

# Belt and Road Initiative Goes Green

By ZHONG Jianli

China is expected to advance the green development of the Belt and Road Initiative (BRI), strengthen international cooperation with relevant countries, and make green a defining feature of the initiative, according to a guideline issued recently by the National Development and Reform Commission and three other departments.

The country aims to deepen international cooperation on ecological protection and climate change under the BRI by 2025, and form a green development pattern for the initiative by 2030, said the guideline.

In recent years, China has already made great efforts in promoting the green development of the BRI. It has signed more than 50 documents with countries and international organizations along the BRI to deepen cooperation on ecological protection, renewable energy, and transformation of traditional industries.

The new policy proposes to strengthen cooperation among BRI countries in nine aspects, including infrastructure connectivity, energy, finance, science and technology, and climate



The China-Belarus Industrial Park in the outskirts of Minsk, capital of Belarus. (PHOTO: XINHUA)

change.

Regarding green energy cooperation, China encourages enterprises involved in solar and wind power to present best practices of green energy application in other countries. Joint research and training programs on high-efficiency, low-cost renewable energy, advanced nuclear power, smart grid, hydrogen en-

ergy, and energy storage should be carried out, said the policy.

In terms of reinforcing green sci-tech cooperation, the guideline calls for more efforts to make breakthroughs in development and application of green technologies, give full play to the role of the Belt and Road Science, Technology and Innovation Cooperation Action

Plan, and support joint cooperation in building networks and bases for developing green technologies.

To respond to climate change, BRI affiliated countries should strengthen dialogues and cooperation with each other, and promote the establishment of a fair, reasonable and win-win global climate governance system, the guideline suggested, noting that China will push forward the construction of low-carbon demonstration projects overseas, and provide aid for relevant countries to enhance their abilities to cope with climate change.

Green investment and financing cooperation have yielded positive results. The Asian Infrastructure Investment Bank and BRICS New Development Bank initiated by China, are both committed to providing financial support for developing low-carbon and environmentally friendly projects. In future, such efforts will be further strengthened.

In addition, to implement projects abroad, Chinese enterprises should raise awareness of environmental risks, conduct assessments to identify potential environmental impacts, and take effective measures to protect local environment, according to the guideline.

# Big Breaks for Innovation-based Private Enterprises

By CHEN Chunyou

In early April, the Ministry of Science and Technology (MOST) and All-China Federation of Industry and Commerce (ACFIC) held a meeting centered on supporting private sci-tech enterprises in growing to be national leading enterprises and world-class enterprises.

**Private enterprises further recognized**

Wang Zhigang, minister of science and technology, said private enterprises have become an important component of the national innovation system and promoted sci-tech innovation and the development of the high-tech industry in China. It is a realistic option to cultivate some of the enterprises with leading sci-tech capacity as a national strategic sci-tech force, to realize self-reliance and self-improvement at higher levels.

In recent years, a number of private

enterprises have continuously increased R&D investment, taken the lead in undertaking national sci-tech tasks, and played an important role in making breakthroughs in key and core industrial technologies. Their status and role as strategic sci-tech forces have become more prominent, said Wang.

MOST will continue to improve the innovation capacity of private enterprises and increase support in innovation base building, talent development and research investment, said Wang, adding that the policy guidance and service should be strengthened, creating a stable, transparent and controllable development environment for them, and enhancing their confidence for the future.

**Expectations for private enterprises**

Wang stressed that leading private sci-tech enterprises should be aware that they ought to be active in undertaking the responsibility to benefit the na-

tion. Their development strategy should be in line with the national development strategy, breaking through bottlenecks that restrict national economic and social security.

Wang said entrepreneurs should advocate entrepreneurship, aiming to be excellent entrepreneurs with global vision, professional quality and strategic insight.

MOST, coupled with ACFIC, will encourage development of private enterprises to be involved in the national strategy. The space for them to be innovative would be continuously optimized, while support for them as head of industrial chain would be given, helping them make further progress in becoming national leading enterprises and world-class enterprises.

**Incentives available**

Xu Lejiang, executive vice chairman of ACFIC, said the role of sci-tech

enterprises as innovation agents should be given due attention.

The two sides are expected to prevent and defuse risks that private sci-tech enterprises may encounter, pay close attention to the industries that are heavily affected by policies, and formulate personalized services and plans to support giant enterprises to become the leaders in their respective industries, said Xu.

This April, a tax rebate policy was released to help the sci-tech SMEs, meaning that the proportion of additional deduction for R&D expenses will be increased to 100 or 200 percent.

The tax reduction incentives undoubtedly reduce the enterprises' R&D investment costs and worries amid the COVID-19 period, encourage them to enhance technological innovation capacity, and further stimulate the innovation vitality of market entities.

## Policy Watch

# Promoting Int'l Sci-tech Cooperation Through Legislation

By CHEN Chunyou

To address common challenges facing humanity, such as food security, energy security, health and climate change, global sci-tech cooperation is required.

That requirement has been given legal teeth in the revised *Law on Progress of Science and Technology*, in which international sci-tech cooperation is included in a set of new articles, missing in the 2007 version of this law.

According to Zhang Yafeng, special research assistant at the School of Public Policy and Management, University of Chinese Academy of Sciences, sci-tech cooperation is an important aspect of China's opening up to the outside. The revised law is now more conducive to better carrying out research activities.

China has always been an advocate and a practitioner of international sci-tech cooperation. In this revised law, a variety of supporting measures are put forward.

For example, article 81 says the country encourages enterprises, public institutions and social organizations to establish platforms for international sci-tech innovation cooperation and provide related services. Zhang said the platforms generally cover four types, including setting up institutions and organizations, holding international conferences, sharing scientific resources, especially the large scientific facilities such as China's FAST, and initiating big science plans and projects.

The country would support research institutions, universities, enterprises, and researchers in becoming active participants or initiators of implementing international big science plans and projects, says article 82.

With the in-depth exploration of the unknown scientific world, there are more demands for high investment intensity, interdisciplinary collaboration, expensive facilities and instruments, and labor forces. It is difficult for one nation to meet all these requirements, so multinational cooperation is a must and can greatly enhance research efficiency, said Zhang.

Moreover, the big science projects offer a good platform that can attract and gather high-level sci-tech personnel from all over the world, which in turn

could drive China's sci-tech progress, and help China better participate in global sci-tech governance, said Zhang.

China will improve the mechanism for intellectual property protection, sci-tech ethics, and safety reviews in international sci-tech cooperation, according to article 82.

In this regard, Zhang said that the central government should introduce a general regulation to specify responsible departments and working procedures, and establish a disciplinary mechanism.

In addition, as the typical participants of international sci-tech cooperation, universities and research institutions should formulate their own regulations, in which the rights and obligations of foreign visiting researchers should be clarified, including the ownership of intellectual property output and the confidentiality obligations during the visit, said Zhang.

Universities and research institutions should also provide support services for their staff visiting abroad, such as assisting them in reviewing their visit and collaboration contracts, said Zhang, adding that researchers should also abide by the laws and regulations of the host countries during the overseas visiting period.

Article 83 says the country would encourage foreign enterprises and researchers in China to undertake and participate in sci-tech programs. Zhang said this will expand China's sci-tech circle of friends, and help China further integrate into the global innovation network.

With regard to the collaborative research achievements, Zhang said it is difficult to define the size of contribution of each participant. But the principles of equality, mutual benefit and mutual respect should be honored in determining the ownership. He suggested that the organizations and the researchers could sign a contract before cooperation to clarify the ownership and use of the research achievements.

The research institutions and other organizations are allowed to employ researchers from abroad based on their needs, says article 84, adding that these foreigners have priority in obtaining the right of permanent residence in China or acquiring Chinese nationality.



Initiated in 2007, the Zhongguancun Forum is a national platform for global sci-tech innovation. It focuses on cutting-edge trends and topics around the world, and facilitates the exchanges of ideas. (PHOTO: VCG)

# A Unified Technology Market Promoted

By LI Linxu

As part of a national effort, a unified domestic technology market will be built, according to a guideline released on April 10.

With a population of over 1.4 billion and a middle-income group of more than 400 million people, China's super-large market is unique in the world.

The market is the scarcest resource in today's world, said an official from the National Development and Reform Commission (NDRC), adding that the potential of the county's super-large market is still yet to be explored for

technology innovation and industrial upgrading.

With regard to the technology sector, the guideline proposes to accelerate the development of a unified technology market, citing measures such as establishing a national technology trading market, improving intellectual property evaluation and trading mechanism, and promoting the interconnectivity of a regional technology trading market.

Meanwhile, China will also take measures to elevate the sharing service system of sci-tech resources, encourage communication and interaction of sci-

tech information among regions, and promote the opening and sharing of major R&D infrastructure and instrument, as well as enhancing international cooperation in the field of science and technology.

Rather than promoting a closed domestic cycle, building a unified market will help domestic and international cycles reinforce each other by making effective use of global factors and market resources and better connecting the domestic market with the international market.

Efforts will be made to improve a unified property rights protection sys-

tem, implement a unified market access system, maintain a fair competition system, and optimize a unified social credit system.

In addition, the country will advance a unified commodity and service system, and improve the quality and standard system, said the guideline, which calls for making breakthroughs in a series of measurement technologies.

The guideline marks China's latest move to deepen market-oriented reforms and inject more dynamism into market entities, which will propel the country's high-quality development and sustainable growth.

## More Sci-tech Cooperation among SCO Members

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Chinese authorities therefore, have been optimizing the mechanism of sci-tech innovation in recent years to promote high-quality economic development, safeguarding people's lives and health, and improving the ecological environment, said Wang.

He said that, in the future, China will adhere to inclusive innovation and

enhance more exchanges and cooperation in the field of science and technology.

SCO Secretary-General Zhang Ming said in his opening address that the member states are committed to consistently promoting sci-tech cooperation in the SCO space.

During the meeting, participants coordinated the draft Programme of Cooperation on Artificial Intelligence be-

tween the SCO Member States, and the draft Action Plan on Scientific and Technological Cooperation in Priority Spheres for 2022-2025, which are to be submitted for approval to the SCO Heads of State Council meeting in September 2022, according to the SCO Secretariat.

They also approved the Mechanism for Implementing Joint Multilateral Research and Technology, and Innovation Projects within the framework of the SCO, and agreed to host the seventh meeting in India next year.

## World Record as Over 100 km of QSDC Realized

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Long Guilu, a professor in the department of physics at Tsinghua University, said that the new system lifted the maximum tolerable loss from 5.1 dB to 18.4 dB under the pulse-repetition rate of 50 MHz and the transmission distance from 18 km to 102.2 km. In addition, the system can communicate at 22.4 kbps through about 30 km of commercial fiber.

Long and his then doctorate candidate Liu Xiaoshu, proposed the first QSDC protocol in 2000. In 2019, Long and his team developed the world's first QSDC system, realizing a transmission rate of 50bps through 1.5 km of fiber. One year later, they released the first practical QSDC prototype at the Zhongguancun Forum, increasing the speed to 4 kbps in 10 km of fiber. Later in 2020, the transmission distance reached 18 km.

With this latest research result, point-to-point QSDC between cities is feasible through the application of current advanced technologies. However, there is still much space for the improvement of the new system in terms of pulse-repetition frequency, which could further enhance the corresponding transmission distance and speed, and satisfy the need for certain scenarios, according to Long.