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WEEKLY EDITION

Sci-tech Innovation Boosts Green Development

By WANG Xiaoxia

China upholds the philosophy of innovative, coordinated, green, open and shared development, and takes innovation as the driving force to promote the comprehensive green transformation of socio-economic development, according to a white paper recently released by the State Council.

The white paper titled *China's Green Development in the New Era* aims to present a full picture of China's ideas, actions, and achievements in green development in the new era, and to share with the world its experience in this regard.

China implements the innovation-driven development strategy, and takes sci-tech innovation as the driving force for industrial structure optimization and green transition of the economy and society. The white paper noted that China's gross domestic R&D spending grew from 1.03 trillion RMB in 2012 to more than 2.8 trillion RMB in 2021.

From 2011 to 2020, the number of patent applications filed by China for environment-related technology inventions was close to 60 percent of the world total, making it the most active country in environmental technology innovation, according to the white paper.

Emerging technologies such as artificial intelligence, big data, blockchain, and quantum communication have given birth to new products and business forms including intelligent terminals, telemedicine and online education, which have been deeply integrated with traditional industries, playing an increasingly important role in China's economic growth. To date, the country's digital economy ranks second in the world. See page 3

International Cooperation

China, LAC Countries Deepen Cooperation on Innovation

By WANG Xiaoxia

In Mexico, the "home of corn," Chinese scientists are working with the International Maize and Wheat Improvement Center (CIMMYT) to develop wheat and maize varieties that can fight climate change, resist diseases and save water. Thirteen new maize varieties from the CIMMYT have been planted in Nepal and other countries, helping to increase local food production and incomes.

Collaboration with China can be regarded as one of the mutually beneficial examples of working together to safeguard the world's food security, said Bram Govaerts, director general of CIMMYT.

Technical cooperation between China and Latin America and the Caribbean (LAC) countries has yielded fruitful results, not only in agriculture, but also in clean energy, space science and public health. See page 2

New Graphic



Tourism consumptions reached over 350 billion RMB during the Spring Festival holidays. (Designed by LIN Yuchen)



International Weather Festival (Feb. 10)

Researchers set up an automatic weather station at an altitude of 8,830 meters on Mount Qomolangma in May 2022. (PHOTO: XINHUA)

Editor's Pick

Digital Technology Revolutionizes Agriculture

By LU Zijian

Agricultural activities have experienced great changes in the recent past, especially with the rapid evolution of digital technology. The production capability of the agricultural industry in China has shifted to a new level with the introduction of technologies like big data, artificial intelligence and Internet of Things (IoT).

Better breeding

Seeds to the agricultural industry are like chips to a computer, making breeding of new and improved plant species of great importance. For example, phenotyping, the process of measuring and analyzing observable plant characteristics, helps to single out the best genotypes of plants that could adapt to different environments and enhance crop yield.

However, phenotyping is one of the most time and labor consuming work in traditional crop breeding, as it takes more than half of the day to conduct just one round of plant height measurement in the field, which is almost the simplest task in phenotyping, according to Jin

Shichao, associate professor at Nanjing Agricultural University.

Digital technologies have now accelerated this process to a large extent. It takes only 30 minutes to complete the automated acquisition of data mentioned above with 3D phenotyping measurement technologies like LiDAR. The accuracy and efficiency are also highly enhanced, as the data covers every single plant in the field, a great leap from sample estimation to overall analysis.

In addition, active remote sensing technologies like LiDAR can conduct observation at night, which has helped to reveal the rhythm of corn phenotypes from day to night and its response to changes in the environment, said Jin.

Jin also said that his research team developed a prediction model incorporating LiDAR and spectrum, which is able to predict wheat yield two months in advance.

More productive planting

The integration of digital technology and traditional agriculture generates better products for people.

In a strawberry greenhouse base in Chengdu, Sichuan province, a single worker can now carry out fertilization and water drop irrigation in over 100 mu (1 mu equals 666.7 square meters) of strawberries.

Yao Hongyan, a worker at the greenhouse, said that there is a smart data collection terminal based on agriculture IoT, which could make sure that fertilizer and water are dripped precisely to each single strawberry plant.

Both the quality and quantity of the strawberries have been greatly improved since the greenhouse base adopted intelligent management. The production soared to between 1,000 and 1,500 kilograms from 500 kilograms per mu, while the output in 2021 reached three million RMB.

The integrated fertilizer and water drop irrigation system has also been applied to blueberry planting. The amount of fertilizer and the time of water irrigation can be easily controlled with a smart phone, said Gao Yang, production supervisor of the blueberry greenhouse.

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Rapid Growth of MlOT Goes Mainstream

By LIN Yuchen

China's Mobile Internet of Things (MlOT) connections increased to 1.84 billion at the close of 2022, accounting for more than 70 percent of global MlOT connections, according to the Ministry of Industry and Information Technology (MIIT).

Over 52 percent of Chinese mobile connections are now MlOT terminals, which cover many fields of application such as the Internet of vehicles, smart retail, as well as extending to other fields such as intelligent manufacturing and intelligent logistics.

"We will accelerate development of the Internet of Things and build an efficient and smooth logistics system to help cut distribution costs. We will accelerate the development of the digital economy, further integrate it with the real economy, and build internationally competitive digital industry clusters," said the report to the 20th CPC National Congress.

The MlOT app users of four application categories have now respectively reached over 10 million, namely water metering, smoke detecting, gas metering, and tracking and location devices, while in other seven categories such as white

goods and street lights, the app users exceeded 1 million.

During 2022, over 87,000 mobile communication base stations were constructed in China. By the end of the year, their total number exceeded 10.8 million, among which about 21 percent were 5G base stations.

According to officials at MIIT, by 2035, China's MlOT will achieve deep coverage for key scenarios, form a basic network with fixed-mobile integration and wide-narrow combination, and accelerate the synergistic integration of MlOT technology and thousands of industries.

Chinese Innovated Products Shine at CES

Edited by LIN Yuchen

Chinese companies showed a high level of innovation at the Consumer Electronics Show (CES) held in Las Vegas, between January 5 and 8, by incorporating new technologies and designs in their products, allowing for a wider range of applications.

China's TCL, a world leader in consumer electronics, launched the world's biggest printing organic light-emitting diode (OLED) at the CES. The product, designed through cooperating with a Japanese display technology firm JOLED, is laying the foundation for innovating screen materials in multiple electronic devices such as phones and tablet computers.

TCL always takes science and technology innovation as its production departure point, and has comprehensive insight in the fields of artificial intelligence, high-end displays, 5G applications, intelligent manufacturing and industrial Internet, said Zhang Wenhui, a general manager at the company.

Other products coming under the spotlight include Lenovo's full-size dual-screen OLED laptop, a world first, and Hisense's unprecedented 8K laser TV. Not to be outdone, Hisense's smart steam oven can recognize food automatically through cameras, while transmitting live cooking images to the oven user.

Some clean energy companies also launched their innovative solar generators, appliances and clean energy solutions.

Jackery, for example, a portable power manufacturer headquartered in Shenzhen, unveiled at the CES its innovative portable solar generator at the CES, called Solar Generator 3000 Pro, which can produce a maximum of 8.5 kWh a day, enough to sustain five days of outdoor or home emergencies.

Chinese companies always listen to the needs of global users, said Tim Dolidze of Ecoflow, adding that they act immediately, and improve constantly.

WEEKLY REVIEW

60 Billion Cubic Meters Water Diverted by Mega Project

China's South-to-North Water Diversion project had diverted 60 billion cubic meters of water by February 5 via its eastern and middle routes. The project began operation in 2014 and benefits over 150 million people along the routes.

Large Single-capacity Offshore Wind Power Project Begins Construction

With a total installed capacity of 400 MW, China's first large-scale offshore wind turbine project with a single capacity of 16 megawatts commenced on February 4. The facility will generate over 1.6 billion kWh of electricity annually after completion, saving 500,000 tons of standard coal every year.

Super Cows Cloned via Somatic Cell Nuclear Transfer in China

Three cloned "super cows" were born in Ningxia Hui Autonomous Region recently. It was the first successful attempt by Chinese scientists to conduct such clone. A cloned cow can produce 18 metric tons of milk per year after reaching maturity.

University-owned Icebreaker Completes Trial

Owned by Sun Yat-sen University, the icebreaker named "Zhong Shan Da Xue Xue Ji Di" successfully conducted its maiden trial recently at the ice sea area of Liaodong Bay in the Bohai Sea. It is China's first university-owned icebreaker and third polar icebreaker after Xuelong-2 and Xuelong.

WECHAT ACCOUNT



E-PAPER

