# Innovation Credit System to Motivate High-tech SMEs

## Policy

By LIU Yin & CHEN Chunyou

The Innovation Credit System (ICS), piloted in 2020, is set for an upgrade and expansion. Originally implemented in national high-tech zones, it will now be put on trial nationwide targeting technology- oriented small and medium-sized enterprises (SMEs) to help them grow and stand out.

This was stated by an ICS guideline (national trial version) released by the general office of the Ministry of Science and Technology (MOST) on August 13.

The ICS quantifies the innovation capabilities of enterprises through a set of innovation credit indicators, converting their innovation capacity into "financial data" that investment institutions can easily understand. This approach will help SMEs secure financial backing.

The ICS has three main indicators. The first is technological innovation, including seven metrics such as R&D expenditure amount, R&D expenditure growth rate, and the turnover of enterprise technology contracts. The second is growth and operation indicators, including six metrics such as high-tech product revenue and net asset profitability. The third includes auxiliary indicators, with five metrics such as the number of fresh graduates hired and the amount of obtained venture capital.

Workers on the optical communication device production line of a photoelectric company in the Fuzhou High-tech Zone in Fujian province, southeast China. (PHOTO: XINHUA)

Innovation credit evaluations will be used in areas such as re-lending for technological innovation and special plans for science and technology innovation guarantees. Enterprises with high credits will be highly recommended.

The guideline also provides specific implementation recommendations. For instance, banks and other financial institutions can use innovation credit as a reference for risk assessment and credit enhancement to give technology-oriented SMEs more targeted financial services. Venture capital institutions and capital markets can use enterprise innovation credits as a reference to increase equity investments and listing support for outstanding enterprises.

Management departments are encouraged to support outstanding credit enterprises in applying for national science and technology projects and talent projects, ensuring that high- quality resources are precisely directed towards highly innovative enterprises.

By late 2023, the ICS had been piloted in 133 high- tech zones, covering 25 provincial- level regions. It has played a positive role in guiding fiscal and tax policies, sci-tech resources, talent teams, and financial investment.

ICS participants include the Industrial and Commercial Bank of China, the Agricultural Bank of China, and the Bank of China. They launched special financial products for SMEs, some of which can directly issue unsecured credit loans to technology- oriented SMEs.

This year, the People's Bank of China, together with MOST and other related departments, set up a science and technology innovation re- loan worth 100 billion RMB. On the basis of innovation credit evaluation, about 3,000 enterprises will be selected in two batches and recommended to 21 banks for sci-tech innovation re-loans.

# New Action Plan to Upgrade TCM Standards

By YU Haoyuan

Standards are essential for facilitating the high- quality development of Traditional Chinese Medicine (TCM). At the end of July, the National Administration of Traditional Chinese Medicine in China released an action plan aimed at standardizing the industry. This comprehensive plan addresses several crucial areas, including the establishment of a TCM standard system, technological advancements, and international outreach.

Highlighting China's commitment to enhancing a robust TCM standard system, this initiative includes the development and application of a comprehensive list of standards covering traditional treatments, herbal medicine, integrative approaches combining Chinese and Western methods, acupuncture, ethnic minority medicine, and medical equipment.

Chinese and African youths experience the traditional Chinese medicine in Beijing on May 20. (PHOTO: XINHUA)

Furthermore, the plan involves setting up a project database for national and industry- specific TCM standards, with clearly defined priorities for standard formulation. Additionally, an annual report will be published to detail the progress in the new TCM standardization. This report will provide an analysis of the current status of standard formulation, promotion, implementation, and evaluation, thereby offering substantial support for ongoing standardization efforts.

The action plan also outlines a strategy to promote the development of standards across various sectors, including health services, information technology, equipment, and ethnic minority medicine. Specific goals include the completion of 50 guidelines focusing on the prevention, treatment, and rehabilitation of major complex diseases, chronic conditions, infectious diseases, and prevalent disorders through an integrated approach of traditional and Western medicine. Moreover, 20 health intervention guidelines will be developed targeting key demographics such as elderly, women, children, and adolescents. The plan includes the establishment of 30 standards related to the cultivation and conservation of medicinal plants.

In terms of technological innovation, the action plan emphasizes strengthening research on key TCM standard technologies, aiming to develop at least five series of general principles. There is a focus on the digitization of standards, employing digital technology to facilitate the reading, transmission, and application of diagnostic rules embedded within TCM standards, and exploring new methodologies for standard formulation, promotion, dissemination, and implementation.

On the international front, China is set to actively engage in cooperation with the International Organization for Standardization (ISO) and World Trade Organization (WTO) to formulate international TCM standards, and advocate for the application of these standards. Twenty national and industry standards will be translated into foreign languages and promote their global application as part of this cooperation.

Regarding reform and innovation, the action plan proposes the establishment of a standards management platform, a system for the formulation and revision of standards, and a management platform for group standards. A standards consultation expert database and bolster projects aimed at promoting and implementing standards are included in the plan, and these initiatives are expected to significantly advance the reform and innovation of standardization, thereby elevating the quality and effectiveness of TCM standards.

Zhu Gui, head of the administration's department of policies, regulations and supervision, emphasized the critical role of standards in ensuring quality. She said standardization not only reduces the risks associated with consulting TCM practitioners and using Chinese medicine, but also supports the inheritance of traditional knowledge and integrity amidst innovation. The recently released document represents an upgrade to the existing standard system and serves as a strategic guide for the standardization of TCM in the future.

# Hainan Makes Waves in Marine Innovation

By WANG Zhuhua & QI Liming

About 400 experts and scholars from more than 20 countries and regions discussed marine sci-tech innovation, marine energy and marine industrial development and cooperation at the 2nd Hainan Free Trade Port International Science and Technology Innovation Cooperation Forum & Deep- Sea Technology Innovation Conference 2024.

Held in Sanya, Hainan province in southern China, from August 23 to 25, the forum's theme was "Gathering wisdom in the deep sea, sharing the blue ocean."

Hainan has been promoting improvement of marine sci-tech innovation capacity and integration between sci-tech innovation and industrial application.

The Sanya Yazhou Bay Science and Technology City has renowned universities and research institutions such as Ocean University of China, Shanghai Jiao Tong University and Institute of Deep-sea Science and Engineering, Chinese Academy of Sciences. The province boasts more than 1,000 ocean- related sci-tech enterprises.

At the front of high- level opening up, Hainan has international sci- tech collaboration with countries such as the UK, U.S., Singapore, Japan, Indonesia, Malaysia and Pakistan. This provides opportunities for the development of its marine economy.

The forum and conference has been initiated to implement China's maritime power strategy and promote the construction of a free trade port with Chinese characteristics. It is also an important measure to promote deep- sea sci-tech innovation by leveraging the local resource and policy advantages of the free trade port.

This year, the event was hosted by the Hainan Provincial Department of Science and Technology, the Administrative Center for China's Agenda 21, the local government of Sanya, UNESCO, and the provincial oceanic administration of Hainan.

# Stronger Defense Lines Against Geological Hazards

*From page 1*

Automated monitoring and early warning equipment has been installed at more than 50,000 risk points, generating large amounts of monitoring data and warning information around the clock.

These data have been integrated into the national geological hazard monitoring and early warning system, enabling rapid assessment and response to major disasters nationwide through comprehensive analysis, early warning and forecasting, and online consultation.

Advanced monitoring equipment and technologies have helped identify thousands of geological disaster risks, said Ge Daqing, director of the Remote Sensing Technology Research Institute, China Aero Geophysical Survey and Remote Sensing Center for Natural Resources.

As the technologies become more mature, China's "space-sky-ground" integrated monitoring systems are expected to play a bigger role in the prevention and mitigation of geological hazards.

## Case Study

# Shandong Deepens Energy Cooperation with South Africa

By LI Linxu, YAN Xiaohong, TIAN Xiaoyi & GUO Hongli

As the first African country to join the Belt and Road Initiative, South Africa has become China's largest trading partner in Africa, while China has remained as South Africa's largest trading partner. Their cooperation covers a wide range of areas, including energy transformation and new energy cooperation.

At the invitation of the University of Johannesburg (UJ) and the University of South Africa (UNISA), Shandong Jianzhu University (SJU) took part in a green energy academic forum in South Africa in June.

During its visit to South Africa, SJU also held exchanges with UJ and UNISA, as well as the South Africa's Department of Science and Innovation (DSI), the South African National Research Foundation (NRF), and the Chinese Embassy in South Africa.

The partner institute exchange program in green energy between SJU and UJ is one of the first batch of 10 pilot exchange programs of China- Africa partner institutes launched by the Ministry of Science and Technology in 2023, aiming to support academic and personnel exchanges among Chinese and African research institutes.

Under the program, SJU is involved in the development and utilization of South Africa's renewable energy and the expansion of South Africa's electricity storage by leveraging China's energy storage technologies.

With a low- carbon energy revolution underway, both China and South Africa are faced with the transformation and upgrade of their energy mix.

Since 2008, South Africa has been faced with electricity shortages. With abundant renewable energy resources, it has strong needs for the development of renewable energy.

Focusing on the efficient utilization of green energy, SJU will conduct technological cooperation with its South African counterparts in the areas of biofuel production, efficient electrochemical hydrogen production, and utilization of wastecarbon resources.

This shows the depth of energy cooperation among sci- tech entities between Shandong province and South Africa, receiving high praise from the DSI, NRF and the Chinese Embassy in South Africa.

At present, Shandong province is at the forefront of new energy development and is deepening new energy cooperation with South Africa by innovating cooperation mechanism, establishing cooperation platforms, and enhancing talent cultivation.

By the end of 2023, the province's combined installed capacity and power generation of new energy and renewable energy had surpassed 91 million kW and 150 billion kWh, both double that of 2020.

# Chongqing Streamlines Water Management with Big Data

By DONG Yinan, ZANG Zian & WANG Xiaolong

Chongqing, a city located at the heart of China's Yangtze River basin in the southwest, is at the forefront of a digital transformation in ecological and environmental governance. With a dense network of rivers forming its vibrant ecosystem, the city has recently integrated digital technologies to revolutionize its approach to water management, pushing ecological governance further into the digital and modern era.

The Bayu Water Management system, launched in December 2023, incorporates digital technologies such as big data and artificial intelligence into environmental governance. With over 11,000 monitoring sensors deployed across the city, the system provides a comprehensive and real-time analysis of the water quality in Chongqing.

Previously, ecological governance relied heavily on manual testing, and data across the region were often scattered, making the process time-consuming and labor-intensive. With the introduction of the new system, the real-time water conditions of all 120 rivers in the city can now be easily monitored on a computer screen. If any indicators report anomalies, the system will automatically issue alerts and analyze potential causes. After review by the staff, the system notifies the relevant regional authorities for inspection and remedial actions.

In March this year, the system issued a warning: excessive levels of ammonia nitrogen and permanganate were detected in the Tongbo River, a transboundary river between Sichuan province and Chongqing. Then alerts including a list of issues to check were sent to the Ecological and Environmental Bureau in the Liangping district and neighboring Dazhu county, leading to coordinated and effective remediation by both sides.

From detection to resolution, it took less than 48 hours — a significant improvement from the previous average of seven days, highlighting the efficiency and precision of the Bayu Water Management system.

Chongqing will continue its data integration efforts and also accelerate the development of its Bayu Water Management, Bayu Air Management, and Bayu Waste Management systems.

The results speak for themselves: in the first half of this year, Chongqing recorded 163 days of good air quality, an increase of six days compared to the first half of last year. The water quality in the Chongqing section of the Yangtze River's main stream remained at Class II, with 98.6 percent of the 74 national monitoring sections meeting excellent water quality standards.

The Dongshuimen Bridge over the Yangtze River in Chongqing. (PHOTO: WANG Xiaolong)