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Chinese Tech Helps Central Asia Tackle Water Scarcity

International Cooperation

By BI Weizi

Agriculture is an important part of the comprehensive cooperation between China and Central Asian countries, as highlighted by the China-Central Asia Smart Agriculture Industry Technology Exchange Event in Jinan, Shandong province in east China, on October 15.

Yang Xuemei, deputy director-general of China Science and Technology Exchange Center, said that smart agriculture can help improve agricultural productivity, reduce resource consumption, protect the ecological environment, and is an inevitable trend of the world's agricultural development.

The cooperation between China and Central Asian countries in the field of smart agriculture can not only contribute to sharing of advanced agricultural technologies, but also promote the innovation of regional agricultural development, thereby empowering both sides to tackle common and urgent problems.

Due to climate change and mismanagement of water resources, the Aral Sea in Central Asia, the third largest lake in the world, has shrunk dramatically over the past six decades and is now on the verge of drying up. Many environmental and social problems resulting from the drying of the Aral Sea, such as desertification, salinization and impoverishment, have become international concerns.

Since Central Asia is a close neighbor of China, and also the core of the Silk Road Economic Belt and the New Eurasian Land Bridge, China's experience in combating desertification can offer a solution.

"We can apply China's experience in the prevention and treatment of desertification and salinization, as well as the concept of integrated river basin management for rational use and conservation, protection and management as well as local ecological governance to help Central Asia safeguard the ecological security of the Aral Sea," said Lan Yubin, professor of precision agriculture at the Shandong University of Technology, and an academician of the European Academy of Sciences Arts and Letters.

At the Jinan event, the China-Central Asia Exchange and Cooperation Research Center, a think tank, was established. The Shandong Analysis and Test Center signed a research cooperation agreement with the Tashkent State Technical University to develop smart agriculture.

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New Graphic

**The Intellectual Property
Service Industry Expands**
(By the end of 2023)

About **89,000**

Institutions providing
intellectual property services

2.9% y/y

The total operating income of China's intellectual
property service industry

About **285**
billion RMB

5.6%
y/y

Source: China National Intellectual Property Administration
Designed by YAO Yihu / Science and Technology Daily

WECHAT ACCOUNT

E-PAPER



Ahead of October 16, World Food Day, a farm of the Beidahuang Group in northeast China's Heilongjiang province uses modern agricultural machines to harvest crops, October 12, 2024. (PHOTO: XINHUA)

Editor's Pick

High-tech Chinese PV Breaks Records

By Staff Reporters

China has built complete industrial chains for R&D, design, and integrated manufacturing of wind and solar photovoltaic (PV) equipment. The high conversion efficiency of crystalline silicon/perovskite PV cell technology has broken multiple world records, according to *China's Energy Transition*, a white paper issued by China's State Council Information Office.

This leads to the question of how did China's PV technology successfully "turn over?"

Top in production & capacity

Liu Yiyang, deputy secretary-general of the China Photovoltaic Industry Association (CPIA), explained that polysilicon, the main basic raw material used to manufacture silicon wafers and batteries, is produced in the upstream of the PV in-

dustry chain, while the cells and PV modules are manufactured in the middle of the chain.

In the first half of 2024, China's PV manufacturing sector continued to grow. According to the CPIA, the polysilicon, silicon wafers, cells and module output grew more than 30 percent year on year. PV module exports increased by nearly 20 percent.

"The downstream mainly involves the construction and operation of the power generation system. As the global demand for renewable energy continues to increase, the market demand for PV power generation system is also expanding," Liu said.

Data from the National Energy Administration of China show that in the first half of this year, about 102 GW of installed capacity was added compared to the first half of 2023.

Technological innovation helps "turn over"

In the past, China's PV industry was heavily dependent on external markets for raw materials and equipment.

In the first decade of the 21st century, China's battery production grew rapidly but the global financial crisis in 2008-2009 caused a big impact on it as it mainly relied on product exports at that time.

Therefore, opening the domestic market and mastering the core technology became an important direction for it to "turn over."

Gradually, technological innovation and independent research have become the hallmark of the industry.

Driven by the dual-carbon goal, Chinese enterprises stepped up battery production.

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Guideline to Speed Up Use of Data Resources

By ZHONG Jianli

If you happen to be in the city of Chongqing in southwest China, and need basic medical insurance, all you need to do is apply on the local official medical app, the Chongqing Express Office app.

All the formalities can be completed in one day and you can get the insurance card the next day, thanks to the intelligent public data platform which integrates various data resources.

Recently, the general offices of the Communist Party of China Central Committee and the State Council released a guideline to accelerate the development and utilization of public data resources. This initiative seeks to unlock the potential of public data as an essential element in driving high-quality economic growth.

The primary objective is to establish

a foundational regulatory framework for public data resource development and utilization by 2025. The milestones include significantly enhancing the scale and quality of available data resources, expanding the range of data products and services, and achieving tangible results in key industries and regions.

By 2030, the guideline envisions a more mature regulatory framework and a fully integrated system for public data resource utilization.

One of the measures outlined in the document is to expand the supply of public data. This involves promoting cross-sector collaboration in government data sharing, and enhancing the support function of existing data-sharing platforms to improve public service efficiency.

The guideline also calls for orderly opening of public data. A policy framework for public data openness will be

established, clearly defining the rights and responsibilities. The framework will also take into consideration national data security requirements and the protection of personal information and commercial secrets.

Authorized operations of public data are encouraged. The policy calls for the development of a classification and authorization mechanism for public data. Qualified operational entities will be empowered to develop and manage public data products and provide related technical services.

Promoting innovation in data applications is also on the agenda. Enriching data application scenarios, supporting the development and application of AI models for government services, and enhancing intelligent delivery of public services and social governance will be emphasized.

New Quality Productive Forces

Algorithm Innovation Making Society Intelligent

By QI Liming

Based on massive data, AI algorithms are changing the operation mode of traditional industries at an unprecedented speed and in an unimaginable way, creating new driving forces for the development of all walks of life, and accelerating intelligent and high-quality economic and social development.

Multiple application scenarios

Algorithms, which can be regarded as "information assistants," help us to efficiently distribute, process, analyze, and tap into the value of vast amounts of data.

The deep integration of algorithms and scenarios is being widely used in various industries, changing the operating modes of traditional industries.

An intelligent inspection robot monitoring a hot coking furnace at a steel plant is no longer a scene in a science fiction movie but a real portrayal of intelligent manufacturing today.

Thanks to the environment perception algorithm and decision algorithm, the complex environment intelligent inspection robot can complete tasks in harsh environments such as high temperature, high pressure and explosive.

Today, through real-time data collection and analysis, robots are able to detect potential risks in time and prevent accidents, which not only improves industrial safety but also improves production efficiency.

In the vast ocean of data, algorithms are like a powerful engine, creating new momentum for the development of industries.

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WEEKLY REVIEW

1st Reusable Test Satellite Retrieved

China successfully retrieved its first reusable and returnable test satellite, Shijian-19, in the northern Inner Mongolia autonomous region on October 11. All the returnable payloads in fields like plant and microorganism breeding, autonomous control and new technology validation have been retrieved smoothly, according to the China National Space Administration.

AI Helps Discover Smallest Exoplanets

An international research team created an AI-based algorithm to discover five ultra-short-period planets with diameters smaller than Earth's and orbital periods shorter than one day from the stellar photometry dataset provided by the Kepler telescope. The research was carried out by a team at the Shanghai Astronomical Observatory under the Chinese Academy of Sciences.

Daily Shale Oil Production Record Created

The China Petrochemical Corporation, China's largest oil refiner, announced that its Shengli Oilfield in Shandong province, east China, has set a new national record for single-well daily shale oil production. Three dozen wells in the oilfield achieved peak daily oil production exceeding 100 tonnes, with a maximum of 262.8 tonnes for a single well.

Starship Test Flight for Reusable Rocket

SpaceX successfully launched the latest test flight of its Starship on October 13. For the first time, this demonstration mission included an ambitious attempt to maneuver the 71-meter rocket booster to a gargantuan landing structure after it burned through most of its fuel and broke away from the upper Starship spacecraft. The Super Heavy booster was successfully caught midair with a pair of massive metal pincers, which SpaceX calls "chopsticks".

NASA Mission to Probe Jupiter's Moon

NASA's Europa Clipper, the largest robotic probe the agency has ever built, rocketed into space on October 14, on a mission to scrutinize the ice-encrusted moon of Jupiter that scientists suspect has a deep subsurface ocean.