China-Laos Railway: Cross-border Friendship, Green Development Bridge

By WANG Xiaoxia

The China-Laos Railway, which connects Beijing in China’s Yunnan province with Lao capital Vientiane, began operating on December 3, 2021. It will provide a major boost to the exchanges and cooperation between the two countries and help drive regional sustainable development.

Chinese President Xi Jinping and Lao President Thongloun Sisoulith jointly witnessed the opening of the China-Laos railway via video link.

Xi said the China-Laos railway is a landmark project of high-quality Belt and Road cooperation. In recent years, with the goals of high standard, sustainability and improvement of people’s livelihood, China has continuously improved the level of Belt and Road cooperation, achieved mutual benefits and wins for all participants, and opened up new space for the development of the world economy.

Thongloun said the railway will greatly promote Lao national economic and social development, expressing gratitude to China for its support.

Bullet trains running at a speed of 160 km per hour dash the train time between the two cities to about 3 hours, compared to a locked country to a land-linked hub. With a length of 415 km, the electrified passenger and cargo railway is built with the full application of Chinese management and technical standards.

The area along the China-Laos railway is known as “a geological museum”. The complex geological structure brought multiple risks such as high ground areas, high geothermal energy and high seismic intensity, making the construction more difficult than expected.

To deal with geological disasters such as slope collapse, scope of water and large deformation, many innovative technologies have been applied during the construction process. For example, building-used innovative excavation method to effectively solve the complex deformation problem, and grouted the safety for tunnel construction.

A total of 167 tunnels and 351 bridges were built after builders overcome many technical difficulties.

Data confirm that the whole process of electrification is the key to the construction, according to engineer Lai Peng from China Railway Electrification Bureau in Beijing.

Through the use of a digital management platform and the application of intelligent technology, the electrification of the whole line was completed in only two and a half years, and the precision of wire equipment parameters powering the train was controlled within a milli-

“China and Laos are facing an all-encompassing opening up and cooperation in all fields. The China-Laos Railway is a significant milestone and major achievement to push bilateral ties to a new high. It will offer the countries more opportunities for cooperation and development,” Xi Jinping said in his remarks via video at the opening ceremony of the railway.

This marks China’s 106th railway project for foreign countries, and the 3,000th km of rail line that China has built overseas.

President Xi Jinping’s remark on the China-Laos Railway is a milestone for China’s railway industry as the country has been providing railway construction and operation services for more than 70 years. In the first half of 2022, China’s railway construction companies completed a total of 12,400 km, with a total investment of 4.22 trillion yuan (US$653 billion) – 25% of the total investment in railway construction for the whole year. The high-speed railway network in China has a total length of 42,000 km, ranking first in the world. China also has the largest network of high-speed trains in the world. China’s railway investment contributed 5.7% to global GDP growth in 2021, according to the World Economic Forum. In the second half of 2022, China’s railway construction companies completed a total of 15,500 km, with a total investment of 5.36 trillion yuan (US$833 billion) – 30% of the total investment in railway construction for the whole year. China’s high-speed railway network has reached 49,000 km in length, ranking first in the world. China’s railway investment contributed 6.3% to global GDP growth in 2022, according to the World Economic Forum.

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Further Promoting the Commercialization of Sci-Tech Achievements

By CHEN Champoy

Since the 15th CPC National Congress, China has attached great importance to sci-tech innovation, and has introduced measures to promote the commercialization of sci-tech achievements.

In the preface, Wang said the sci-tech achievements have offered solid support for economic and social development. For example, the commercial use of 5G technology can be seen in smart manufacturing, healthcare, energy, agriculture, education and finance.

In addition, the pollution control technologies in water pollution and air pollution have been upgraded, while R&D of vaccines and treatments for COVID-19 has effectively promoted people’s lives and health. The implementation of state investment and social commercialization has also played a bigger role in the transportation and urban construction.

In addition, the financial institutions, such as banks and venture capital, will be further encouraged to enhance the support of commercialization of sci-tech achievements, and social capital will also be interested in investing in the commercialization of sci-tech achievements, Wang said.

Moreover, the service system for commercialization of sci-tech achievements will be further improved, such as setting up the technology exchange market, technology transfer institutions and new R&D institutes, as well as the building of a technology commercialization platform for providing and sharing information.

The small and medium-sized enterprises will be encouraged to be active players in the commercialization of sci-tech achievements.

No County Left Behind on the Path to Common Prosperity

By ZHENG Jiansui

An Zhejiang province aims at “significant progress” in building itself into a plan area for common prosperity by 2025, it makes effort to bridge the gap between rural and urban areas.

Recently, the province issued a plan to support its 26 mountainous counties in achieving a leapfrog and high-quality development through science and technology.

The plan’s goal is that by 2025, the annual growth rate of R&D expenditure in the 26 counties will be more than 14 percent each year.

Comparative advantages of mountainous counties will be realized, including setting up an integrated national big data center and a big data center for industrial Internet. Technological innovation and standardization will be strengthened as well.

Regarding building a stable and efficient industrial chain, the plan puts forward a value enhancement action of big data in raw materials, equipment manufacturing and other sectors.

There will be another action of big data development and application in nine fields, including telecommunication, finance and medical treatment. To build a good industrial ecology, China plans to encourage the development of sci-tech achievements.

Data security is also emphasized in the plan. The country wants to enhance its ability in data security management, reform the management of cross-border data security and set up a monitoring system for data security.

MITI also simultaneously released a development plan for the software industry and information technology services sector, including setting up an integrated national big data center and a big data center for industrial Internet.

Understanding China Requires Understanding of CPC

By LI Linxu

According to a report released last month, China has constantly improved its sci-tech innovation system, and has now developed an eco-friendly innovation ecosystem.

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The scale of China’s big data industry is estimated to surpass three trillion RMB by 2026 with a compound annual growth rate of about 25 percent, according to a development plan for the big data industry during the 13th Five-Year Plan period (2016-2020) released by the Ministry of Industry and Information Technology (MIIT) on November 19.

The plan also proposes to primarily establish an evaluation system for data element value, which will accelerate the development of sci-tech achievements.

The country aims to enhance the sci-tech innovation strength, which will help improve the efficiency of commercialization of sci-tech achievements.

Visitors take a close look at the lunar samples at an exhibition highlighting China’s sci-tech development during the 13th Five-Year Plan period. (PHOTO: VCG)
Emerging Role of the Circular Economy on Green Development

Edited by QI Liming

According to the International Institute for Sustainable Development (IISD) in Winnipeg, Canada, businesses will play a critical role in the path to decarbonization. However, to date, few nationally determined contributions explicitly identify circular actions as a key strategy to reach net-zero by 2050.

Ken Move from the World Bank Group, Hans-Joachim Sch prefer to shut their borders. That shows other countries are afraid of infections arising in their country. To such people, rather than rely on science, Jin Deng Yan, a scholar at the University of Hong Kong.

"The results suggest that virus countermeasures not only effectively controlled China's COVID-19 but also brought about unintended and substantial public health benefits," the researchers noted.

With more definitive data on Omicron's ability to sneak into the immune escape variants, more countries are确立 their stance on COVID-19 policies. The study published in Nature.

As the Omicron variant swept the world, it became clear that the traditional approach of lockdowns and travel restrictions was no longer effective. Many countries, including China, adopted a new strategy focused on preventing the introduction of Omicron and rapid response to any outbreaks that did occur.

India, Brazil, and other countries that had previously been successful in controlling the spread of COVID-19 found that they were unable to contain the Omicron variant. This led to a tightening of travel restrictions and a reinstatement of lockdowns in many areas.

China, on the other hand, quickly rolled out its own Omicron strategy, focusing on early detection and rapid response. By the time Omicron arrived in China, the country had already developed and implemented a comprehensive system for detecting and responding to new variants.

The rapid response strategy, known as "Zero Tolerance," involved mass testing, isolation of positive cases, and strict quarantine measures. This approach allowed China to keep the Omicron variant at bay and maintain economic activity.

China's success in controlling Omicron has been attributed to its strong testing capacity, effective contact tracing, and strict quarantine measures. The country has also been able to quickly adapt its vaccination program to include the Omicron variant vaccine.

China's experience during the Omicron outbreak has been a reminder of the importance of preparedness and readiness for future pandemics. The country's response has served as a model for other countries looking to learn from China's experience.

As he explained, the nuclear heating system is a key component of the circular economy, as it involves the recycling of waste materials and the production of clean energy.

In the United States, for example, the Department of Energy has been working to develop advanced nuclear heating systems that are more efficient and environmentally friendly.

China has also taken steps to promote the circular economy through policies such as the circular economy plan launched in 2018, which aims to reduce waste and promote the recycling of materials. These efforts have helped China to become a leader in the circular economy.

As YU Haoyuan observed, China's success in controlling Omicron demonstrates the importance of the circular economy and the need for countries to invest in sustainable technologies that can help them adapt to future pandemics.

The role of the circular economy on green development is likely to increase in the future, as countries seek to reduce their carbon footprints and promote sustainable growth. The experience of China during the Omicron outbreak is a reminder that the circular economy is an essential component of any long-term strategy for a sustainable future.
Real China through a Canadian Professor's Eyes

By LONG YUN

Professor Abdul Ghani Razaqpur, a world-renowned Canadian scholar in engineering, joined Nankai University as a teacher in 2017.

His China journey actually started 34 years ago. Over the past three decades, he has witnessed tremendous changes in China but something hasn't changed in his eyes: the kindness and hospitality of Chinese people.

Science and Technology Daily recently spoke to Razaqpur to learn more about his life in China and got an insight into his views on the research and application of the eco-friendly and energy-saving buildings and ecological materials.

Why China?

When asked why he chose the city of Tianjin as the destination in China, Razaqpur joked about the comfortable weather. "This is home, I am a Canadian," he quipped, alluding to the climatic similarities between the two.

He said he was impressed by his Chinese co-workers' attitude, research, and their excellent opportunities and material support.

"It would not be an exaggeration to say this [China] is the center of gravity of the world's economic, technological, and cultural development," he said.

New Opportunities from China's development

Several years ago, Razaqpur's friends and colleagues had shared their doubts about his decision to go to China. "What would I be afraid of in China? From the Premier to the ordinary people around me, everyone I have met in China has never said a bad word about me or Canada. They are appreciative of interacting with others," he said.

Given that the false information about China permeated through many Western media, Razaqpur proposed that more people-to-people exchanges and communication can help others to see the real version of China's stories. He said people who have lived in China need to be telling the international community that China is more than just politics, adding that some media and organizations fabricated a negative image of China because they can profit from it.

Razaqpur added that anyone interested in peace and prosperity and those hoping to live a good lifestyle, should be interested in China. His development will give rise to new opportunities for cooperation and exchange. "I have fitted from China's prosperity," he said.

Razaqpur was also concerned with how to use different building materials to store energy. He especially took phase change materials which absorb or release large amounts of so-called "latent" heat as an example to store solar energy, applying it in real settings when releasing latent heat.

Razaqpur and his team are experimenting in this field, and seeing promising results. He noted that the industry is facing the challenge of increasing need for construction companies to take risks to apply new research findings in order to minimize the carbon footprint.

He is, however, optimistic about the cooperation in the science-tech field between China and Canada, saying science and technology are mutually beneficial for both countries, who share the same concerns and benefits from the changes of climate. Sharing experiences and knowledge is the way to go, he said.

Through his efforts, the National Research Council of Canada signed a cooperative agreement with Nankai University, the first in the world that the cooperation has signed with a university.

Professor Abdul Ghani Razaqpur is a recipient of the Chinese Government Award for his contributions to international cooperation.

By Pronkina Olga

I am from Russia and currently working at Graduate University of Political Science and Law. I was awarded the title of ‘advanced individual in the first 15th anniversary of the Dunhuang Cultural Expo’ and the Dunhuang Award by the People’s Government of the Gansu Province in 2019 and 2020 respectively. In 2020, I was recognized as a foreign Expert and taken by the Ministry of Human Resources and Social Security.

Since coming to China in 2010, I have had a fulfilling working time, living and growing among the Chinese people, having witnessed the rapid changes in the city of LanShou, the strong rise of Gansu province out of poverty and the rapid development of China’s economy and infrastructure. More recently, it was amazing to get a first-hand experience of the remarkable way the Chinese government led the nation to fight the pandemic as it reached the country, and watching the humanitarian act of China proved that the outstanding role that China plays in the world.

I have often heard my Chinese colleagues say that all of this is due to the strong and correct leadership of the Communist Party of China (CPC). Not having put much attention to the CPC in my short few decades or so, perhaps because of being a foreigner, after experiencing the pandemic in China and the change of Gansu province out of poverty, I have often wondered why the Communist Party of the Soviet Union failed to lead the Soviet Union to its future and, instead ended up with "deconstruction". I think the story of how the CPC led the Chinese people through 100 years of hard work and struggle and gradually embodied on the road to great rejuvenation.

Pronkina Olga is a Russian teacher at Chinese University of Political Science and Law.

By Staff Reporters

Three more Chinese ancient irrigation sites have been selected as World Heritage sites.

Granted by the International Committee on Irrigation and Drainage (MICE), the World Heritage Site of the Li Jun Jiao Guanyu Irrigation System, the Liu River Irrigation System featuring the ancient irrigation system, and the Sengs Water Storage and Irrigation System have brought the total number of China’s World Heritage Sites to 56.

The Li Jun Jiao Guanyu Irrigation System was created in the 19th century and covers an area of 10,000,000 meters squared. It is the highest of the sites.

Liu Xiaoying, the technical support team member of the Sengs Water Storage and Irrigation System, said the Water Storage and Irrigation System is the most conservatively maintained to have more than 400 reservoirs still in use, in which has become a remarkable cultural treasure, counting for about 50 percent of the total population of the Xinjiang Autonomous Region. Today, the irrigation system still uses the ancient engineering structures and management methods. In addition to the technological, historical, and cultural values it still brings the economic and social development of this vast city and Xinjiang.

According to Liu, the irrigation system, built at high-altitude and in a very cold region, recorded a remarkable chapter in the history of water conservation engineering. It adopted various traditional methods to adapt to the local conditions and developed the corresponding management system. The system has been an important capital for the historical and philosophical studies of the whole world.

The reservoirs still in use play an important role in developing Slingshot City into the “Himalaya Region of the World” and with the highest eroded soil in Xinjiang for those same reasons.

Due to the unique natural climate conditions, irrigation has become essential for developing China’s arable lands.