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WEEKLY EDITION

International Cooperation

Turn to Science and Technology for More Growth Drivers

Chinese President Xi Jinping delivered a keynote speech via video at the opening ceremony of the Boao Forum for Asia Annual Conference 2022 on April 21.

In his speech, Xi stressed the need to work together to defend people's lives and health. Safety and health are the prerequisites for human development and progress. For humanity to clinch a final victory against the COVID-19 pandemic, more hard efforts are needed. It is essential that countries support each other, better coordinate response measures and improve global public health governance, so as to form strong international synergy against the pandemic.

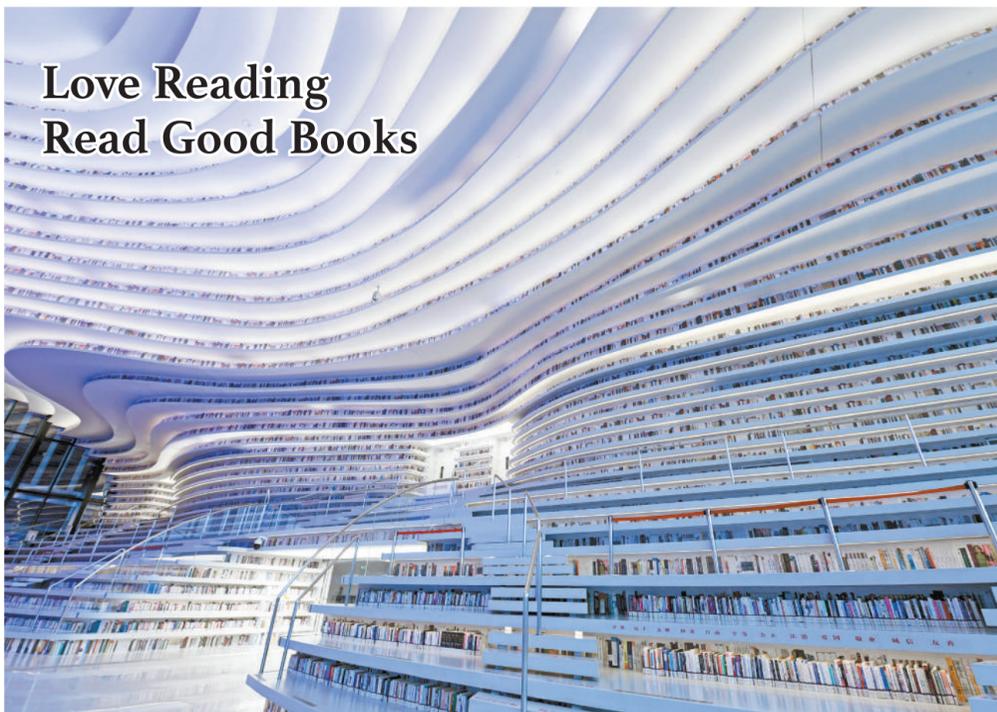
We must keep vaccines a global public good and ensure their accessibility and affordability in developing countries, Xi said.

China has provided over 2.1 billion doses of vaccines to more than 120 countries and international organizations. Be it in delivering vaccines abroad

or producing them overseas, China has honored its commitments with concrete actions. China will follow through the pledged donation of 600 million and 150 million doses of vaccines to Africa and ASEAN countries respectively, as part of the effort to close the immunization gap.

Xi underlined following a people-centered approach, and placing development and people's well-being high on the agenda when promoting economic recovery.

"We should stay committed to building an open world economy, stay on top of the dominant trend of economic globalization, increase macro policy coordination, turn to science and technology for more growth drivers, keep global industrial and supply chains stable, and prevent serious negative spillovers from policy adjustments in some countries, all in an effort to promote balanced, coordinated and inclusive global development," said Xi. *See page 2*



Love Reading Read Good Books

The Tianjin Binhai Library is nicknamed "The Eye of Binhai." Part of the library's atrium displayed in the photo resembles a "book mountain," consisting of 34 stage platforms filled with books. (PHOTO: XINHUA)

Editor's Pick

Bringing Life to the Sea of Sand

By WANG Xiaoxia

Desertification is a common challenge facing humankind, which affects more than 160 countries worldwide with a combined population of about two billion people, and having wider implications on food security, climate change, and biodiversity.

China, as one of the countries with the largest desertification areas and affected population, has been committed to combating desertification for seven decades and achieved a historic transformation.

By using innovative techniques in compliance with local conditions, China has found its own way to curb and reverse the expansion of deserts, and its experience is worth sharing.

Magical straw squares

In the early years of China's battle against desertification, Chinese people figured out a simple but effective meth-

od to ensure the stable operation of the Baotou-Lanzhou Railway that came into operation in 1958.

The 990-kilometer railway had to run through the Tengger Desert for 140 kilometers and was always hampered by sandstorms and shifting sand dunes.

Attempts such as covering the sand with pebbles and mat, or mixing sand with asphalt, had all failed to stop the continued erosion of the desert, until one day workers found that the Chinese characters made of straw, which were words to encourage themselves, were not destroyed by sandstorms, and most of the characters consisted of square shapes.

This finding inspired researchers to create a straw checkerboard of about one square meter in size. It was fixed to the desert sand and acted as a barrier preventing sand from moving.

Based on the straw checkerboard barrier, a comprehensive sand preven-

tion system was built. Since then, the Baotou-Lanzhou Railway has had no interruptions to its operation due to sandstorms for past 60 years.

Apart from controlling moving sand, China carried out key ecological projects and improved legislation to facilitate anti-desertification efforts, including the Three-North Shelterbelt Forest Program (TSFP) approved in 1978 and the world's first integrated law on prevention and control of desertification, issued in 2002.

Tim Christophersen, ecosystems expert for the UN Environment Programme (UNEP) has hailed the improvement in China's large-scale reforestation and ecosystem restoration expertise.

Desert fighters

However, managing desertification is not merely a matter of policy or investment, but rather a test of the determination, courage and even faith of all role players. *See page 2*

China, WFP Launch South-South Knowledge Sharing Platform

By TANG Zhexiao

The launch ceremony of the South-South Cooperation Knowledge Sharing Platform was held in Beijing on April 15.

The platform is jointly developed by the Ministry of Agriculture and Rural Affairs of China and World Food Programme (WFP) Centre of Excellence, while the China Internet News Center is involved as its technical partner in operation.

Through the platform, trainees can acquire knowledge and experience in four thematic areas, namely, value chain development for small holders, post-harvest loss management and food systems, disaster risk reduction and climate change resilience, innovation poverty alleviation initiative. Solutions for rice, juncao, and cassava value chain are also displayed on the web page.

As an extension of the platform, a practical and comprehensive online learning center will be created through a cloud school. It enables trainees to learn about food security, poverty reduction, green development and rural transformation in China, showcasing practical skills and hands-on techniques for field practitioners via multilingual courses.

Trainees will receive a certificate from the WFP after completing the courses and passing the online test.

A memorandum of understanding to strengthen South-South cooperation was signed by WFP and the Chinese government during the launch ceremony.

Focusing on sustainable development goals, the two sides will carry out the development and training of South-South cooperation knowledge, and share China's solutions, practices, experiences and approaches with other developing countries, according to the memorandum.

Other activities such as a workshop on flood response, cloud dialogue on an innovative model for poverty reduction, and a seminar on cassava value chain development will be included in 2022 major events.

The WFP - China partnership has been developed over four decades. China has become an increasingly important donor to the WFP since 2005. In 2016, the Chinese government and the WFP signed a memorandum of understanding to strengthen their cooperation to end global hunger, and jointly promote the achievement of the 2030 Sustainable Development Goals.



Farmers working at the China-Philippines Agricultural Technology Center in Nueva Ecija, Philippines. (PHOTO: XINHUA)

Pluripotent Stem Cells Successfully Induced via Small Molecules

By Staff Reporters

For the first time in the world, Chinese scientists have managed to convert human somatic cells to pluripotent stem cells through chemical reprogramming, breaking the technological bottleneck for stem cell research and creating new possibilities for regenerative medicine.

Pluripotent stem cells can self-renew indefinitely and differentiate into cells with all kinds of functions in a body, which makes them valued in cell treatment, drug screening and disease models.

However, pluripotent stem cells only exist for a short period of time during the early stage of embryonic development, then they differentiate. Thus, proper technologies are needed to gain such stem cells if people wish to have

them available all the time.

Unfortunately, it is well acknowledged within the industry that the limitation of the epigenome in human somatic cells is extremely strict, so it is extremely challenging to have human somatic cells acquire pluripotency through chemical reprogramming.

"The characteristics and homeostasis regulation of human somatic cells are way more complicated than other species used for tests," said Deng Hongkui, lead scientist of the research group at the Peking-Tsinghua Center for Life Sciences.

Inspired by axolotls, the scientists found that the generation of stem cells was not a one-step action. "There is an intermediate plastic state that occurs during the axolotl limb regeneration after they are injured," said Deng.

Following this idea, the research group adopted more than 20 strategies and conducted screening millions of small molecule combinations. It took the scientists six years to find the combination of six small molecules and reprogram human somatic cells to cells in the intermediate plastic state, according to Deng.

Compared with traditional technologies adopted for pluripotent stem cell induction, it is safer and simpler via small molecules. Tests on mice showed that the number of genetic mutations brought by the latter was significantly smaller than that by the former.

The approach is also easy to be standardized and controlled. These features break the limitations facing traditional induction technologies in clinical application.

Beijing Accelerates Global Innovation Center Establishment

By Staff Reporters

At a meeting held at Zhongguancun Exhibition Center on April 16, Wang Zhigang, minister of science and technology, said that the Ministry of Science and Technology (MOST) will strengthen cooperation with Beijing municipality and other counterparts, on accelerating the building of an international sci-tech innovation center in the capital.

According to Wang, MOST will fully support the institutionalized and standardized operation of national laboratories in Beijing, and cultivate more leading innovative enterprises and world class research institutes. MOST will also support Beijing to optimally utilize national strategic sci-tech strength, reinforce the introduction and cultivation of strategic sci-tech talent, and build a talent pool of high-level personnel.

A new round of pilot reforms will be solidly implemented in Zhongguancun National Innovation Demonstration Zone to perfect the top-level design of a world-leading sci-tech park, noted Wang.

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WEEKLY REVIEW

Scientists Map out How Omicron Evades Antibody Therapeutics

Chinese scientists have mapped out the high-definition spike protein structure of the Omicron variant, revealing how Omicron escaped previous antibody therapeutics, according to the study published in the journal *Cell Reports* on April 20.

Key Water Conservancy Technology to be Accelerated

China will accelerate research on key water conservancy technology this year, involving 42 projects of flood and drought disaster prevention, intensive and economical use of water resources, and river and lake protection, the Ministry of Water Resources said on April 24.

KEXUE Vessel Returns from Expedition

Covering more than 9,000 nautical miles during its 55-day voyage, Chinese research vessel KEXUE has completed the second portion of its investigation at more than 170 observation stations in the western Pacific Ocean, and returned to eastern city of Qingdao recently.

Offshore Oilfield Project Commences Production

CNOOC announced on April 23 that China's first large-scale offshore ultra-heavy oil thermal recovery development oilfield, Luda 5-2 oilfield north phase I project, was successfully put into operation in Bohai sea.

WECHAT ACCOUNT E-PAPER

