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## Innovation Pathway

# YREB: A Super Innovation Hub

By LIN Yuchen, ZHANG Ye & YONG Li

Encompassing 11 provinces and municipalities, and accounting for a significant proportion of China's population and GDP, the Yangtze River Economic Belt (YREB) is crucial for China's high-quality development.

With abundant opportunities emerging in fields such as artificial intelligence, integrated circuits and biomedicine, the YREB is collaborating through top-level design and institutional development to promote a shift towards a more sustainable, high-quality growth model.

### Regional innovation synergy making gains

In the China-Singapore Su-Chu High-tech Industrial Park in Chuzhou, Anhui province, a vibrant innovation hub is flourishing. Huarui Biotechnology (Chuzhou) Co., Ltd., based in Huzhou, Zhejiang province, established a biotechnology presence there three years ago and has since become China's largest beta-alanine production base. "Thanks to the successful experience of the Suzhou Industrial Park, in which we participated in joint development, this is a place where things can get done," said its general manager Liu Hongyong.

Currently, 60 percent of the park's foreign investment, 70 percent of its total investment, and 80 percent of its projects originate from the Yangtze River Delta region. The China-Singapore Su-Chu High-tech Industrial Park has set an example for inter-provincial industrial cooperation parks.

### S&T achievements generating revenue

A new type of high-performance ultrafast laser has entered small-scale production at Anhui Huachuang Hongdu Optoelectronics Technology Co., Ltd. A crucial component of this laser is a high-power fiber Bragg grating, which is a specialized type of optical fiber grating designed to handle high levels of optical power, while maintaining performance and stability.

This innovative product, stemming from a grant investment integration project at the National Innovation Center par Excellence (NICE), is transforming the domestic femtosecond laser market.

"Our independently developed, domestically produced, first-of-its-kind femtosecond grating has reached internationally advanced level in all aspects," said Wang Haijun, chairman of Jiangsu Aoyi Technology Co., Ltd. *See page 4*



An aerial drone photo shows a pedestrian overpass with a banner of the Shanghai Cooperation Organization Summit 2025 (August 31-September 1) in Xiqing district, north China's Tianjin. (PHOTO: XINHUA)

## STI Frontier

# Tech Boosts Transportation Industry

By WANG Xiaoxia & DU Peng

During the 14th Five-Year Plan period (2021-2025), China's transportation industry has made historic accomplishments. China's "business cards" such as high-speed rail, roads, bridges, ports and express delivery have become even more advanced. The sci-tech innovation capabilities in the transportation sector have significantly increased.

### High-speed rail

At the end of June, the section of the Chongqing-Xiamen High-Speed Railway from Chongqing East to Qianjiang began operation, overcoming numerous geological challenges and threading through the Wuling Mountains. An important part of China's "Eight Vertical and Eight Horizontal" high-speed railway network, it fills a long-standing gap in high-speed rail coverage in southeast Chongqing.

During the 14th Five-Year Plan period, China has built the world's largest high-speed railway network, with an operating mileage of 48,000 kilometers, covering 97 percent of cities with a population of over 500,000.

In addition to wider coverage, China's high-speed trains are getting faster. The CR450 high-speed train, with a test speed of 450 kilometers per hour and a commercial operating speed of 400 kilometers per hour, is now the fastest train in the world.

With the strong support of technological innovation, China's railways have been upgraded. They include the Fuzhou-Xiamen High-Speed Railway, the first cross-sea high-speed railway with a designed speed of 350 kilometers per hour, and the Lhasa-Nyingchi Railway, the world's highest-altitude electrified railway. The railways have accelerated the flow of people and materials, invigorating

economic and social development.

### Mega projects

The Shenzhen-Zhongshan Link is a mega bridge-tunnel project in the Guangdong-Hong Kong-Macao Greater Bay Area in south China, completed after the Hong Kong-Zhuhai-Macao Bridge. Starting operation in June 2024, the 24-km link has overcome many major technical problems and set several world records.

It has drastically reduced travel time between the city of Zhongshan and the technology hub of Shenzhen from two hours to around 30 minutes. Over the past year, it has seen 31 million vehicle trips and an average daily traffic of 86,000 vehicles, accelerating the high-quality integrated development of the Greater Bay Area.

The world's longest expressway tunnel, the Tianshan Shengli Tunnel, is located 4,000 kilometers from the link.

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# Space Tech Rockets in 14th FYP Period

By WANG Xiaoxia & FU Yifei

The pursuit of China's space dreams is perpetual, and exploration of the final frontier knows no limit. During the 14th Five-Year Plan (FYP) period (2021-2025), China has made remarkable achievements in this quest, including manned spaceflight, lunar and deep space exploration, and space science.

### Manned space station

From manned spaceflights to the Tiangong space station, China's manned space program reached new heights on successive missions.

On April 29, 2021, the Tianhe core module was successfully launched, kicking off a series of key launch missions that aimed to complete the construction of the station by the end of 2022. In less

than 20 months, China's manned space program had successfully launched three space station modules, four manned spacecraft and four cargo spacecraft.

In addition to the in-orbit assembly of its basic configuration, China's space station also achieved domestic production of all products and raw materials, and independent control of all key core components. Successful innovation projects connected to the space station were also achieved, such as a regenerative life support system, astronaut extravehicular suits, extravehicular robotic arms and flexible solar wings.

To date, China's space station has accommodated nine mission crews, and various space application experiments are proceeding. Subsequently, China will develop and launch the expansion module

to continuously enhance the capabilities of the space station.

### Lunar exploration

The Chang'e-6 probe was launched on May 3, 2024. On June 25, its returner landed in north China, bringing back 1,935.3 grams of sample soil from the far side of the moon — the first endeavor of its kind in the history of human lunar exploration.

To fulfill this mission, China has made technological breakthroughs in the design and control of the lunar retrograde orbit, intelligent and rapid sample collection, as well as take-off and ascent from the far side of the moon. As for the significance of innovation, Deng Xiangjin from China Aerospace Science and Technology Corporation has a profound understanding. *See page 3*

# Sino-African Cooperation Gains 'Win-Win'

## International Cooperation

By Staff Reporters

Across the vast continent of Africa, Chinese workers can be found everywhere from the mountainous highlands of Lesotho to the sandy hot deserts of Mauritania, establishing deep relationships based on mutual trust and win-win cooperation.

### Lesotho's water tunnel marvel

In early July this year, Lesotho was blanketed in snow. At the Polyhali Water Tunnel construction site, temperatures dropped below 0 °C at the tunnel entrance, chilled by icy cold winds. Work on the Lesotho Highlands Water Project (LHWP) Phase II was progressing as planned, with the Sinohydro Bureau 11 Co., Ltd. of Power Construction Corporation of China, acting as a key contractor. This large-scale infrastructure project focuses on water supply and hydropower generation, and the main project in phase two is a 38-kilometer-long water tunnel.

In order to construct Africa's longest water diversion tunnel, a convoy transported a Chinese-made tunnel boring machine, disassembled into over 90 parts, across the South African-Lesotho border, despite the challenges posed by the high-altitude terrain and icy conditions.

The project's significance goes far beyond simply building a tunnel. As the largest water transfer scheme in Africa, the LHWP will divert abundant water resources from Lesotho's mountainous regions to South Africa's Gauteng province and surrounding areas, embodying the principles of regional connectivity and green development.

A local tunnel construction worker said that the project had provided training and hands-on experience for many local people, helping them to acquire professional skills in construction, electrical engineering and other fields and laying the groundwork for future employment. Many workers' families have seen their incomes increase and their living conditions improve.

According to the project organizers, the project has created a total of 1,800 local jobs and developed a comprehensive employee skills training program. *See page 4*

# WEEKLY REVIEW

## Lunar Samples Uncover Secrets of Moon's Volcanic Activity

A study of lunar samples collected by China's Chang'e-6 mission has revealed the thermal driver behind the moon's young volcanoes, offering new insights into the different evolution of its near and far sides and updating our understanding of lunar thermal history. *Jiangmen Underground Neutrino Observatory Begins Operation*

The Jiangmen Underground Neutrino Observatory (JUNO) in south China has successfully completed filling its 20,000-tonne liquid scintillator detector and began data taking on August 26. After more than a decade of preparation and construction, JUNO is the first of a new generation of very large neutrino experiments to reach this stage.

## New Moon Discovered Orbiting Around Uranus

NASA's orbiting James Webb Space Telescope has spotted a never-before-seen moon orbiting Uranus, bringing the planet's count of natural satellites to 29. The discovery indicates that more remains hidden around Uranus, the U.S. astronomers who found the moon said.

## Trial Unveils How New Drug Fights Brain Tumors

Scientists have made a breakthrough by using an innovative process to learn how a new drug suppresses tumor activity in low-grade glioma (LGG) brain cancer patients. It's the first clinical trial to be conducted through the pioneering Brain Perioperative platform, according to a statement released by Australia's Royal Melbourne Hospital on August 25.

## New Graphic

By the end of July 2025

The number of China's charging infrastructure facilities

16.696 million units

By the end of June 2025

The total number of NEVs on China's roads

36.89 million

Source: National Energy Administration  
Designed by SONG Ziyao / Science and Technology Daily

WECHAT ACCOUNT



E-PAPER

