academy of Geological Sciences and Southwest University, and the cave environment monitoring was carried out jointly with the Karst Research Institute of the Chinese Academy of Geological Sciences (Figure 5).
- Wulong Karst: A modern international karst scientific research base has been built in cooperation with the Karst Research Institute of the Chinese Academy of Geological Sciences and UNESCO International Research Center on Karst. A series of research, monitoring, early warning and forecasting, resource development and protection work have been carried out for basic karst theories, karst ecology, geological disasters and karst water resources and the environment.



Figure 5 Investigation on Jinfoshan Karst by academician Yuan Daoxian from the

Karst Research Institute of the Chinese Academy of Geological Sciences

- Shibing Karst: Through the cooperation with scientific research institutions, many research articles were published including "A New Species of Gesneriaceae from Guizhou-Dolomite Arachnoides" and " Characteristics of water chemistry and stable isotope of dissolved inorganic carbon in the dolomite karst area of Shibing, Guizhou", etc. The VR teaching film shooting and related scientific research work of the site was conducted in cooperation with the Karst Research Institute of Guizhou Normal University, which plays a very important role in publicizing and maintaining the OUV of the site.



Figure 6 The hydrometeorological monitoring equipment in Shibing Karst

- Huanjiang Karst: Huanjiang Karst is working with South China Agricultural University to implement the “Monitoring and Research on Cave Biodiversity of Huanjiang Karst”, to establish a cave research laboratory to monitor cave creatures, and to understand the impact of tourism development and human activities on the cave environment. It will provide scientific data and technical support for the full implementation of the *Convention Concerning the Protection of the World Cultural and Natural Heritage*.
- Guilin Karst: A number of scientific research institutions have been delegated to conduct field research on the cultural and natural landscape resources, cultural relics and historical sites in the site, and conduct research on existing problems. This will greatly help to the targeted protection and utilization of the site in the

future.

**Objective 6: The understanding of the world heritage values amongst the inhabitants in the property and buffer zone is enhanced and their participation in heritage conservation and management has enhanced significantly.**

**Implementation status:** Through the training and science popularization activities for residents in individual site of SCK and their buffer zones, the residents' awareness of the value of SCK and their awareness of participating in heritage protection and management have been enhanced.

- Wulong Karst: 30,000 copies of science books "Wulong Karst and World Heritage" were printed and distributed to schools and community residents in the site for free. The "Wulong Karst Knowledge into the Classroom" activities was carried out to publicize the value of the heritage, and heritage protection education was carried out.
- Shibing Karst: 20,000 copies of " Initiative for Protecting Shibing Karst World Natural Heritage Site", " Village Regulations and People's Agreement on the Ecological Environment Protection of Shibing Karst World Natural Heritage Site", "Code of Conduct of Ecological Environmental Protection of Shibing Karst World Natural Heritage Site" are printed, and more than 15,000 publicity materials are posted in the village (Figure 7), which enhanced the awareness of residents around the heritage site on natural resources and ecological protection.



Figure 7 The managers of Shibing Karst entered the village to post publicity materials

- Guilin Karst: 1,481 indigenous residents along the Lijiang River in the site were hired as raft drivers, which increased the number of jobs for the indigenous residents, allow the community to participate in tourism operations. 74 fixed permanent publicity boards were installed in the natural villages within the site, and 31 publicity boards were set up, which played a good effect in popularizing the knowledge of the world natural heritage sites. It was also proposed in the CMP-SCK that the individual site of SCK, governments at all levels and relevant departments should enhance their understanding of the needs and methods of survival and development of the public, especially community residents, and promote the coordinated development of protection and communities.
- Shilin Karst: Shilin Karst actively participated in "China World Heritage Site Protection and Management Project • Community Sustainable Livelihood Activities" organized by the UNESCO. In 2018, the "Yi Ethnic Sani Embroidery Skills Training Course in Shilin, Yunnan " was held in Shilin, which played an important role in promoting intangible cultural products of Sani embroidery, increasing the income of residents, and promoting harmony development between people and nature in the Shilin Karst. In 2019, the "Shilin Yi Sani Embroidery Project" was successfully concluded. The implementation of the project has promoted the coordinated development of the community in the heritage site. While improving the living standards of local people, it also provides more ways to effectively protect the authenticity and integrity of the world heritage through heritage protection publicity work.
- Jinfoshan Karst: More than 10 trainings of bamboo shoot farmers knowledge and resource guard training were organized.
- Wulong Karst: The local government encourages the community to participate in the direct management of the site, and the business projects are tilted toward the community. To increase the income of local community residents, the stalls in the display area of the site are provided for free to local community residents. The community residents are encouraged to increase their wealth through scenic

employment, travel-related services, guidance support and other methods. Water pollution, garbage pollution, pesticide and fertilizer erosion caused by agricultural production have been greatly reduced by various measures including centralized garbage removal and treatment, continuous environmental improvement, rural biogas construction, guiding the use of clean energy and promoting the production of pollution-free vegetables.

- Libo Karst: Local residents have been hired as forest rangers, who are responsible for forest fire prevention, resource protection, coordinated management and publicity. The World Heritage Knowledge and Radix Isatidis Cultivation Technology Training Conference was held, more than 90 villager representatives from 19 groups in the core area of the heritage site participated in the training. 11 village popular science posters, 7 heritage site signs and 10 warning board were made.
- Huanjiang Karst: To promote the development of environment-friendly high-income alternative industries, a demonstration base of purple has been built and technical training has been provided to the community.
- Guilin Karst: The "Implementation Plan for Establishing an Ecological Compensation Mechanism for the Lijiang River Scenic and Historic Area in Guilin" has been completed and reported to the municipal government where the site is located. If the plan is approved, it will greatly promote the sustainable development of the site. At the same time, Yangshuo County in the site has established a tourism economic compensation mechanism for the original residents on both sides of the Lijiang River. In 2019, the total compensation reached 40 million yuan. The implementation of these measures has not only improved the life quality of the residents of the site, but also reduced the pressure on resource protection.

**Objective 7: The level of heritage conservation and management has elevated notably, and sightseeing in the scenic areas is well-ordered.**

For a long time, the Chinese government has attached great importance to the

protection and management of nature reserves and heritage sites. The Chinese leadership has actively promoted the concept of ecological civilization and green development, and has adopted a series of measures to promote the construction of ecological civilization and management of protected areas. In order to integrate overlapping nature protected areas, merge and optimize adjacent nature protected areas, and strive to build a national park-based nature protected area system with scientific classification, reasonable layout, strong protection, and effective management. In June 2019, the Central Party Committee and the State Council jointly published the “Guidelines for developing the protected area system with national parks as the cornerstone”. The guidelines provide strong support and policy guarantees for the systematic protection and management of the world natural heritage, the improvement of coordination capabilities, and the strict implementation of the *Convention Concerning the Protection of the World Cultural and Natural Heritage*.

In order to improve the protection and management level, in addition to strictly controlling the number of tourists at the 7 heritage sites, each heritage site also provides training for tourism practitioners. The training content mainly includes world natural heritage knowledge, tourism law, nature reserve regulations, forestland management, wildlife protection, forest fire prevention, public security penalties, eco-tourism safety and emergency handling and illegal cases of eco-tourism practitioners, etc., which further enhanced the service capabilities of tourism practitioners.

2.5 Also notes with appreciation the State Party's decision to abandon the renovation and expansion projects of the two existing roads crossing Shilin Karst and its Buffer Zone, which may have a negative impact on the property's Outstanding Universal Value (OUV), and its commitment to report any future developments to the World Heritage Centre, in accordance with Paragraph 172 of the Operational Guidelines.

**Response of the State Party:**

The States Party will continue to carry out rigorous management of construction projects in the world heritage properties and their buffer zones and strictly observe *The Convention for the Protection of the World Cultural and Natural Heritage*, *The Operational Guidelines for the Implementation of the World Heritage Convention*, *The Law of the People's Republic of China on Urban-Rural Planning*, and *The regulations on Scenic and Historic Areas*, *The Regulations on Nature reserves* and *The Measures for the Nomination and Management of the World Natural Heritage*, *Natural and Cultural Heritage*, etc. and strictly implement the report on the state of conservation submitted to the World Heritage Committee in 2018, meanwhile, the UNESCO World Heritage Center will be informed of any major construction project in conformity with Paragraph 172 of The Operational Guidelines.

2.6 Acknowledges the reported assessment of environmental impacts of the Guiyang-Nanning High-Speed Railway, which commenced in 2016 and crosses the buffer zone of Libo Karst, concluding that the project would not affect the OUV of the property, but requests however the State Party to address any impact on the buffer zone, any potential impact of invasive alien species on the property, and that it assess, monitor and manage the potential.

### **Response of the State Party:**

Currently, the Guiyang-Nanning High-speed Railway Crossing the Buffer Zone of Libo Karst is under construction and is expected to be completed by the end of December 2023. The construction of the buffer zone of the Libo Heritage Site of the Guiyang-Nanning High-speed Railway began in July 2018. The projects that have started construction include the Jiuwandashan No. 1 Tunnel, the Laocun Double Line Extra Large Bridge and the Jiuwandashan No. 2 Tunnel.

During the construction process, the heritage site specifically adopted the following measures as to avoid the impact of the project construction on the geological and landform, ecological environment and biodiversity in the buffer zone of the Karst Libo. The implementation of these measures can minimize the negative impact of the construction on the buffer zone of the Libo Karst.

#### **(1) Geological and geomorphological impact control measures**

The measures should control the impact of project construction on the geological and landforms of the peak clusters and depressions of the heritage site, and avoid large excavation of the mountain and deep excavation of the entrance, and advance geological forecast before construction.

#### **(2) Ecological environmental impact control measures**

Environmental supervision during the construction period has been strengthened.



Temporary land occupation such as spoil yard, construction camp, mixing station, etc. shall not be set up in the buffer zone of the heritage site, and the construction site and temporary topsoil storage yard shall be set in the permanent land occupation area;

The tunnel drainage is collected and recycled after sedimentation, filtration, and is not directly discharged in the buffer zone;

During the construction period, the soft soil area shall be greened in time, and the mud waste water shall be reused after being treated by sedimentation and filtration in the sewage treatment station;

The garbage in the living area is stored in a centralized manner, the waste water and waste oil from repairing construction equipment shall be recycled in a centralized manner, and shall not be dumped at will to avoid polluting the water sources;

Strengthen the training of construction personnel, management personnel and supervisory personnel.



Figure 8 Project management and supervision personnel participating in environmental protection training

### **(3) Biodiversity impact and alien species invasion control measures**

The existing village roads are used for construction access roads, and construction vehicles use fixed routes to prevent construction personnel and vehicles from affecting other vegetation and animal habitats in the buffer zone;

The filling and excavation works are carried out in an orderly manner according to the construction progress, and the temporary land occupation, tunnel openings and roadbed slopes shall be used for ecological restoration of local plant species in time;

The tunnels in the buffer zone adopt weak blasting technology, and plan the construction method, quantity, and time to avoid high-noise operations in the morning, dusk and night, and reduce the disturbance of wild animals caused by noise generated during construction.

Strengthen publicity and strictly prohibit hunting wild animals;

An animal guide channel is set up near the tunnel to prevent animals from entering the tunnel entrance.

The government of the State Party will continue to urge the local governments and world heritage management institutions, railway construction and operation units involved in the Guiyang-Nanning high-speed railway project to strictly follow the environmental management plan proposed in the environmental impact assessment report during the construction and operation periods of the project, carry out monitoring and protection work, implement various environmental protection and negative impact mitigation measures, and ensure that the project construction has no negative impact on the OUV of the Libo-Huanjiang Karst Heritage Site.

As the Guiyang-Nanning high-speed railway project is still under construction, tourism pressure has not yet been reflected. Considering that the completion of the construction of the Guiyang-Nanning high-speed railway project may bring about an increase in the number of tourists, Libo Karst will continue to monitor the number of tourists, strictly set the upper limit of the tourist capacity of the heritage site, and ensure that the tourist reception meets the environmental carrying capacity of the heritage site; improve the tourist overload warning system; formulate eco-tourism planning; carry out global tourism to divert tourists from heritage sites.

2.7 Further notes with appreciation the information provided about the relocation processes followed for Wukeshu Village, in particular to ensure that the relocation was carried out with the consent of the population concerned, and also requests the State Party to ensure that any such relocation programmes are in line with the 2015 World Heritage and Sustainable Development Policy and relevant international standards.

**Response of the State Party:**

"Adhere to the principle of voluntariness of the masses" is the primary principle of the State Party's government in implementing the poverty alleviation and relocation project to ensure that the project is in accordance with *the Convention on Protected Land Biodiversity Work Plan (CBD PoWPA)* and other rights-based international conventions. In order to guarantee the legality of the relocation project, the State Party has formulated strict working procedures and steps to achieve prior consent, effective consultation, fair compensation, access to social welfare and skill training, and the right to retain traditional culture and customs.

The State Party states that any future relocation within a heritage site will be strictly in accordance with the 2015 World Heritage and Sustainable Development policy and relevant international standards.

**3. Any potential major restorations, alterations and/or new construction(s) intended within the property in the future**

Currently none.

**4. Whether the Report of the State of Conservation should be open to the public**

Yes.

**5. Official signature**