Tech Nurtures Zhejiang's Cultural Heritage

Tech+Culture

By Staff Reporters

The sustainable development of intangible cultural heritage relies on inheritance and pioneering innovation.

Thanks to protection and innovative development, the cultural heritage in Zhejiang province in east China has not been overshadowed by its bustling metropolises. Instead, ancient buildings and traditional processes have added cultural charm and luster to them.

Minimal intervention in restoration

The city of Huzhou in northern Zhejiang follows the principle of preserving the authenticity of historical relics through minimal intervention. Before 2018, cultural protection workers mainly used traditional techniques to repair buildings.

The emergence of new materials in recent years has opened a novel path for cultural protection, Wang Jing, deputy director of Huzhou Cultural Relics Protection and Management Institute in Zhejiang, told *Science and Technology Daily*.

Since 2019, new materials and new coatings have unlocked new possibilities for the restoration of cultural relics. "If some damage is detected in historical buildings, workers now use new materials to repair and reinforce their structure, rather than replace the building materials completely," Wang said. "This approach not only reduces the cost, but also preserves the original appearance and characteristics."

Another boon for conservation is the ability to monitor immovable cultural relics real-time. With sensors and software, workers can check the cultural relics and their surroundings whenever and from wherever they want.

Tourists go sightseeing on a boat along the Cangqiao Straight Street in Shaoxing, east China's Zhejiang province, which is a historical and cultural street with unique ancient houses. (PHOTO: VCG)

Take the protection of the Pangong Bridge, a historical stone arch bridge in Huzhou's Wuxing district, as an example. Workers can access data like its stress structure, displacement and settlement level at any time to check the condition of the ancient bridge, which enables prompt maintenance and response to emergencies.

Many ancient bridges are still functional, with ships passing under them and pedestrians crossing over them. "Such technologies help us do a good job of protection," Wang said.

Old sauce in new bottle

Soy sauce is used in nearly every Chinese food recipe and doubles as a delicious dip for dumplings and other dishes. Shaoxing city in south Zhejiang is famous for its traditional method of producing this sauce in addition to its well-known local wine.

The core process of traditional soy sauce making involves open-air drying, which is the key to its unique flavor. However, the soy sauce produced in the olden days would not meet today's hygiene standards as during the open-air drying things like insects and air-borne particles were bound to fall into it. How to preserve the essence of the ancient method while adapting modern standards and creating a better flavor?

"Technological innovation is the key to addressing this challenge," said Teng Junkang, deputy general manager of Renchang Sauce Garden, a family business said to have been founded during the Qing Dynasty.

"Using a specially-made protective mesh cover made of stainless steel, we prevent pollution sources, like flying insects. Then a polymer filter membrane is used to strain the sauce for impurities and microorganisms, and thus the traditional soy sauce that meets the standard is produced," Teng explained.

Policy

Green Development to Get Financial Boost

By LI Linxu

As part of efforts to advance high-quality development, China has recently rolled out a guideline on further strengthening financial support for green and low-carbon development.

The guideline was jointly released by seven government bodies, including the People's Bank of China (PBOC), the National Development and Reform Commission, and the Ministry of Ecology and Environment.

In the next five years, a world-leading financial support system for green and low-carbon development is expected to be built, with continuously improving financial infrastructure, environmental information disclosure, risk management, policy support system, and green financial standards system, according to the guideline.

International cooperation will be enhanced, and different kinds of resources will be pooled towards the green and low-carbon sector in an orderly way.

By 2035, support policies will be more coordinated, effective and mature, with better resource allocation, risk management and market pricing.

To achieve these goals, the guideline put forward a series of measures in optimizing green financial standards system, strengthening information disclosure mechanism, developing green financial market, and enhancing policy coordination.

Work will be done to incorporate climate change-related risks into the macro-prudential policy framework, and to guide financial institutions to improve their risk control systems and corporate governance frameworks.

Efforts will be made to deepen international cooperation in green finance, and promote green and low-carbon investment in the Belt and Road Initiative partner countries and regions.

China will beef up credit support for green development and low-carbon transformation in energy, industry, transportation, construction and other fields, said an official from PBOC, adding that eligible enterprises will be supported to list at home and abroad for financing or refinancing.

The move is a follow-up to implement the spirit of the central financial work conference held last October and the central economic work conference held last December, both of which vowed to boost financial support for green and low-carbon development.

Relending Facility to Spur Innovation

By LI Linxu

China's central bank, the People's Bank of China (PBOC), has recently set up a special relending facility worth 500 billion RMB to support sci-tech innovation and technological transformation.

The interest rate of the one-year relending arrangement stands at 1.75 percent, and the lending can be rolled over twice, with a one-year term each, according to PBOC.

Twenty-one nationwide financial institutions have been selected as eligible for the facility, including the China Development Bank, policy banks, state-owned commercial banks, the Postal Savings Bank of China and joint-stock commercial banks.

The facility aims to guide selected financial institutions in strengthening financial support for sci-tech oriented small and medium-sized enterprises in their early stage of development or in growth stage, as well as technological transformation and equipment renewal projects in key sectors, said PBOC.

The financial institutions will decide whether to grant loans to applicant firms as well as the loan terms at their own discretion.

For eligible loans issued by these financial institutions, PBOC will provide reloans equivalent to 60 percent of the loan principal.

The move is a follow-up to implement the spirit of a central financial work conference held last October.

The conference stressed that more financial resources should be leveraged to support sci-tech innovations, advanced manufacturing, green development, micro, small and medium-sized enterprises, as well as innovation-driven development strategies and coordinated regional development strategies.

In its regular meeting for the first quarter of 2024 held on March 29, PBOC Monetary Policy Committee vowed it will deepen financial supply-side structural reform and build a mechanism to provide effective support for the real economy.

A solar thermal power station in Qinghai. (PHOTO: XINHUA)

An Entrepreneurship Hub for GBA Youth

Case Study

By LI Linxu

Thanks to its favorable business environment, Guangzhou has become a hub for innovation and entrepreneurship, attracting young people from across the country, particularly from Guangdong-Hong Kong-Macao Greater Bay Area (GBA).

Here, the innovation environment is vibrant, while the industrial structure is complete and well-established, Chen Xiang, a young man from Macao, elaborated on why he chose Guangzhou's Huangpu district as the place to start his business in 2020. Now, his digital tech business is thriving, with an ever-growing team.

Chen is one of the many young people who have pursued and realized their business dream in the city.

Up until now, Guangzhou has established more than 50 innovation and entrepreneurship bases for Hong Kong and Macao youth, according to official statistics.

These bases usually host entrepreneurship academies, creative workshops, apartments, and canteens for young talent.

Zheng Xinwen, a young man from Hong Kong, is one of beneficiaries from such bases. Seizing the opportunities provided by the industrial transformation and upgrading in the Pearl River Delta region, he launched his consulting business in the GBA (Guangdong) Innovation and Entrepreneurship Incubation Base in Guangzhou's Tianhe district.

The base offers convenient services for young entrepreneurs, including preferential policies, entrepreneurial exchanges, and investment and financing matchmaking, said Zheng, adding that there are also a lot of outstanding peer entrepreneurs, which further motivates him to chase his dreams.

In recent years, Guangzhou has rolled out a series of measures to provide a one-stop service for those who want to start businesses, innovate, work and live in the city.

These measures provide many resources and opportunities, said Wang Fuyuan, a young entrepreneur from Hong Kong, adding that he is more determined than ever to take root in Guangzhou. He was deeply impressed by the city's policy support for young talent, citing a string of support he received, ranging from company registration, high-tech enterprise accreditation to youth talent apartment application.

Chang'e-6 Off to Bring Samples from Far Side of the Moon

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Chang'e-6 is carrying scientific instruments built by international researchers. These include a radon measuring instrument, marking the first lunar deployment of a French-made scientific device. It will use radon, a radioactive gas, as a tracer to study the extremely thin lunar atmosphere.

In addition, the spacecraft is equipped with the Negative Ions at the Lunar Surface (NILS), a payload developed by scientists from Sweden and the European Space Agency. The NILS is designed to research the impact of solar wind on the electrostatic conditions present on the lunar surface. Besides, a passive laser retroreflector provided by Italy and Pakistan's lunar cube satellite are also onboard and are expected to be launched into space.

A Chang'e 6 International Payloads Workshop was held in Haikou, Hainan's capital, on May 3, with about 50 representatives from 12 countries including Pakistan, France and Italy, embassies in China and international organizations. They witnessed the launch of Chang'e 6.

"The pace of lunar exploration will not stop." Hu Hao, the chief designer of the Chang'e-6 mission, said that Chang'e-7 and 8 are being developed to further lift the Moon's veil of mystery.

Foreign Investment in Domestic Sci-tech Enterprises Encouraged

By CHEN Chunyou

Overseas institutions are being encouraged to increase investment in Chinese sci-tech enterprises, following a document recently released by the Ministry of Commerce (MOFCOM), the Ministry of Science and Technology and eight other departments.

The document proposes 16 measures designed to optimize management services, bolster financial support, strengthen exchanges and cooperation and refine exit mechanisms.

This policy was implemented against the backdrop of domestic sci-tech enterprises facing broad development opportunities and having growing demand for diversified financing channels, while foreign institutional investors expect greater stability and convenience in operating businesses in China, according to MOFCOM.

According to the document, related departments will work to efficiently approve the applications for the dollar-denominated qualified foreign institutional investor (QFII) scheme and its yuan-denominated sibling, in accordance with the law.

Eligible overseas institutions are encouraged to issue yuan-denominated bonds, commonly known as panda bonds, to invest in the sci-tech sector, especially in promoting the commercialization of research results, while pilot projects facilitating cross-border financing will be expanded nationwide.

Parent funds, or specialized sub-funds, will be set up in such fields as new-generation information technology, AI, quantum technology, biotechnology, new energy, future energy, aviation and aerospace equipment, electric power equipment, new materials, and core basic parts and components.

Issuing bonds, especially credit bonds, is an important means for sci-tech enterprises to alleviate their financing challenges. According to MOFCOM, the yuan-denominated bonds issued by foreign financial institutions in China reached 154.5 billion RMB in 2023, an increase of 82 percent year-on-year.

Sci-tech enterprises that have received investment from foreign institutions are encouraged to deepen industrial chain cooperation with relevant countries, said the document.

In order to provide viable exit channels for overseas investors, related departments have proposed options, including overseas listings, mergers and acquisitions, as well as share transfers.