

Ancient irrigation project of Shanxi branded a heritage site



Huoquan Springs' history of resource management and its contribution to agriculture honored

By YUAN SHENGGAO

There are many famed springs in China, with some known as “the No 1 or No 2 springs under heaven” for their value as picturesque tourist attractions. But it's rare to find one like Huoquan Springs in North China's Shanxi province in terms of its irrigation value.

An ancient irrigation system originating from Huoquan Springs in Shanxi's Hongtong county, was included in the latest list of World Heritage Irrigation Structures released by the International Commission on Irrigation and Drainage on Nov 4.

It marks the first World Heritage Irrigation Structure site in Shanxi and the first such site in China featuring the use of springs as a source of irrigation. To date, China is home to 34 World Heritage Irrigation Structures sites.

The Huoquan irrigation system won fame not only for its long history, volume of canal runoff and area of farmlands it covers, but for its role in water use governance in ancient times, according to experts and local officials.

Huoquan is a group of springs at the foot of the Huoshan Mountain. Archaeological discoveries showed that the springs were a source of drinking water during the Neolithic Age. Historical records indicated that construction of a large-scale irrigation project started in the Tang Dynasty (618-907), with spring water diverted to nearby farmland through the Northern Huo and Southern Huo canals.

As a result, the two Shanxi counties of Hongtong and Zhaocheng became a major agricultural base in the province for more than 1,000 years since the Tang Dynasty.

However, disputes frequently occurred between the two counties vying for more water from the system. Sometimes disputes evolved into fierce fights between farmers, according to historical records.

In 1725, during the reign of Qing Dynasty (1644-1911) emperor Yongzheng, Liu Dengyong, government chief of the Pingyang prefecture,



This small pond, gathering water from Huoquan Springs in Hongtong county, is the source of an ancient irrigation project that was recently included in the list of World Heritage Irrigation Structures released by the International Commission on Irrigation and Drainage. DUAN JIANWU / FOR CHINA DAILY

which administrated the two counties, ordered the building of a new water diversion dam for distributing water between Hongtong and Zhaocheng.

By accurately calculating the farmland areas of the two counties, seven-tenths of the water went to Zhaocheng and three-tenths went to Hongtong. The rates of water flow were measured by 11 iron columns erected at the water gate, which divided the runoff into 10 equal volumes.

Historical documents said that another innovation for water allocation was the canal chief system. This was an institution featuring great local autonomy, with officials elected by local farmers and other stakeholders, instead of being appointed by the government.

After studying the documents, Li Yunpeng, a researcher on China's history of water utilities at the China Institute of Water Resources and Hydropower Research based in Beijing, said that the prominent feature of the irrigation project is the well-established water governance system associated with it.

“In China, we have a lot of ancient irrigation projects that are still functioning to this day, like the famed Dujiangyan project in Sichuan province,” Li said. “The Huoquan project is not among the largest by scale but it stands out with an innovative governance system for water distribution.”

He noted that the governance system was known as “Huoquan Water Regulation” among water utility history researchers.

“In the region benefiting from the irrigation project, there are a lot of documents left on the governance system in the form of texted files and stone stele inscriptions, allowing other regions in the country to duplicate the Huoquan experience,” Li said. “The documents are also of great significance for historical research.”

Zhang Junfeng, a history researcher at Shanxi University based in the provincial capital of Taiyuan, said Huoquan Water Regulation was among the best practices in water governance in ancient China.

“Historical documents show that this was a system featuring great equality, as a result of the involvement of a great number of stakeholders and compromises after numerous talks and negotiations,” Zhang said.

In 1954, the counties involved in the irrigation project merged into one, under the name of Hongtong, eventually ending a history of disputes over irrigation. The water diversion dam and the pavilion housing several stone steles are still there, as silent witnesses to history.

Today, the spring water nurtures thousands of hectares of farmland through several canals originating from the dam.

Many locals are still amazed at the scale of the irrigation project. Duan Hongfei, a local official, said that after several major renovations and expansions in modern times, the irrigation project now covers more than 6,600 hectares of farmlands, or 12.2 percent of the total area of Hongtong county.

“Our decades of hydrological

observations show that the average annual runoff into Huoquan canals is 100 million cubic meters,” Duan said. “This is a huge volume of water considering it's from a group of springs in a small area.”

The uniqueness of the project is that the canals' source is a small pond of about 10,000 square meters, which receives water from 100-plus springs at the foot of the Huoshan Mountain, according to Duan.

Shi Jianfeng, head of the water resources bureau of Hongtong, said the county is cooperating with experts at China University of Geosciences, Beijing to draft new plans for the protection and rational development of the irrigation system, aiming to make it a sustainable project for future generations.

Farmers in Hongtong are grateful for the benefits brought by the irrigation project. The village of Fangdui, for instance, has a total farmland area of 113 hectares, of which 100 hectares have access to the irrigation system.

“There is a huge difference between irrigated farming and dryland farming,” said Li Qingyun, chief of the village. “Irrigated farms feature higher yields and mean more revenue to farmers.”

Du Xinshe, a local farmer, said that the net income from his farm of less than 1 hectare is about 40,800 yuan (\$5,730). “The income, along with revenue from other sources, can ensure a decent life for my family,” Du said.

Kang Meixiang and Fan Zhen contributed to this story.

Trade conference seals ties with New Zealand

By YUAN SHENGGAO

Shanxi province showcased its investment and trade opportunities to the New Zealand business community during a promotional event last week.

The event, the Shanxi-New Zealand Trade and Investment Promotion Conference, was held in the island country on Nov 13. It was a part of a large promotional campaign called Shanxi Brands on the Silk Road, a move aiming to enhance trade and investment cooperation between Shanxi and the countries and regions involved in the Belt and Road Initiative.

New Zealand and China are important trade and investment partners to each other.

Over the past years, China has been the largest trading partner, the largest source of exports and the largest destination of imports for New Zealand. The two countries have also kept close cooperation in the fields of education, sciences, technologies, culture and tourism.

Shanxi is a part and a beneficiary of the booming ties.

In July, John Key, former prime minister of New Zealand, visited Taiyuan, witnessing the launch of the China-New Zealand Cultural Exchange Center. The center integrates cultural elements from New Zealand and Shanxi, allowing locals in Shanxi to experience the unique charm of New Zealand culture without leaving their homeland.

At the Nov 13 conference in New Zealand, Shanxi's trade and investment promotion officials and executives from Shanxi Culture and Tourism Group introduced Shanxi's business opportunities and tourism resources to local guests.

Li Haiyuan, chairman of the Shanxi Committee of the China Council for the Promotion of International Trade, said there is great potential for cooperation because of the complementary nature of the economies of both sides.

He said that Shanxi is one of the cradles of Chinese civilization and its 5,000 years of history has left numerous resources for the cultural tourism industry.

He noted that Shanxi is implementing a number of development initiatives, including an economic transformation from coal reliance to industrial diversification; an energy revolution program to upgrade traditional coal mining and grow its new energy sectors; and campaigns to develop a new hub of opening-up for China's inland regions and to build a base for advanced manufacturing. He added that these fields can create huge opportunities for trade and investment cooperation between the two sides.

As New Zealand is a country with comparative advantages in the industries of dairy production, animal husbandry, tourism and education, he said Shanxi hopes to develop closer collaborations in these fields with the country. And he also said he hopes the business community in New Zealand can cooperate with Shanxi in the sectors of farming machinery, the digital economy and medical services.

During the conference, businesses from the two sides signed agreements for cooperation in a range of areas that include tourism development, media and biopharmaceuticals.

Meng Ting contributed to this story.



Business representatives from Shanxi and New Zealand talk on cooperation during the trade and investment promotional event. WANG RUIRUI / FOR CHINA DAILY

Medical service using power of technology

By LIANG KAIYAN

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Shanxi province is calling for more innovative medical services with a variety of internet-based technologies employed in its hospitals, as part of its effort to satisfy people's diversified medical needs.

On Oct 9, Cao Xiaoyu, a dentist at the First Hospital of Shanxi Medical University, received a follow-up visit from a patient through the hospital's online platform.

“Since the opening of the internet hospital service, it has become an important aspect of our medical practice. Especially for follow-up patients, they can interact with doctors through the hospital's online information platform, saving the trouble of traveling. Our medical practice is always there for the patients,” Cao said.

Since 2018, the National Health Commission has released guidance documents, encouraging medical institutions to properly mobilize and utilize medical resources to promote intelligent services such as appointment-based consultations and telemedicine, innovate service models, and enhance medical service capabilities and efficiency. In response to the initiatives, the First Hospital of SMU launched its internet hospital service in August 2020.

Over the past few years, the internet hospital service has leveraged web technology, integrating medical services such as online follow-up visits, prescription refills, appointments for medical tests, express delivery of medicines and experts' remote diagnoses into the online platform.

“Thanks to the internet hospital platform, I can have follow-up visits online, get prescriptions filled online, and have the medicines sent to my home with the express delivery service, which greatly facilitates

my medication,” said a Taiyuan resident surnamed Li, who is a patient with hypertension.

High-tech medical technology has also been employed in the Shanxi Provincial Cancer Hospital.

In February, the hospital was equipped with a set of the state-of-the-art fourth-generation Da Vinci surgical robotic systems, which marked the entrance of the cancer-treatment hospital into a new era of minimally invasive surgery with artificial intelligence.

Recently, the hospital has completed three robot-assisted surgeries for rectal cancer, which pioneered this type of cancer treatment with the robotic system in Shanxi.

Another hospital in Shanxi that combines internet technology with medical services is the Changzhi People's Hospital in the city of Changzhi.

To provide patients with dedicated medical services, Changzhi People's Hospital offers home care services, for which patients only need to make an appointment through the hospital's WeChat account. Such services have been well received by local residents.

A resident surnamed Li, 68, who is paralyzed from the waist down, said: “It is convenient to make an appointment online. As we are getting older, it's not convenient for us to visit hospitals, but this hospital provides a home nursing service, which helps us solve a big problem.”

Currently, the Changzhi internet hospital platform offers in-home nursing services including infusion, catheter placement, ostomy care, wound dressing and maternal and child care services, which are available for elderly patients, individuals with disabilities and patients during the recovery period after being discharged.

Qin Yang contributed to this story.



Ancient crafts on display

On Nov 15, a model of an ancient structure on display attracted the attention of passengers at Taiyuan Wusu International Airport. It was part of the pottery and porcelain exhibition held at the airport in Shanxi's provincial capital starting that day. Jointly held by Shanxi Aviation Industry Group and Shanxi Culture and Tourism Group, the show consists of more than 500 pottery and porcelain items created by local artists with time-honored techniques. Organizers said the exhibition is aimed to help visitors get a glimpse of local history, culture and landscapes when they arrive in the province.

RUAN YANG / FOR CHINA DAILY

Innovative mining machine passes its first test

By YUAN SHENGGAO

The pilot test of the world's first vertical milling and cutting machine for mining was recently completed at Shanxi Construction Investment Group's plant in Taiyuan.

The equipment was jointly developed by SCIG and the basic engineering branch of Xuzhou Construction Machinery Group based in East China's Jiangsu province.

At the ceremony celebrating the

successful test of the equipment on Nov 14, executives of SCIG said that the first batch of machines will be used at a carnallite mining site in Vientiane, Laos. Carnallite is a mineral used for the production of potassium chloride, a kind of agricultural fertilizer.

According to Gao Hongbo, head of the research and development team for the equipment at SCIG, conventional carnallite mining machines feature horizontal cutting. He noted that the vertical milling and cutting

machine is an innovation in the industry.

“As the vertical machine uses its heavy deadweight to smashing the minerals, it can improve the mining efficiency by 200 percent and lower mining costs by about 30 percent compared with the conventional machines,” Gao explained.

He added that after being used in Laos, the machines will be later used in mines in neighboring Thailand.

“We expect the use of the machines can boost the potassium

chloride industry in Laos and Thailand,” Gao said, adding that the two countries are major suppliers of potassium chloride fertilizers to China.

The executive said that it took eight years for the R&D team to develop the machine. XCMG's basic engineering branch manufactured the equipment based on SCIG's design blueprint.

Jin Shuaini contributed to this story.