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New Quality Productive Forces

Low-altitude Economy Set to Take Off

By QI Liming

China's low-altitude economy (LAE) is planning for a major liftoff after many local governments issued LAE-related development plans.

For example, Henan province in central China recently unveiled the *Implementation Plan for Promoting the High-quality Development of Low Altitude Economy (2024-2027)*. It proposes to complete the layout of low altitude infrastructure by 2025, including building roughly 10 general airports and a number of helicopter and unmanned aerial vehicle (UAV) take-off and landing sites and landing points.

The plan also predicts that the scale of the LAE will reach 30 billion RMB, the number of enterprises above designated size will amount to around 50, and the number of sci-tech innovation and public service platforms above the provincial level is expected to exceed 20.

Evolution of new quality productive forces

As a new economic model, the low-altitude economy has the core characteristics of new quality productive forces such as high-tech leading, efficient operation and high-quality development, with broad development prospects.

New quality productive forces are driven by revolutionary technological breakthroughs, innovative allocation of production factors, and in-depth industrial transformation and upgrading. The development path of the LAE follows a similar productive route to break away from traditional economic growth mode.

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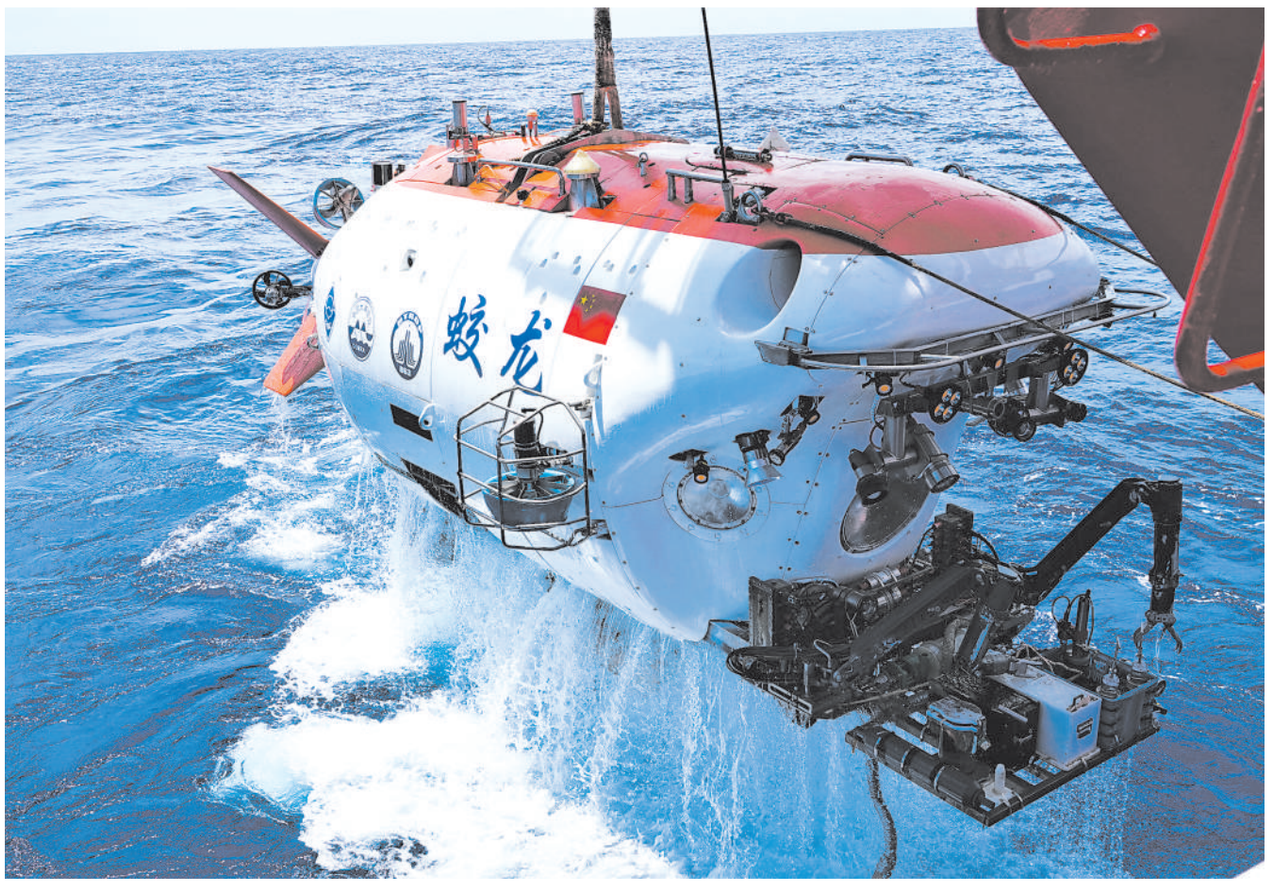

Jiaolong, China's manned deep-sea submersible, completed its 300th dive in the Western Pacific Ocean on August 18 since its maiden mission in August 2009. (PHOTO: XINHUA)

Editor's Pick

Stronger Defense Lines Against Geological Hazards

By LI Linxu

Thanks to sci-tech advancements, China is building stronger defense lines against geological hazards, with early warning systems and rapid response.

Since this year's flood season started, the country has successfully made early warnings and forecastings of hundreds of geological hazards, saving the lives of more than 2,400 people, the Ministry of Natural Resources (MNR) said.

With characteristics of stealthiness, complexity, abruptness, spatial-temporal uncertainty and strong variability, geological hazards are highly frequent, widely distributed, and extremely harmful in China.

In the first half of this year, China logged more than 2,000 geological hazards, including landslides, collapses, and debris flows, according to the MNR.

Early warning and forecasting is crucial for the prevention and mitigation of geological hazards, said Zhang Huichang, deputy director of MNR's geological disaster prevention division.

The MNR has recently released 19 representative cases in preventing and mitigating geological hazards for references, which included those occurred in Guangxi Zhuang autonomous region, Sichuan province, and Hunan province.

For example, due to continuous heavy rainfall, a debris flow occurred in Debao, a county in Guangxi, in June. Fortunately, based on weather forecasts, the local government issued an early warning, and strengthened inspection and analysis. Thanks to the warnings and subsequent emergency evacuations, there were no casualties.

To better respond to the risks, the MNR has dispatched 15 working groups to supervise hazard prevention efforts this flood season. More than 200 ministerial-level experts have been deployed in frontline areas across the country, providing technical support on hazard monitoring, analysis, early warning, prevention and mitigation.

More and more advanced technologies are being used to prevent and mitigate geological hazards, such as high-resolution remote sensing, satellite-based surface deformation monitoring, aerial and drone remote sensing, laser-based terrain measurement, and artificial intelligence.

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Chinese Hydro Project Powers Uganda Development

International Cooperation

By WANG Jing

The 2024 Summit of the Forum on China-Africa Cooperation (FOCAC), the most comprehensive platform that promotes the China-Africa cooperative relationship, will be held in Beijing from September 4 to 6. It comes at a time that sees this cooperation unleash a growing list of beneficial infrastructure on the continent, among which the Karuma Hydropower Plant built by a Chinese company Sinohydro Corporation Limited is a prime example of bringing green momentum to Uganda's economic development.

The Karuma Hydropower Plant, with a total designed installed capacity of 600 MW, is located in mid-northern Uganda in East Africa. In early 2024, Uganda launched the last unit of six turbines at the plant and synchronized it on the national grid, marking its full operation as Uganda's largest hydropower plant.

Power generation boosted

With all units of Karuma synchronized to the grid, Uganda will see a nearly 50 percent increase in its total installed power capacity from 1,278 MW to 1,878 MW, saving about 1.31 million tonnes of raw coal and reducing carbon dioxide emissions by 3.48 million tonnes per year, providing a stable source of green energy for the country.

Ugandan President Yoweri Museveni, who has visited the project several times, thanked China for financing the construction of the power plant, noting that it will be important in providing adequate electricity to fast track the economic development of Uganda.

When considering Karuma's ecological impact, Ding Tuqiang, construction project manager, said that the plant is located on a plain, and if it had been built as an above-ground power plant with medium and high dams, it would have caused irreversible damage to the local ecological environment. Therefore, the project took great care to design an underground operation space.

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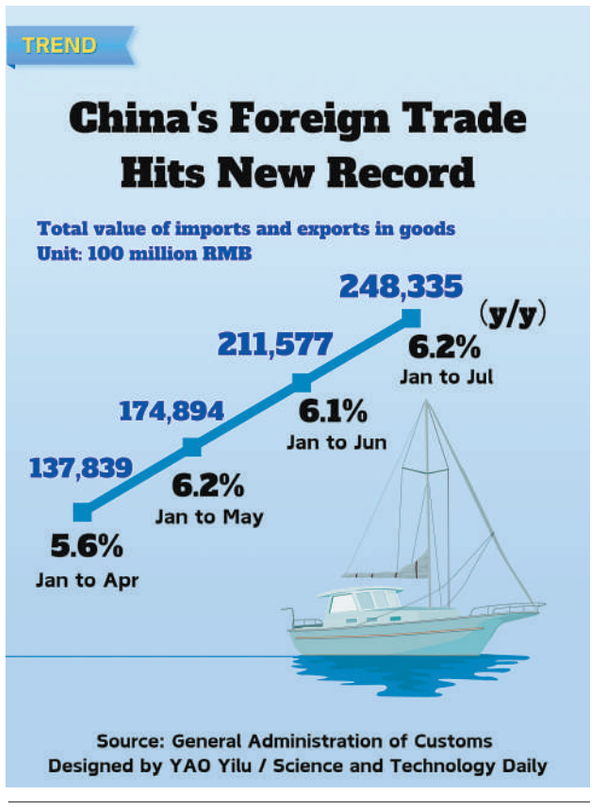
New Graphic



WEEKLY REVIEW

HEPS Ring Stores High-intensity Beams

Researchers at China's Institute of High Energy Physics made major progress in the construction of a high energy photon source (HEPS), the first high-energy synchrotron radiation light source in China. On August 19, the institute under the Chinese Academy of Sciences announced that the HEPS storage ring had successfully stored 35 electron beams with a current intensity of 12 mA. It marks the HEPS accelerator entering the fast track of beam modulation.

Brain-inspired AI Network Model Developed

A team of Chinese scientists have developed a novel brain-inspired AI model that can compute without requiring the high level of energy that silicon-based processors require. The model bridges the gap between big, externally complex AI networks and the small, internally complex workings of the brain.

Breakthrough in Pulmonary Fibrosis Research

Researchers from Tsinghua University and Peking University have discovered a close correlation between the distribution pattern of intermediate alveolar stem cells and the progression of fibrotic changes. It can be used for the treatment of idiopathic pulmonary fibrosis.

Brain-Computer Interface Helps the Speech Impaired

In a clinical trial and study supported by U.S. scientists, a brain-computer interface that translates brain signals into speech with up to 97 percent accuracy has been developed. It offers a significant breakthrough for individuals with speech impairments due to conditions like amyotrophic lateral sclerosis.

AI Algorithm Diagnoses Illness from the Tongue

A team of engineering researchers collaborating between the University of South Australia and Iraq's Middle Technical University have built a new artificial intelligence machine learning model that is capable of accurately diagnosing certain illnesses by simply looking at a patient's tongue.

World Robot Conference 2024 Fosters Future of Robotics

By HUA Ling & LIANG Yilian

"Co-fostering new quality productive forces for a shared future" is the theme adopted by the World Robot Conference (WRC) 2024 held in Beijing from August 21 to 25.

The WRC 2024 featured a three-day main forum and 25 thematic forums. A total of 416 domestic and international guests discussed the latest trends in robotics development. The main forum was divided into three key areas: industrial development, collaborative innovation, and technological innovation. Experts engaged in in-depth discussions on the future trends of the robotics industry and technology.

Simultaneously, the conference hosted a robot expo, with 169 domestic and international robot companies displaying over 600 innovative products, including more than 60 new releases.

The WRC 2024 continued its tradition of showcasing "robot +" application scenarios, deepening mature applications, and exploring emerging ones. For the first time, a cutting-edge innovation exhibition area was introduced, inviting universities and research institutes to present pioneering innovations still in the experimental research and development stages, such as guide robots and flying robots. This initiative provided fresh insights into the future directions of innovative robot applications.

The WRC has entered its 10th year since its first event in 2015. In this decade, it has strengthened cooperation with the scientific and technological communities and industries of various countries to vigorously promote the research and development and industrialization of robot science and technology.

Goldman Sachs Research envisions the market for humanoid robots to rise up to 154 billion USD by 2035.

China has accelerated the development of humanoid robots. In 2023, the Ministry of Industry and Information Technology released a guideline on promoting humanoid robot development, proposing to establish a preliminary innovation system for humanoid robots by 2025.

In November 2023, the Beijing Humanoid Robot Innovation Center was established to accelerate the technology supply and industrialization of humanoid robots. This April, the center unveiled Tiangong, a self-developed general-purpose humanoid robot that stands out for its ability to run solely on electric drive.

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