

CHINA

East-West cooperation a win-win plan

Capital and tech from Qingdao help Gansu cities exploit rich resources

By ZHAO RUIXUE in Jinan
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Fifty-year-old farmer Su Haiying from Gansu province in Northwest China never imagined that one day she would become a brewer and support her family through an opportunity brought by a city located thousands of kilometers away in the east of China.

Su's hometown, Yuangudui village in Tianjiahe town, Dingxi, stands at an altitude of 2,400 meters above sea level. In the past, farming in this area was entirely dependent on weather conditions, yielding crops only in good years and facing losses in times of natural disasters.

The situation changed in November last year when a company from Qingdao city in Shandong province signed a contract with the village to establish a local craft beer project with an investment of over 1 million yuan (\$140,000) in equipment, aiming to boost local tourism development.

As one of the local villagers participating in the project, Su cleans the equipment carefully before starting each day's work. When encountering difficulties in operation, she calls her "teachers" in Qingdao for advice. "I am very grateful to these people from Qingdao who help us. Their encour-

agement, support and assistance mean a lot to me," she said.

The brewery project is part of the collaboration between Qingdao and the Gansu cities of Longnan and Dingxi under the country's East-West coordination mechanism, a crucial strategy first initiated in the 1990s that aims to eradicate nationwide poverty and enhance people's livelihoods through cooperation between the prosperous eastern regions and the impoverished western regions.

Since 2016, more than 100 officials from Qingdao have been dispatched to the two Gansu cities, along with more than 2,700 professionals in education, medical care and agricultural technologies to assist local development. By May this year, Qingdao had provided training programs to more than 26,000 local residents in Gansu, and introduced 320 industrial projects with actual secured investment totaling 5.94 billion yuan.

With Qingdao's assistance, Yuangudui village has seen significant infrastructure improvements, including the replacement of dirt roads with 13.5 kilometers of asphalt roads and 23.89 km of paved pathways. Every household now has access to tap water, with 4G or 5G networks covering the entire area.

In 2018, the village declared itself free from poverty, setting a recog-



Workers sort slices of a traditional Chinese herb in a factory of Gansu Tiancheng Xingwei Pharmaceuticals, one of Qingdao's collaborative projects with Dingxi city in Gansu province. PHOTOS BY LI XIAOZHE / FOR CHINA DAILY

nized model for poverty reduction globally and earning itself the designation of a national 4A-level scenic area. The average annual net income of villagers reached 18,860 yuan per person, nearly 13 times higher than in 2012. With the support and assistance of Qingdao's Shangma subdistrict, Xiaochuan town in Longnan has seen continuous improvements in infrastructure, industries and livelihoods of local residents. The township's Xixia village alone has so far attracted investment of 4 million yuan under the framework of the East-West coordination mechanism.

To create business opportunities, professionals from Qingdao are tapping into local resources.

Xixia, well known for its cherries since the 1980s, has an expanding cultivation area of around 110 hectares. In 2022, the village received an

investment of 525,000 yuan from Qingdao to enhance the quality of the cherries. "Besides money, we also get valuable help from experts of the Shandong Academy of Agricultural Sciences," said Gao Feng, Party secretary of Xiaochuan. "Traditional cherry species are no longer popular in the market. Thanks to the technical and capital support from the East-West coordination mechanism, we are now growing new species which sell out as soon as they hit the market in late May every year."

Wudu district in Longnan stands as China's largest olive cultivation area. To explore the rich resources, officials from Qingdao have introduced an investment of 43 million yuan to establish a modern agro-industry park spanning 20 hectares. Within Wudu, eight projects focused on the olive industry have been

launched, with a combined investment totaling 287 million yuan.

Bai Wanning, general manager of a local biotech company, said they have introduced advanced technology from Qingdao so that the olive residues and leaves formerly regarded as waste can now be fully utilized to increase added value and thus raise income for the growers.

Effective East-West cooperation means sincere, two-way, targeted and sustainable collaboration, said Ma Xiaohui, member of the Party Leadership Group of Dingxi Municipal People's Government and leader of the second batch of officials dispatched from Qingdao to Dingxi. "It is essential to leverage local resources and strengths of both sides and broadly mobilize support from all sectors of society to drive high-quality East-West cooperation," Ma said.



Su Haiying earns a living as a brewer at Yuangudui village in Dingxi.

Teacher turns classroom into a hub of creativity

By ZHAO RUIXUE in Jinan
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Yuan Xiao, a geography teacher at Jinan University Town Experimental Senior High School in Jinan, Shandong province, has become known among his students as the "geography master with two brushes" — a playful reference to his exceptional talent using vivid blackboard illustrations to translate complex geographical concepts.

The 28-year-old has been teaching geography for four years since obtaining a master's degree in geographical science from Shandong Normal University.

"As a new, young teacher, earning students' trust wasn't easy," said Yuan, reflecting on his initial challenges in engaging his students effectively in the classroom.

During a lesson on the Earth's layers, Yuan drew a detailed, three-dimensional cross-section of the planet on the blackboard.

"The students were astonished," he said. Yuan soon recognized that these vivid and intuitive chalkboard drawings could captivate students more directly than PowerPoint presentations. Despite a lack of formal art training, he began honing his illustration skills in his spare time.

Initially struggling with brush

“A moment under the stars can leave a more profound impact than any lecture.”

Yuan Xiao, geography teacher at Jinan University Town Experimental Senior High School in Jinan, Shandong province

control, Yuan diligently practiced stroke techniques daily, using calligraphy workbooks to enhance his skills. After over a year of dedicated effort, he had filled numerous teaching journals with hundreds of meticulously crafted illustrations.

"Blackboard illustrations encourage students to think more as they attempt to recreate the drawings," said Yuan.

Yuan's fluid strokes give clarity to even the most abstract topics. For instance, while explaining atmospheric circulation, he skillfully drew perfect circles to illustrate wind patterns.

His lessons on the water cycle unfold like a narrative, visualizing the processes such as evaporation, condensation and

precipitation in real time. Beyond the blackboard, Yuan's teaching methods are innovative and immersive.

To elucidate concepts of human migration, he shares his personal journey from a rural village to a town school and eventually to university, making the subject more relatable to his students.

Yuan has transformed his classroom into a hub of creativity, conducting experiments like simulating lunar landscapes and launching lanterns to demonstrate atmospheric principles. He even once halted the evening study sessions to allow his students to witness an interesting celestial event — the alignment of Venus and the moon.

"A moment under the stars can leave a more profound impact than any lecture," he said.

Yuan's influence extends beyond his own academic achievements. His former student Zhang Jialu, now studying human geography at Hainan University, attributes her choice of major to Yuan's inspirational teaching. Another student, Liu Caiyi, is pursuing geography education at Ludong University in Shandong, inspired by Yuan's passion for the subject.

Yuan's classroom motto, "to be honest, kind, and dependable", reflects his deepest aspirations for his students. As one online comment notes, Yuan's lessons not only impart geography knowledge but also teach students how to perceive the world around them.

Li Ruihan contributed to this story.



Yuan Xiao gives a geography lesson at Jinan University Town Experimental Senior High School in Jinan, Shandong province. PROVIDED TO CHINA DAILY

Experts achieve success in walnut county

LHASA — On the winding mountain paths, Liu Liping, from the Plateau Walnut Industry Research Institute of Yangtze University in Jingzhou city, Hubei province, swiftly removed a label from her coat and carefully attached it to a newly grafted walnut branch.

Upon her arrival in Gyatsa county in Lhokha city, Xizang autonomous region, in early 2020, she was astonished by the ancient walnut trees scattered throughout the area. These millennia-old trees, totaling a remarkable 3,657, formed a unique ancient walnut grove on the plateau.

The history of walnut cultivation in Gyatsa dates back over 1,000 years. However, despite this rich history, local villagers have long struggled with the absence of scientific cultivation techniques and efficient production methods.

In the past, villagers didn't know how to plant walnut trees properly. "We crammed hundreds of trees into a narrow space, making it impossible even to walk through. The walnut trees grew thin and small, and the nuts were unusable," said Qi Lyu, Party branch secretary of a local village.

"Without those trees, the riverbanks were just barren land, easily buried by sand when strong winds blew," Qi said.

In March 2021, Central China's Hubei launched its 2021-2025 science and technology pairing assistance program with Xizang. Liu joined the assistance talent team, where she devoted herself to local walnut variety selection, breeding, and cultivation management.

Liu visited all 27 walnut-growing villages in Gyatsa. "The villagers initially didn't understand the purpose of our work and were annoyed by our repeated visits," she said.

Goksang, a resident whose family has tended an ancient walnut tree, said: "Now we welcome her visits. She taught us grafting and cultivation techniques. The grafted walnut trees produce excellent fruit with high yields."

The county's walnut cultivation has expanded to 520,000 trees across 3,000 hectares, with an annual output of 1,200 metric tons and a total output value exceeding 80 million yuan (\$11.2 million).

Six superior walnut trees have been successfully selected, and a 67-hectare high-quality walnut cultivation demonstration base has been established in Gyatsa. Since 2021, over 100,000 walnut trees have been planted along the Yarlung Zangbo River as part of the local ecological corridor project. This project has not only helped stabilize

the soil and prevented sandstorms, but also created new income streams for residents, thus achieving both positive ecological and economic objectives.

Over 500 villagers, including many farmers, have participated in grafting training sessions, said Zhang Rongceng, a young grass-roots official who has been working in Gyatsa since 2022.

Beyond supplying local afforestation and agricultural development, Gyatsa's walnut saplings are also used in the largest afforestation project in Lhasa, Xizang's regional capital. The project has completed nearly 47,000 hectares of afforestation since 2022, with an overall survival rate of around 85 percent.

Kan Simeng is in charge of an afforestation area of over 267 hectares, situated at an altitude of over 3,700 meters. He traveled 200 kilometers to Gyatsa, where he discovered walnut seedlings that are ideally suited for high-altitude planting.

"These saplings have a high survival rate, and their robust root systems also effectively stabilize soil and prevent erosion," Kan said. Walnut trees have since blanketed the mountains near Lhasa.

XINHUA

Wafer testing makes a breakthrough

TIANJIN — Chinese researchers have achieved a breakthrough in micro-LED wafer testing by developing a nondestructive detection method, thereby addressing a long-standing challenge in electroluminescence inspection of micro-LED technology. Micro-LEDs are widely recognized as a fundamental technology for next-generation high-end displays. Achieving near-perfect yields during wafer fabrication is essential to ensure product quality and control repair costs.

Conventional testing approaches face major limitations, with some methods damaging wafer surfaces irreversibly, while others lack precision due to high rates of missed detection and false alarms.

This lack of reliable contact-based, nondestructive testing had been a bottleneck in terms of mass-producing micro-LED applications,

particularly for large-area and flexible displays.

A research team led by professor Huang Xian at North China's Tianjin University has addressed this critical gap. Their breakthrough was published recently in the journal Nature Electronics.

The team introduced a flexible three-dimensional probe array capable of adapting to the microscopic contours of micro-LED wafers, applying pressure as low as 0.9 megapascals — comparable to the softness of a gentle breath. This soft-contact approach allows for high-throughput electrical testing without scratching or damaging the wafer surface.

"The contact pressure exerted by our flexible probes is just one ten thousandth that of conventional rigid probes," Huang explained. "This not only preserves the wafer surface

but also significantly extends the probe's service life. Even after one million contact cycles, probes retain their original condition."

To support this innovation, the team also developed a custom-designed measurement system that integrates with the flexible probes — enabling precise process control and efficient yield screening in micro-LED manufacturing.

"This breakthrough establishes a new foundation in the field," said Huang. "It closes a major technical gap in micro-LED electroluminescence testing and paves the way for broader applications in advanced wafer inspection and biophotonics."

Currently, this technology is progressing toward commercialization at the Tiankai Higher Education Innovation Park in Tianjin.

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