Sowing the Seeds of Well-being, Friendship

Dialogue

By LONG Yun & BI Weizi

British agricultural scientist Matthew Paul Reynolds, who received the Chinese government's Friendship Award this year for his long-term contribution to international agricultural cooperation, is a key figure at the Mexico- headquartered International Maize and Wheat Improvement Center (CIMMYT). His work focuses on innovative wheat breeding techniques to combat climate change and ensure food security.

What motivated him to pursue a career in agriculture? Reynolds speaks about his childhood: "I spent a lot of time with my father in the garden and greenhouse. At first, I thought about studying law or architecture, but then I realized I love plants!"

Also, growing up in the 70s, he was haunted by the images of famine in eastern Africa. "I saw these visual images of children suffering from hunger, and it made me want to combine my love for plants with a desire to help the most underprivileged people in society."

His mission is "not just to be a scientist but to make better wheat for people who may not have enough to send their kids to school."

Why wheat?

Because wheat is vital, providing 20 percent of all human protein and calories. It is the most widely grown crop in the world, cultivated over 220 million hectares. Therefore it is crucial to grow wheat that can adapt to climate change.

Professor Matthew Paul Reynolds. (COURTESY PHOTO)

Reynolds details the vast challenge facing wheat production. While wheat can tolerate drought and cold, it suffers from a narrow genetic base. About 10,000 years ago, crops were cut off from their wild relatives, and now there is an urgent need to bring back that diversity.

Scientists need to explore the traits of wild species as well as ancient varieties. By tapping into this genetic reservoir, crops that withstand environmental stresses can be developed.

"We need to reconnect crops to nature," he says. "Our industrial farming practices have narrowed the genetic base, and we've treated the soil poorly, losing valuable connections with nature. It's essential to fix this to feed future generations."

He is passionate about delivering this message to his students. A mentor to young scientists, Reynolds believes in "mutual growth through teaching and learning." He has trained many people, from researchers to technicians. Science and technology, he says, should ultimately serve humanity and improve people's livelihood.

According to Wang Xin, his colleague at CIMMYT, Reynolds is a compassionate teacher who plays a key role in cultivating the next generation's talent.

Collaboration for faster solutions

International collaboration is another area that Reynolds is concerned about. "We need flexible funding systems that allow researchers to work together. By pooling resources and expertise, we can achieve solutions faster."

He also points out the importance of open- access resources in supporting global research. "Our manuals provide methodologies that are otherwise inaccessible. This helps breeders make targeted crosses (of seeds) for (withstanding) new weather patterns."

Reynolds has strong ties with Chinese researchers, sharing insights gained through collaboration. "We've worked together on physiological breeding to improve yield and stress tolerance. Our manuals have been translated into Chinese, making them more useful for local scientists."

He has witnessed significant progress in China's agricultural research, including advancements in molecular biology and the development of novel wheat cultivars.

Beyond the academic exchanges, Reynolds is touched by the warm hospitality of his Chinese colleagues, who have introduced him to the rich cultural heritage of China. He recalls the many delightful meals they have shared, all punctuated with joyful "Ganbei" — Bottoms up! — toasts where the glasses never seemed to be empty.

He feels honored to be recognized by the Chinese government with the award. "I wasn't expecting it," he told *Science and Technology Daily*.

He Zhonghu from CIMMYT also contributed to this article.

Expats Activity

Foreign Experts Celebrate PRC's 75th Anniversary

By DENG Zhuoyuan & BI Weizi

About 40 foreign experts and their families living and working in the Guangxi Zhuang autonomous region from 17 countries, including the United Kingdom, Australia, Vietnam and Thailand, attended an event organized by the Bureau of Foreign Experts Affairs of Guangxi Zhuang autonomous region to celebrate the 75th anniversary of the founding of the People's Republic of China in Nanning recently.

Guangxi, known for its splendid culture and beautiful scenery, is inhabited by 12 native ethnic groups, such as Zhuang, Han, Yao, Miao and Dong, and has preserved its ethnic culture with distinctive characteristics.

The foreign experts visited an exhibition on the Zhuang people and their culture at the Guangxi Nationalities Museum. According to the guide, the ancient culture and art of the Zhuang ethnic group are not only rich and colorful, but also include many indigenous characteristics.

For example, the bronze drum, a special relic of the minority groups in central southern and southwestern China, dates back well over two millennia. In Guangxi alone, more than 500 of these drums have been unearthed, in a variety of designs and sizes. The largest is more than a meter in diameter, and the heaviest weighs more than half a ton, while the lightest weighs only a few dozen kilograms.

After the visit, the foreign experts said it was very helpful learning about the region's ethnic backgrounds, which helped them better understand and appreciate the local culture.

Following the museum visit, the group went on to the Guangxi Foreign Experts' Bookstore to experiment with tea-making, lacquer fan painting and paper cutting, which gave them first-hand experience of the charm of China's rich heritage and philosophy represented by these Chinese crafts.

This article is contributed by the Bureau of Foreign Experts Affairs of Guangxi Zhuang Autonomous Region.

Foreign experts try their hand at the traditional paper-cutting art. (COURTESY PHOTO)

TCM Expands in Latin America

By WANG Jing

The Cámara Colombiana de la Construcción (CAMACOL), an influential commercial organization in Latin America, recently hosted its first remote branch meeting in Beijing through exhibitions and online interactions.

The event aimed to extend cooperation with the traditional Chinese medicine (TCM) industry in the Asia- Pacific region and promote its development in Latin America.

Joe Chi, chairman of CAMACOL, announced a strategic cooperation with China in traditional medicine at the meeting. He said South American countries realized the unique role and excellent curative effect of TCM during the COVID- 19 epidemic. Through the CAMACOL chamber of commerce, TCM will promote greater business and scientific cooperation in Latin American countries.

As the next step, representatives of renowned pharmaceutical institutions and food enterprises in Latin America plan to come to China in early November to sign cooperation agreements. China will organize reciprocal visits to Latin American countries by Chinese enterprise representatives and Chinese medicine experts at the end of 2024.

For future cooperation, China will organize teams of professional TCM experts to give lectures, provide free medical consultations, and cooperate with local medical institutions and individuals in various Latin American countries.

China will make full use of digital means to introduce TCM to Latin Americans. For example, there will be online exhibitions on TCM, so that Latin Americans can learn about the history and culture of TCM. Online training courses will also be held.

China will strengthen the oversight of raw material sourcing, production processes, and quality control to ensure that cooperative TCM products meet the needs of the Latin American market, thereby helping promote health and well-being across the region.

Besides, China will establish strategic partnerships with well- known pharmaceutical companies and research institutions in Latin America to jointly promote the R&D, production and sale of TCM products in the Latin American market by sharing resources.

The meeting was organized by Kangentropy (Beijing) Technology Co., Ltd. and Beijing Guoce Media. Many authoritative institutions in the field, such as the Chinese Association for Research and Advancement of Chinese Medicine, and the UN Institute for Training and Research Prosperity Alliance interacted with CAMACOL online.

Digital connectivity is promoting in- depth medical exchanges and integration between Chinese and other cultures.

Chinese Tech Helps Central Asia Tackle Water Scarcity

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Experts from research organizations and universities discussed the common challenges facing both regions, such as saline and alkaline land management and development, water-saving irrigation and pest control, to accelerate practical cooperation between China and Central Asia and jointly contribute to the development of high-quality agricultural science and technology.

"The point of developing agriculture is to benefit farmers and improve the welfare of all people," said Uranebk Shergaziev, vice president of the Central Asia State Agricultural University. Cooperation with China is an efficient way to achieve this, Shergaziev added.

Water scarcity is an acute problem in Central Asia. China's membrane drip irrigation, micro- irrigation, sprinkler irrigation and infiltration irrigation technologies are relatively mature and have been exported to Kyrgyzstan. In 2018, China undertook an irrigation system renovation project in Kyrgyzstan, which included the construction, maintenance, renovation and expansion of irrigation canals and subsidiary structures.

Upon completion in 2021, the assistance increased the irrigated area in Kyrgyzstan by 2,310 hectares, improved the water supply for 11,100 hectares of irrigated land, and benefited 20,000 people. The project also promoted the development of plantations and livestock farming along the route, improving the living standards of local people.

This event was jointly sponsored by China Science and Technology Exchange Center and Department of Science and Technology of Shandong province, and organized by the Shandong Academy of Sciences and Shandong Analysis and Test Center.

How Ancient Liangzhu People Managed Water

Traditional Eastern Wisdom

By BI Weizi

The discovery of the Liangzhu Water Conservancy System on the outskirts of the ancient city of Liangzhu in 2015 pushed back the beginning of China's water conservancy history to the period of the Liangzhu civilization (3300- 2300 BC), a significant link in the search for the origins of Chinese civilization.

Water played a vital role in the agricultural settlements of the middle and lower reaches of the Yangtze River, and the Liangzhu people's water management some 5,000 years ago still amazes archaeologists today.

The ancient dams that make up the Liangzhu water conservancy system serve different purposes with their uniquely different shapes and locations. Due to poor geological conditions, some of the dams developed many fine cracks, triggering a pipe surge and leading to the collapse of the dam. To solve this problem, a trench was first dug and then filled with dense soil, forming an impermeable wall and consolidating the dam.

Other dams were built with stones on the side facing the water, supposedly as a specific measure to cope with the impact of temporary floods. Based on the evidence left behind, the technology of dam building and the concept of dam design in the Liangzhu period were very advanced.

In addition to flood control, as Liangzhu is not far from the sea and catastrophic typhoons are common, irrigation was another reason for their water conservation program. In June and July, it rained a lot around Liangzhu, followed by a harsh dry season. As summer and autumn were the main rice growing seasons, people had to build dams to store water and prevent flooding during these months, and to irrigate crops and prevent drought afterwards.

The wisdom of the ancient Liangzhu people is reflected not only in the location of the dam, the choice of dam materials, but also in the filling process and structural design, all of which make the Liangzhu water conservancy system a world- renowned masterpiece of water management.

A display spot of the Southern City Wall Site at the Archaeological Ruins of Liangzhu City park in Hangzhou, capital city of east China's Zhejiang province, July 4, 2024. (PHOTO: XINHUA)

High-tech Chinese PV Breaks Records

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"In 2023, the world's top 10 enterprises in the battery segment were Chinese enterprises, with a total production capacity of 681.2 GW, accounting for 66 percent of the global total production capacity," Liu said.

Chinese drive for green development

After more than 10 years of development, China's PV industry has become a leading force in the process of global energy transition. According to the International Energy Agency (IEA), China's installed capacity of renewable energy in 2023 exceeded that of the rest of the world combined.

Over the past decade, the average cost per kWh of PV power projects has decreased by more than 80 percent. The reduction is largely attributable to China's efforts, according to the *Renewables 2024* report by the IEA.

The report pointed out that China is expected to account for nearly 60 percent of all renewable energy capacity installed worldwide from now to 2030.

"If I could sum this [trend] up in two words they would be: China and solar," Fatih Birol, the executive director of the IEA, told the *Guardian*.