

Huangshan 2022 Monitoring Report on the Sustainable Development

Management Bureau of Huangshan Scenic Area
Monitoring Centre for Sustainable Tourism
Observatories in China
2022.11

CONTENTS

HUANG SHAN

01. Preface

03. Local Residents' Satisfaction
with Tourism

04. Tourists' Satisfaction

05. Economic Benefits

06. Employment

07. Seasonal Tourism

08. Management of Water
Resource

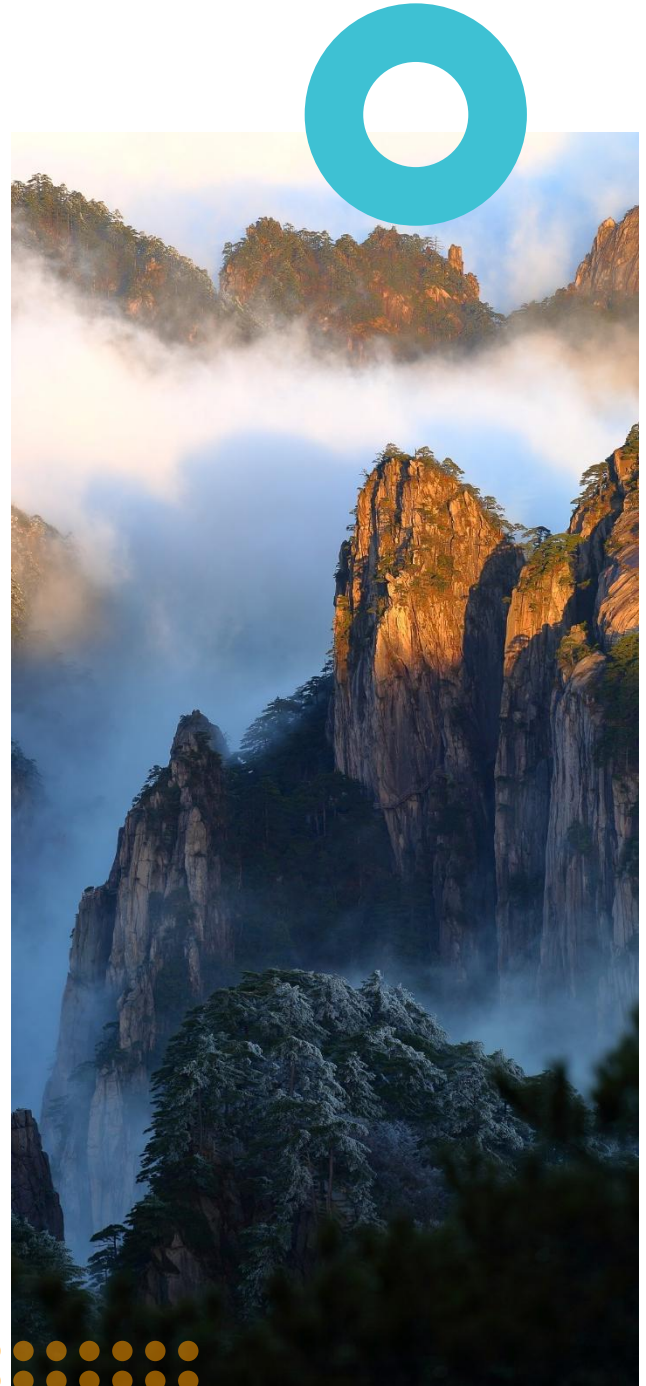
09. Treatment of
Sewage

10. Treatment of Solid
Waste

11. Solutions

12. Actions towards Climate
Change

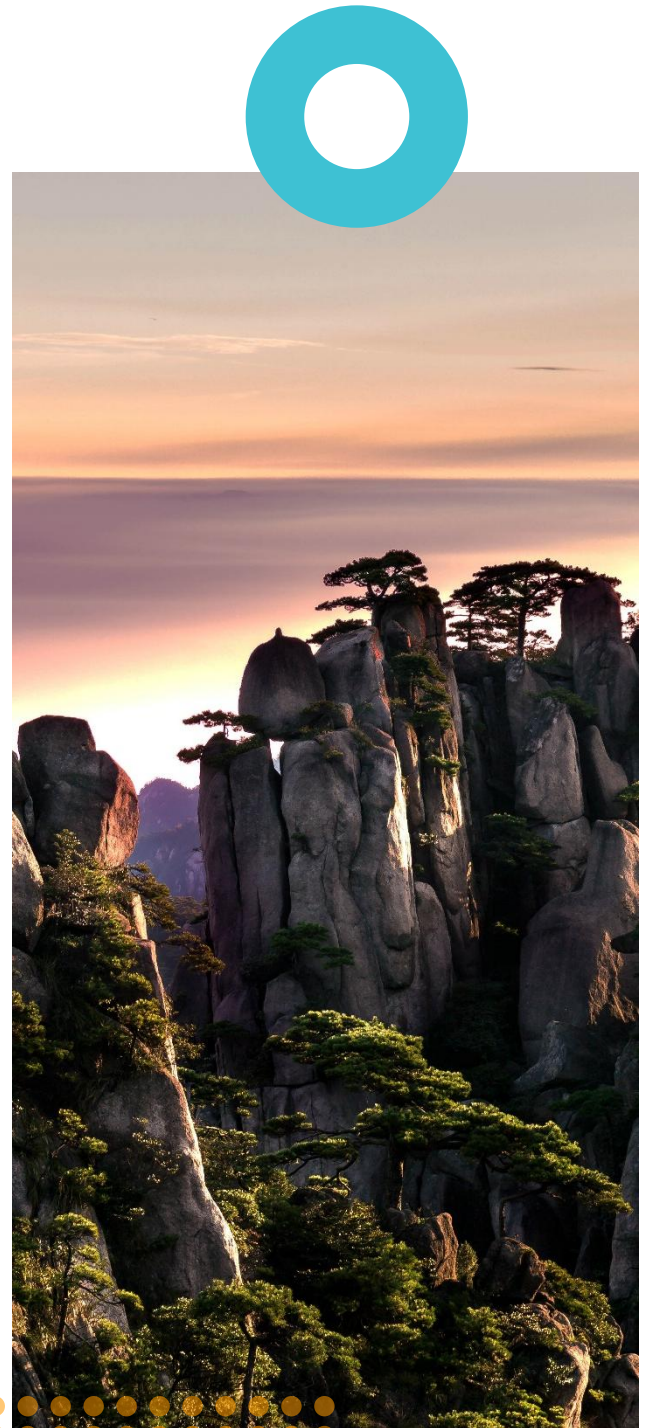
13. Accessible Facilities



Preface

On February 26, 2008, UNWTO and the United Nations Educational, Scientific and Cultural Organization (UNESCO) formally established the World Tourism Organization Sustainable Tourism Observatory at Huangshan and the World Heritage Site Sustainable Tourism Development (Huangshan) Observatory. The objective was to conduct long-term monitoring of various indicators, such as visitor perceptions, satisfaction, and tourism impacts on the community, aiming to collect diverse metrics for sustainable tourism development in Huangshan. This initiative sought to explore a developmental model that maximizes the tourism economy of a World Heritage Site while maximizing community benefits and minimizing adverse environmental impacts.

The tourism industry plays a pivotal role in the Huangshan District where the scenic Huangshan Mountain is situated. Tourism provides a significant number of employment opportunities for local residents, drives local economic development, enhances the influence of Huizhou culture, and spreads the green and sustainable development concept of environmental conservation.



Local Residents' Satisfaction with Tourism

The monitoring team distributed 192 community questionnaires in the vicinity of Huangshan Scenic Area across five towns. Out of these, 176 were deemed valid while 16 were considered invalid. An analysis was conducted on the attitudes of residents in the towns of Tangkou, Tanjiaqiao, Sankou, Jiaocun, and Gengcheng towards tourism development, with the results presented in Table 2-2.

The data from the table indicates that overall, the local residents in Huangshan generally recognize the contributions made by tourism development, with a mean score of 3.99 for the statement “Huangshan tourism development has made many contributions to the local area”. Additionally, there’s a high level of support for future tourism growth, as shown by the mean scores of 4.16 for “I will continue to support Huangshan’s tourism development” and 4.18 for “I hope the local area continues to develop tourism”. However, the satisfaction level specifically related to Huangshan’s tourism development, reflected in the mean score of 3.67, is comparatively lower at 59.7%. Yet, it’s worth noting that all mean scores have increased from the previous year, notably the indicator about contributions made by tourism development, which rose by 12.6%.

The average scores for indicators “I am willing to proactively communicate with tourists”, “I am willing to work in tourism-related jobs”, and “I am willing to suggest ideas for scenic area development” are 4.09, 3.91, and 3.86, respectively. This demonstrates the high subjective initiative of local residents in Huangshan towards tourism development, indicating their willingness to actively engage in Huangshan’s tourism industry. The average attitude index for community residents towards tourism development, calculated from the seven indicators, is 3.97, indicating a generally positive attitude towards tourism development. In the post-pandemic era, there’s an observed improvement in the tourism industry, leading to an enhancement in the livelihood of the local community. In comparison to the 2021 data, this year’s figures show a noticeable increase in the mean values across all indicators.

Residents' Attitudes towards Tourism	Average Value	Standard Deviation	Percentage of Agreement
Huangshan tourism development has made many contributions to the local area	3.99	0.85	79.0%
I am willing to proactively communicate with tourists	4.09	0.70	84.1%
I hope the local area continues to develop tourism	4.18	0.66	87.0%
I am willing to work in tourism-related jobs	3.91	0.86	71.6%
I am willing to suggest ideas for scenic area development	3.86	0.83	67.7%
I am satisfied with the tourism in Huangshan	3.67	0.97	59.7%
I will continue to support Huangshan’s tourism development	4.16	0.70	84.7%

Tourists' Satisfaction

In terms of overall tourist satisfaction, the average scores for each item are above 4.1, indicating a generally satisfactory experience. Among them, 88.1% of tourists agree or strongly agree that they were extremely satisfied with their visit to Huangshan, while 89.5% of them consider it a wonderful experience. Additionally, 80.7% of tourists agree or strongly agree that their overall experience at Huangshan exceeded their expectations. These figures indicate that the majority of tourists are quite content with their visit, with most finding the experience to be excellent.

However, some visitors mentioned that their trip to Huangshan did not exceed their expectations. Apart from the excellent service quality in the Huangshan scenic area, this could also be attributed to the environmental protection education activities held during the monitoring period. During this time, the monitoring team organized a three-day immersive environmental protection education event at Yuping Building, which gained significant attention. The event not only provided environmental protection education to visitors but also offered them the chance to quietly experience the beautiful natural landscapes of Huangshan. Through interviews, visitors expressed that this was a unique and novel activity, rarely found in other scenic spots, enhancing their experience in Huangshan and leaving a lasting impression. Therefore, this event contributed to the high overall satisfaction and elevated evaluations of tourists' expectations during the inspection.

	An Unexpectedly Pleasant Trip	A Pleasant Trip	A Good Trip
Average Value	4.15	4.4	4.36
Cases	295	295	293
Standard Deviation	0.804	0.683	0.706

Table of Overall Tourist Satisfaction

	An Unexpectedly Pleasant Trip	A Pleasant Trip	A Good Trip
2021	74.9%	91.0%	87.2%
2022	80.7%	89.5%	88.1%

Table of the Comparison of Overall Tourist Satisfaction between 2021 and 2022

Economic Benefits

According to the findings of the current monitoring survey, in 2021, the total number of tourists entering Huangshan Scenic Area amounted to 1.6742 million, marking an increase of 162,700 visitors compared to 2020, representing a growth rate of 10.76%. The cable cars and ropeway services transported a total of 3.6207 million tourists, reflecting an increase of 488,700 visitors compared to 2020, which accounts for a 15.60% rise. The total revenue generated amounted to 895 million yuan, demonstrating an increase of 154 million yuan from 2020, indicating a growth rate of 20.84%. Specifically:

- In 2021, the total number of tourists received by Huangshan Scenic Area was 1.6742 million.
- The total tourism revenue of Huangshan Scenic Area in 2021 amounted to 895 million yuan.
- Among the five surrounding towns of Huangshan Scenic Area, Tanjiaqiao Town, Jiaocun Town, and Tangkou Town collectively received 1.967 million tourists. The data for Sankou Town and Gengcheng Town for this period has not been updated.
- Among the five surrounding towns of Huangshan Scenic Area, Tanjiaqiao Town, Jiaocun Town, and Sankou Town collectively generated a tourism revenue of 50.827 million yuan.
- The data for Tangkou Town and Gengcheng Town for this period has not been updated.

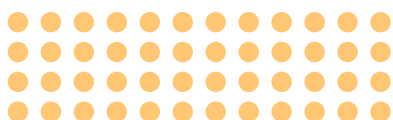


Economic Benefits

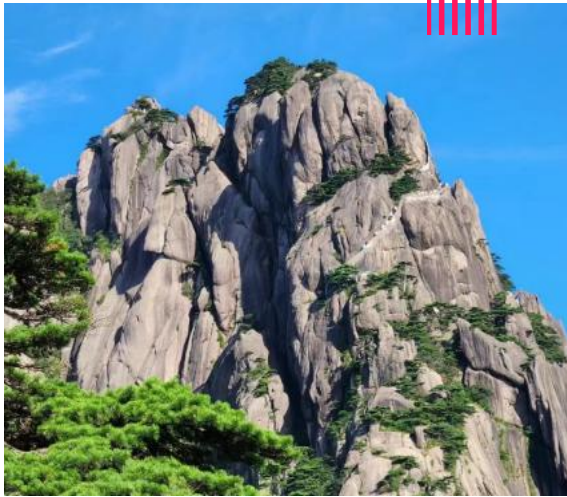


Due to the repeated outbreaks of COVID-19 waves, Huangshan Scenic Area encountered fluctuations and challenges in various economic indicators in 2021. Despite this, it achieved a certain degree of recovery in tourism development, receiving a total of 1.6742 million tourists entering the mountain, with cable cars and ropeways transporting a total of 3.6207 million tourists. The business revenue reached 895 million yuan, showing a slight increase compared to the same period last year.

In the first half of 2022, the tourism development of Huangshan Scenic Area faced significant impacts due to the resurgence of the epidemic in various regions. From January to February, the tourism market showed steady recovery; however, from March to May, it was severely affected by the resurgence of the epidemic, particularly in the Yangtze River Delta region, leading to a sharp decline in the market. Market conditions began to improve in June.



Employment



In the surrounding five towns of Huangshan, the employment and community participation in tourism are as follows:

Tangkou Town has shown firm determination and devoted effort to actively promote the quality and efficiency improvement of tourism. Being the “South Gate” of Huangshan, Tangkou Town boasts a high level of local resident engagement in tourism. By the end of June, the Tangkou Homestay Alliance had organized two sessions of homestay owner forums and held two training courses for homestay managers. This initiative represents a new approach to exploring standardized homestay operations. Utilizing the periods of fewer visitors during the epidemic, Tangkou Town coordinated efforts in epidemic prevention and control along with safety measures, conducting a series of inspections focusing on food, hygiene, fire safety, and specialized equipment.



Tanjiaqiao Town, leveraging large-scale project construction, has exhibited a strong momentum in tourism development. The outbreak that began and spread in February 2022 had a considerable impact on tourism development in Tanjiaqiao Town. By the end of June 2022, the total revenue from tourism reception in Tanjiaqiao Town amounted to 3.4281 million yuan, with 62,900 tourists received, significantly lower than the same period last year. The town comprises 56 homestays, 6 hotels, and 60 small-scale restaurants, providing a combined total of 668 beds. Homestays and hotels are predominantly situated in Zhongdun Village. The development of tourism has provided employment for approximately 1,093 individuals.

Employment



Jiaocun Town has experienced rapid growth in tourism, accelerating the construction of a cultural and tourism characteristic town and promoting holistic tourism. In 2021, Jiaocun Town received 210,000 tourists, achieving a total tourism revenue of 26.8 million yuan. Both tourist arrivals and total revenue surpassed pre-pandemic levels, showcasing remarkable achievements in tourism development. The town has 41 registered homestays offering a total of 368 beds and employing 47 individuals.



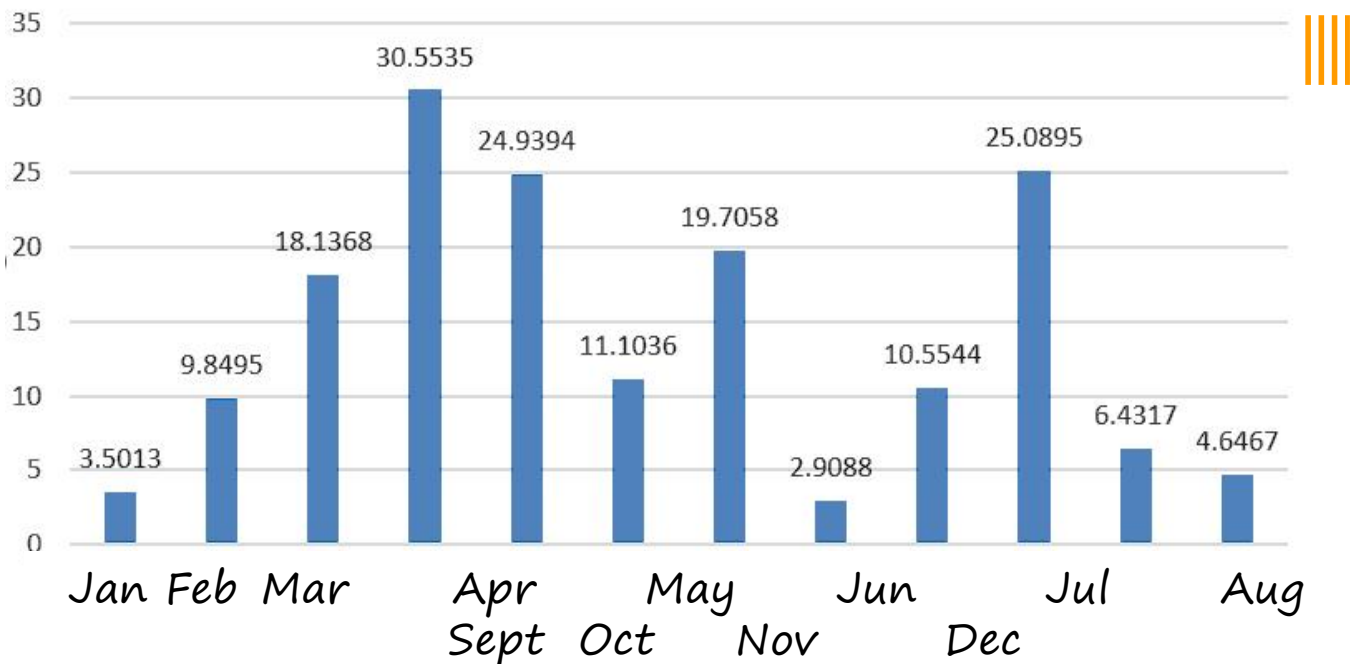
Gengcheng Town is developing its cultural and tourism industry, aiming to establish itself as a renowned ecological leisure tourism town in North Huangshan. The town places significant emphasis on tourism development, boasting approximately 50-60 farmhouse inns and two 4A-level scenic spots. However, one of the 4A-level scenic spots faces the risk of being downgraded. The town has over 1,000 people engaged in the tourism industry, with around 60% being local residents and 40% coming from outside.

Sankou Town integrates agriculture with tourism, driving the development of distinctive rural tourism. Sankou Town features six farmhouse inns, one provincial-rated farmhouse inn, and one 3A-rated farmhouse inn. In 2021, Sankou Town comprehensively enhanced rural tourism. The Yanwoli Homestay hosted nearly 50,000 visitors, increasing tourism income by 150,000 yuan and providing jobs for over 60 individuals. The town saw a 37.2% rise in guests, reaching 26,900 and a 32.8% increase in tourism revenue to 2.87 million yuan.

Seasonal Tourism

The tourism industry in Huangshan Scenic Area displays distinct seasonality. Statistics from the tourism office indicate uneven tourist reception throughout 2021. Specifically, April, May, July, and October received 305,500, 249,400, 197,100, and 250,900 visitors, respectively, accounting for 60.0% of the annual total. Correspondingly, revenues in April, May, July, and October amounted to 4.08 billion, 2.13 billion, 1.73 billion, and 1.99 billion yuan, constituting 55.2% of the annual revenue.

The Tourist Reception Volume in Huangshan Scenic Area in 2021 (Unit: 10,000 people)



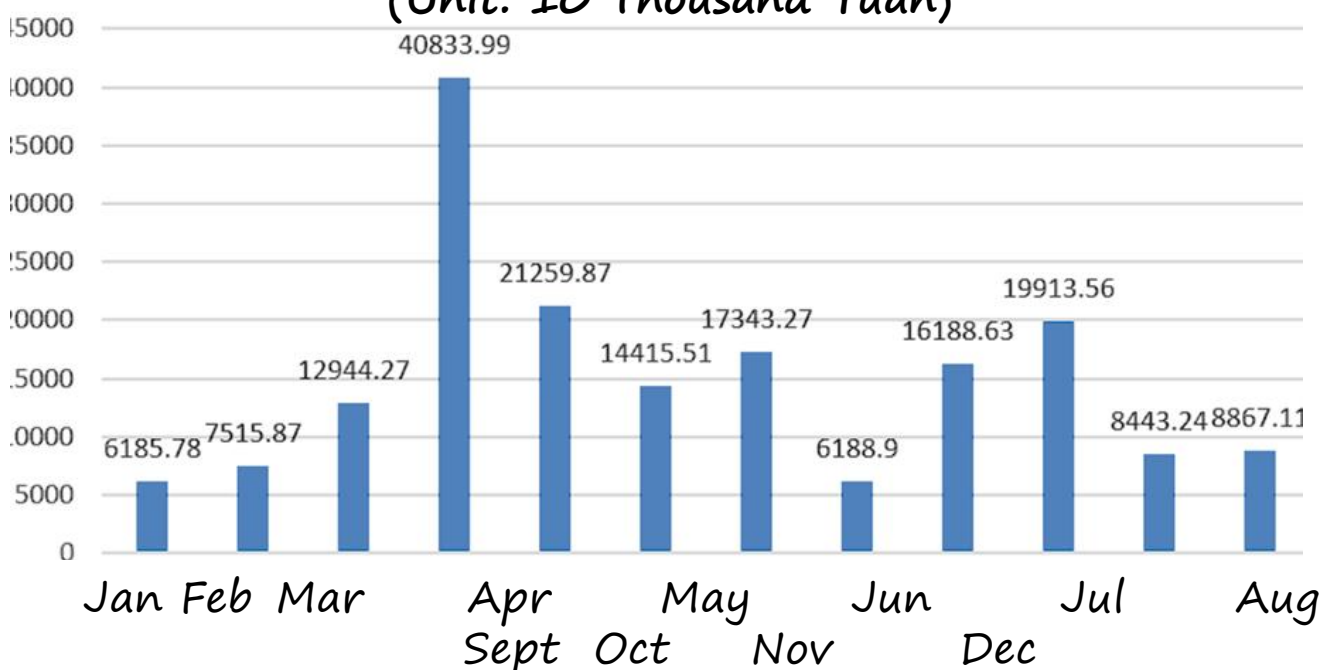
Seasonal Tourism

The main reason for this phenomenon is primarily due to institutional factors in mainland China. May and October, with the three-day Labor Day holiday and the seven-day National Day holiday respectively, are among the few long holidays for Chinese citizens, leading to peaks in tourist travel. July coincides with the summer break for primary, secondary, and high schools in mainland China, prompting many families and financially capable university students to choose this time for travel. The highest number of visitors in April is due to the policy of free admission to Anhui residents implemented by the Huangshan Scenic Area in April 2021.

Despite the evident seasonal imbalance in the number of visitors, the management has actively controlled the area's capacity through methods such as reservations and crowd control. Additionally, the two significant attractions within the area, namely “Tiandu Peak” and “Lotus Peak,” have implemented a rotational five-year closure system, managing the area sustainably with this approach and principle.

The Revenue Generated by Huangshan Scenic Area in 2021

(Unit: 10 Thousand Yuan)



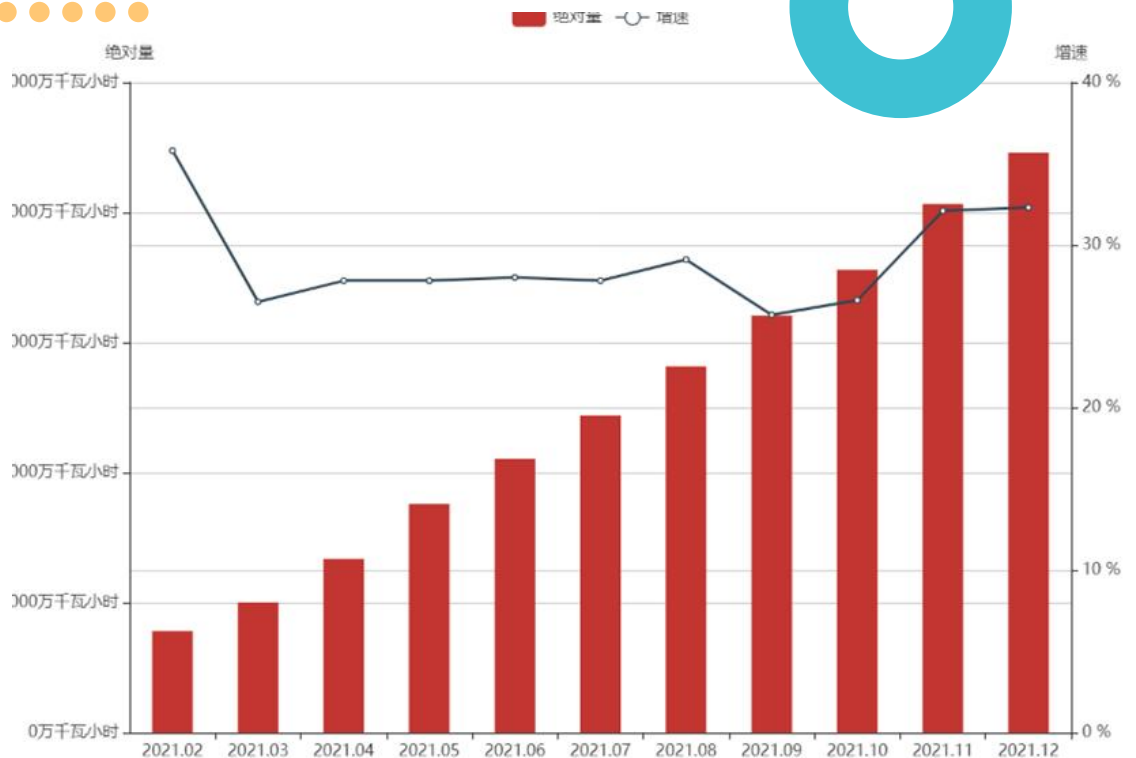
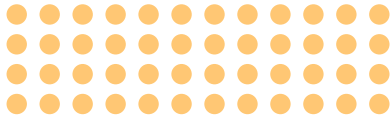


Figure: Annual Electricity Consumption in Huangshan District in 2021 (Unit of the Left Vertical Axis: 10 Thousand Kilowatt-Hours)

Energy Management

Electricity serves as the primary energy source utilized within the Huangshan Scenic Area.

Huangshan Power Supply Company is a medium-sized power supply enterprise directly affiliated with the Anhui Provincial Electric Power Company. It shoulders responsibilities encompassing the development of electric power in Huangshan City, ensuring the safe and efficient operation of the power grid, managing the construction and maintenance of electrical facilities, and undertaking electricity sales activities. The company owns 13 substations with a capacity of 110 kilovolts and above, boasting a total transformer capacity of 806 megavolt-amperes. There are 31 lines measuring 35 kilovolts and above, with a total length of 777.899 kilometers. The company's current total assets amount to 510 million yuan, serving 102,500 households. With a workforce of over 500 employees, the company's annual electricity sales reach nearly 1.1 billion kilowatt-hours, with the peak load reaching 228,000 kilowatts.

Management of Water Resource



The Huangshan Scenic Area is a national-level scenic spot. According to the standards outlined in the *Surface Water Environmental Quality Standards* (GB3838-2002) for water body function division and the method of water body function division for Huangshan City described in Document No. 38 of the Huangshan Environmental Protection Bureau in 1993, the surface water resources within the Huangshan Scenic Area comply with the national Grade II standards.

There are four surface water quality monitoring points in the Scenic Area: Nandamen, Jiulong Waterfall, Shuanglong Pool, and Laolongtan. The monitoring parameters include pH, dissolved oxygen, ammonia nitrogen, permanganate index, fluoride, and metallic elements, among others. According to the monitoring results for the four quarters of 2021, the surface water quality in Huangshan Scenic Area is good, generally meeting the national Grade II standards, but there is a tendency for total nitrogen levels to be somewhat high.

In compliance with the regulations outlined in the *Environmental Protection Regulations of Anhui Province* and the *Regulations on the Protection of Urban Drinking Water Source Environment in Anhui Province*, the Huangshan Scenic Area continued to carry out entrusted monitoring of 109 water quality indicators for drinking water sources from 2021 to 2022. This monitoring focused on the Five-Li Bridge Reservoir, Yungu Reservoir, Tianhai Reservoir, and Xi'hai Reservoir, primarily testing indicators such as dissolved oxygen, pH value, potassium permanganate index, ammonia nitrogen, total phosphorus, fluoride, volatile phenol, petroleum compounds, and *Escherichia coli* for drinking water quality assessment.

Management of Water Resource

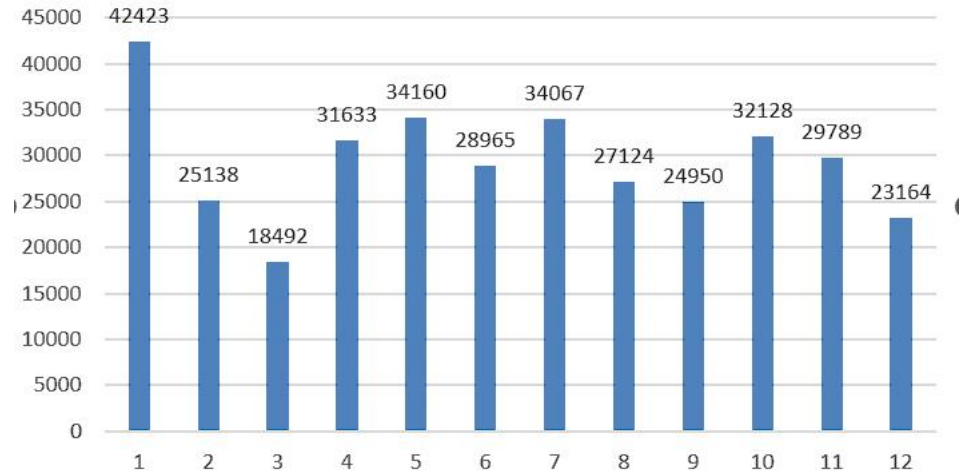


Figure Total Water Supply for Huangshan Scenic Area in 2021

Overall, the drinking water quality in Huangshan Scenic Area is good, generally in accordance with the national Grade II standard stipulated in GB3838-2002 *Surface Water Environmental Quality Standards*. The reservoir water is clear, colorless, and odorless, with only slightly higher total nitrogen content.

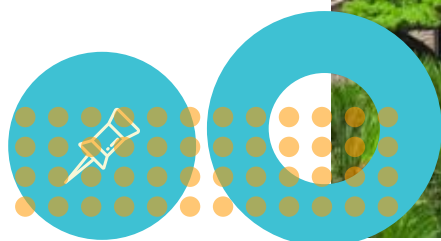
Moreover, statistics from 2021 indicate a total annual water supply of 352,033 tons in Huangshan Scenic Area. The supply is distributed across three areas: the mountain area, providing 169,862 tons (48.25%); the Yungu and hot spring area, supplying 108,259 tons (30.75%); and the Xiaoyao Pavilion and Tangquan area, delivering 73,912 tons (21.00%). Water usage statistics per month exhibit some seasonality. The water supply for January, May, July, and October amounted to 42,423 tons, 34,160 tons, 34,067 tons, and 32,128 tons, respectively. The seasonal supply of water correlates notably with the tourism season. Institutional factors in mainland China contribute to the uneven water supply phenomenon: May and October have the Labor Day three-day holiday and the National Day seven-day holiday, which are among the few extended holidays in China, leading to peak tourist travel. In July, it's summer vacation for primary, middle, and high school students, prompting many families and financially capable university students to choose this time for travel. Consequently, these months experience higher water usage pressures.

Treatment of Sewage

In terms of daily sewage, Huangshan Scenic Area practices manages sewage systematically to ensure it meets required standards for discharge. This strategy has led to the successful creation of an ISO 14000 national demonstration zone and a national low-carbon tourism demonstration zone. Since 1986, the scenic area has established 15 sewage treatment stations in locations such as Yuping, Xihai (under construction), Wenquan, Banshan Temple, the Scenic Area Administration Building, Emergency Center, Tianhai, Beihai, Shilin, the New Cable Car of Yungu, Yungu, Songgu, and Furongling.

In 2021, due to the pandemic and station renovations, approximately 180,000 tons of domestic wastewater were processed. The highest daily processing volume during peak seasons reached 650 tons. From January to June 2022, about 60,000 tons of domestic wastewater were processed, with the highest daily processing volume reaching 500 tons during peak seasons.

The sewage collection network in Huangshan Scenic Area covers various scenic spots, and all sewage pipelines utilize gravity flow without intermediate sewage lifting pump stations. Owing to complex geological conditions in mountainous areas, some sections of sewage pipelines are laid shallowly and partially exposed in an overhead manner. After collection through the network, sewage flows into the sewage treatment stations. Since sewage discharge points within the entire scenic area are relatively scattered, the collection and treatment of sewage are managed within individual sections to reduce the distance of pipeline deployment. Presently, the scenic area has built approximately 10,000 meters of sewage pipelines with diameters ranging from d100 to d400, effectively realizing sewage collection and decentralized treatment within the area.



Treatment of Solid Waste



In 2021, the total output of solid waste in the scenic area amounted to 1513.74 tons. Within this, 83.15 tons were subjected to biological treatment, 149.12 tons were recycled, 810.27 tons were externally incinerated for power generation, and 471.2 tons were transported for resource utilization. Recycled waste accounted for 94.5% of the total. From January to June 2022, the total output of solid waste in the scenic area was 364.41 tons. Among these, 35.14 tons were recycled, 201.58 tons were externally incinerated for power generation, 21.84 tons were subjected to biological treatment, and 105.85 tons were transported for resource utilization. Recycled waste accounted for 90.4% of the total.



Solutions

The International Union for Conservation of Nature (IUCN) held a webinar to present PANORAMA's functionalities as a global knowledge resource platform. They shared cases and information related to China, inviting Huangshan Global Geopark to participate and speak at the event. During the session, Huangshan Global Geopark provided a detailed presentation on the topic "How to search and submit proposals on PANORAMA + Huangshan Cases." They covered various aspects, including how to register on the PANORAMA website, edit and upload case content, focusing particularly on promoting and sharing the Huangshan case of "Achieving Fair Management through Systematic Planning." As of now, Huangshan Global Geopark has published two cases on PANORAMA: "Achieving Fair Management through Systematic Planning" and "Promoting UNESCO Multiple Designated Heritage Sites' Collaborative Management using Green List Criteria."



Actions towards Climate Change

On the afternoon of September 23, 2021, the Huangshan Scenic Area hosted a specialized seminar on the topic of a “Near Zero Carbon Emission Scenic Area.” Zhu Jun, the Dean of the Ecology and Environmental Planning Design Branch of the School of Architecture and Urban Planning at Fudan University in Shanghai, delivered a keynote speech at the event.

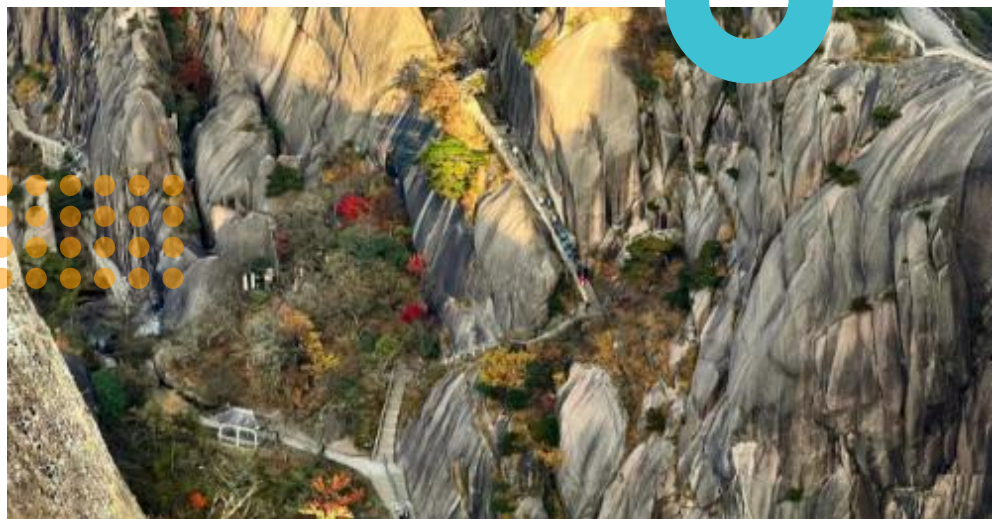
During the seminar, Zhu Jun’s presentation encompassed several key aspects. He began by contextualizing the topic within the framework of the global climate change conference, discussing the transition from dual carbon objectives to achieving near-zero emissions. His presentation further delved into an analysis of the characteristics of Huangshan City, the fundamentals of low-carbon development in the scenic area, and outlined the essential steps towards creating a “Near Zero Carbon Emission Scenic Area” in Huangshan. Additionally, he provided practical examples and case studies related to near-zero carbon emission practices, offering comprehensive and systematic insights into the low-carbon and green development strategies for Huangshan’s tourism sector while proposing actionable recommendations.



Accessible Facilities

According to statistics from Huangshan Tourism Group Ltd., several organizations within the New Guoxian Huangshan Scenic Area Visitor Center Limited Company, Huangshan Xin'an River 100-Mile Gallery Tourism Development Limited Company, Transportation Corporation, and others are dedicated to meeting the travel needs and enhancing the experience of disabled individuals. They have installed specific accessible facilities such as tactile paths, wheelchair-accessible pathways, wheelchair ramps adjacent to stairs, accessible restrooms, accessible tables in dining areas, and designated seating for the elderly, disabled, and pregnant women on public transportation. There are a total of 249 such facilities.

Additionally, the scenic area boasts seven tourist restrooms equipped with a third restroom for disabled individuals and 19 tourist restrooms with 43 designated disabled toilets and other accessibility features. For the cable car section, facilities catering to disabled individuals include special green pathways for specific groups, a wheelchair-accessible vehicle, a pair of crutches, accessible pathways, and accessible restrooms at both the upper and lower stations. At the lower station of the Taiping Cable Car, there is also an elevator directly accessing the boarding hall.



Thank You!

