# Understanding China in Law, Language

## Dialogue

By BI Weizi and LONG Yun

Prof. Georg Gesk's 30-year stint in China began in 1986. Today, he is a China expert fluent in Chinese and with a deep understanding of Chinese law and Eastern culture and philosophy.

Recently, he shared his story with *Science and Technology Daily* as well as his unique insights into China's achievements since the reform and opening up. He said, the Gesks, a German family, had a rich experience of multicultural exchanges and the advantage of speaking foreign languages such as Polish, Hebrew and Russian, but no one had ever been exposed to Chinese except for himself.

Inspired by a special exhibition on Turpan, the unique city in Xinjiang in northwest China surrounded by deserts and mountains, when he was a child, he wanted to study a subject related to "people" and chose Chinese law. However, the language was an obstacle, so he decided to study Chinese first.

"The best way to learn a language is to immerse yourself in local life," Gesk said, "You can't learn Chinese well if you stay in China only for a short time and if you don't learn it the way the Chinese speak it."

"I studied Chinese law in a Chinese-speaking environment. Coupled with the international family environment in which I was raised, I was able to break free from the shackles of Western standardism in academic research," he said.


Prof. Georg Gesk. (COURTESY PHOTO)

***Eyewitness to China's Development***

His first trip to Beijing was in 1990. "I stayed in Beijing for about 10 days, walking around the hutongs (alleys with traditional one-storied houses with courtyards) and talking to local people," he said. The people were very friendly but the environment was different.

He received his Ph.D. in Chinese law in 2000 and then taught in China until 2015. Then he returned to Germany, from where he continued to work as a part-time professor in some famous Chinese universities, including Anhui University and the China University of Political Science and Law. He is one of the few chair professors of Chinese law in Europe, providing systematic training to students majoring in Chinese law.

He returns to China almost every year. In February this year, he attended a science and technology forum where top scientists from around the world talked about the world's scientific and technological development and trends. According to a study by an Australian think tank, China now has a "stunning lead" in 37 out of 44 critical and emerging technologies, a significant progress since the 1970s. Gesk has seen China's leapfrog development firsthand.

"In the 1990s, my teacher told me that it usually takes three generations for a country to become a world leader in a particular S&T field, but it took China only about 40 years," Gesk said, adding that it is difficult for those who have never been to China to imagine what China is like today. That is why he urges everyone, especially students, to come to China and see for themselves. He also stressed the importance of learning Chinese in deepening mutual understanding between China and Europe.

***Tackling problems with pluralism***

Today, more and more young Europeans are coming to China to travel or study. Gesk believes this phenomenon can be explained by an old saying, "The base determines the superstructure". China today is a very important trading partner for Western countries, but Westerners don't know enough about China. "In order to achieve a truly international exchange of equality and mutual trust in the future, we need to get rid of individualism," he said.

China has been Germany's most important trade partner for eight consecutive years, according to German official trade statistics, but Gesk feels that Germany hasn't understood what China is or the Chinese law, which poses risks for both sides. This made him start teaching Chinese law at the University of Osnabrück in Lower Saxony, Germany, in 2015. He thinks some divergences can be solved or even avoided with the help of legal professionals.

"Only by going to China and learning the Chinese language and culture on the spot can you really understand what the other party is thinking and doing, and achieve true two-way, in-depth exchange and cooperation," he said. As he sees it, pluralism is the way to deal with the differences between different cultures.

*Anhui University and Anhui Provincial Department of Science and Technology also contributed to the article.*

## Green China

# Chengdu: from Panda Home to Park City

By Md. Altab Hossin

Chengdu, the capital of Sichuan province in southwest China, is a blessed megacity. It was the starting point of the ancient Southern Silk Road trade route, and today is an important cluster for the Belt and Road Initiative, and the central hub and economic gateway of southwest China.

Chengdu is also known as the "Land of Abundance,""Capital of Cuisine" due to its various spicy dishes such as the hotpot and mapo tofu, and the "Hometown of Pandas."

Without resting on these laurels, the city is making great efforts to achieve all-round economic, innovative, green, sustainable, and high-quality development. Chengdu's green and sustainable development focuses on transforming it into a park city, and a key part of that is building the Tianfu Greenway, the world's longest planned urban greenway system, which will be 16,900 km long and connect ecological areas such as parks and other green spaces. By the end of 2023, Chengdu had already built over 1,500 parks of various types (such as the People's Park, Huanhuaxi Park, and the Culture Park), with a total area of more than 8.800 hectares, and has preliminarily established a benchmark of "city within a park."

In addition to the construction of new parks, it is also focusing on planting trees on its roads. By July 2023, over 95 percent of the city had been greened. The ecological zone around the city, a super "green ring", has 100 km of connected first-class greenways with 18 characteristic parks and 54 forest clusters.

According to the draft of the Chengdu Park City Green Space System Plan (2019-2035) submitted for review, by 2025, Chengdu will have an urban green space ratio of no less than 40 percent, a per capita park green space area of no less than 14 square meters, and a park green space service radius coverage of no less than 90 percent. These parks give vitality, comfort, and energy to the city, enabling residents to enjoy the beauty of the green environment, breathe fresh air, and keep physically active and fit.

While creating a more scenic ecological environment in parallel with modern construction, the city welcomes more talents and enterprises to jointly promote its high-quality development.

*Dr. Md Altab Hossin is a Bangladeshi foreign expert at the School of Innovation and Entrepreneurship, Chengdu University.*

An aerial photo of Xinglonghu Park, Chengdu. (PHOTO: VCG)

# China's Earliest Water Control Structure

## Traditional Eastern Wisdom

By BI Weizi

Xiongjialing hydrological system, comprising of a dam, reservoir, irrigation zone and spillway, is recognized as China's oldest water conservancy system. It was discovered as part of the Qujialing site in Jingmen City, Central China's Hubei province, and sheds light on the cradle of civilization along the midstream of China's Yangtze River.

The Qujialing Culture (3400-2600 BC) was a Neolithic civilization centered mainly in the middle Yangtze River region of Hubei and Hunan provinces, which is rich in water resources with a dense river network. But, because of the region's climatic extremes, the ability to store water while preventing flooding was critical to life in the region, say scientists.

Dating of excavated relics shows that the Xiongjialing Dam was built between 5,100 and 4,900 years ago. It is the earliest water conservancy structure discovered in China to have a spillway that releases excess water during flood season. An 8.5-hectare irrigation area was also found to the west of the dam, in an area where scientists believe a prehistoric rice field once existed.

The two-meter-high, 180-meter-long Xiongjialing Dam was built on a tributary of the Qingmudang River and later expanded during the autumn and winter dry seasons, according to the Hubei Provincial Institute of Cultural Relics and Archaeology. Evidence of grass being wrapped around the soil to make bricks for building, an ancient advanced construction technique, was also found to have been used to consolidate the dam, increase its tensile strength, and prevent it from collapsing.

The design of the Xiongjialing Dam suggests that the ancient people in the area had learned to harness water based on the landform, rather than simply taking measures to protect themselves from flooding.

Qujialing site, Jinmen, Hubei province. (PHOTO: XINHUA)

# Right Weather for Successful Rocket Launches

Science Outreach

By Staff Reporters

On April 25, China launched its Shenzhou-18 manned spacecraft on a Long March-2F Y18 carrier rocket, sending three taikonauts to Tiangong, the Chinese space station. The mission also includes nearly 100 experimental projects, among which is China's first in-orbit aquatic ecology research project on the zebrafish and golden algae.

The success of rocket launches heavily depends on weather conditions. "Meteorological conditions are crucial for rocket launches, considering various factors such as temperature, wind speed, visibility, and precipitation," said Cao Yunchang, chief scientist of the Meteorological Observation Center of the China Meteorological Administration. "For instance, thunderstorms pose a significant risk for rocket launches." The rocket's body comprises many metallic materials, and lightning or charged clouds could trigger high-voltage electrical discharges. If these discharges damage the electronic instruments on the rocket or spacecraft, it could lead to catastrophic accidents.

Therefore, rocket launches must be made when there is no thunderstorm.

High temperature, high humidity, and precipitation are also unfavorable. Humidity can adversely affect rocket performance and both the launch pad and the rocket need to remain dry. Rockets are sensitive to the wind's influence as well.

"From the surface to around 80 meters above the ground, the variation of wind speed and direction with height, known as low-level winds, significantly affects the vertical transport of rockets," Cao said. In the atmosphere, the highest wind speeds occur at altitudes of 8,000 to 15,000 meters above the ground, which can negatively impact rocket launches.

When a rocket reaches this altitude, excessive wind speed or significant wind shear (the change in wind direction or speed with horizontal or vertical distance) in the atmosphere may cause the rocket's body to bend or deform, leading to structural damage or even a breakup.

"Rocket launches typically require ground wind speeds to be less than 8 meters per second to ensure the rocket remains stably fixed on the launch pad before launch, reducing the risk during launch. In addition, the maximum wind speed within the airspace should be less than 70 meters per second to ensure the rocket can fly steadily during flight, reducing the risk of deviation from the target or launch failure," Cao explained.

Rocket launches also require horizontal visibility of more than 20 kilometers. Good visibility during launch helps ensure the safety of the launch process. The total cloud cover should be between 0 and three-tenths of the sky to avoid interference with the rocket's flight course.

# China's Internet Revolution: From Follower to Leader

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***Mobile Internet and broadband revolution***

The early 2000s heralded a new era with the widespread adoption of mobile Internet technologies. China's telecom companies played a pivotal role in this transformation. In 2009, China Unicom launched its WCDMA-based 3G network, marking the beginning of the mobile Internet age. Subsequent advancements led to the commercialization of LTE FDD-based 4G networks in 2015, revolutionizing Internet speeds and connectivity.

Simultaneously, broadband infrastructure underwent a revolution. China initiated the "Broadband China" strategy in 2014, focusing on nationwide fiber-optic network upgrades. By 2016, 10 northern provinces had achieved full fiber-optic coverage, including rural areas.

The latest official data shows that a total of 3.6 million 5G base stations have been built nationwide. The penetration rate of 5G users exceeds 60 percent and the number of ports with gigabit network service capability is over 24.56 million. The world's first 400G all-optical inter-provincial backbone network link has been officially commercialized.

By the end of 2023, the number of recorded websites exceeded 3.8 million and the number of Internet users reached 1.09 billion. The role of integration and empowerment is fully manifested. Additionally, applications such as instant messaging, mobile payment, and online car rental have flourished, expanding the new space of digital life; in the field of production, 5G applications have been integrated into 74 out of 97 major categories of the national economy, and the industrial Internet has covered all 41 major categories of industry.

***Chinese firms become global players***

The last decade witnessed exponential growth of China's Internet ecosystem and technological innovations. The mobile Internet became ubiquitous, empowering diverse applications from e-commerce to social media platforms.

China's Internet giants emerged as global players, with market values exceeding trillions of RMB. Companies like Tencent, Alibaba, and Huawei spearheaded innovations in AI, cloud computing, and telecommunications. China's achievements in high-speed rail, smart cities, and digital governance are intertwined with its Internet prowess, showcasing a holistic approach to technological advancement.

As the country commemorates 30 years of Internet integration, it stands at the forefront of global digital innovation. The journey from a 64K line to a nationwide fiber-optic network, from desktop Internet to mobile connectivity, epitomizes its digital transformation.

Looking ahead, China's commitment to innovation, infrastructure development, and international cooperation promises a future of digital excellence and continued leadership in the digital age.

"From 5G to the world's largest fiber-optic broadband and mobile networks, from IPv6 to the BeiDou Navigation Satellite System, from supercomputing to quantum communication, China has achieved significant results in key core technologies such as basic software and core components," Sun observed.