

BRICS Promotes Globalization in New Era

Voice of the World

By Staff Reporters

Five years ago, the BRICS Xiamen Summit ushered in the second "golden decade" of BRICS cooperation. This year, the member states gathered again in China to foster high-quality partnerships and pool their strength for global development.

As a vital BRICS member, China has been contributing to global development for long time. In 2017, China was adamant that "BRICS is not a talking shop, but a task force that gets things done." Over the past five years, the country has organized a variety of BRICS Plus events in such areas as vaccine research and development, scientific and technological innovation, people-to-people exchanges and sustainable development.

Introduced to strengthen dialogue and cooperation between BRICS countries and other emerging economies and developing countries, BRICS Plus promotes the establishment of broader partnerships, and facilitates common development and prosperity on a larger scale, said *Financial Express*.

Since 2006, BRICS countries have proved to be a constructive force in modernizing economies and reallocating aid

resources to more deserving countries, according to Cavince Adhere, a Kenya-based international relations scholar.

Over the past sixteen years, the BRICS bloc has set up a series of cooperation mechanisms including the NDB, the Contingent Reserve Arrangement, the BRICS Business Council and the BRICS Partnership on New Industrial Revolution Innovation Center.

The BRICS Plus is broadly punted under China's chairmanship in 2022.

The BRICS Vaccine Research and Development Center was launched in March and an agreement to establish an early warning system for large-scale pandemics was approved by BRICS health ministers in May.

Earlier this month, BRICS economic and trade ministers pledged to deepen cooperation in fields including the digital economy, trade investment and sustainable development. Deepened cooperation has also been



Customs data shows that from January to May this year, east China's Qingdao port has completed a total of 830,000 TEUs to BRICS countries, a year-on-year increase of 12 percent. (PHOTO: XINHUA)

strengthened in areas such as aerospace, information and communications, environment, new energy, and biotechnology.

Vladimir Petrovskiy, chief research fellow at the Institute of Far Eastern Studies, Russian Academy of Sciences, said China's BRICS chairmanship in 2022 creates a favorable basis for the development of the BRICS Plus format, while Chinese representatives have already stated that they are considering the development of the

BRICS Plus concept in the context of interaction, including regional integration associations of the countries of the Global South.

Yersultan Zhanseitov, senior researcher on China from Kazakhstan, believes that the BRICS Plus, "Serves as an alternative form of interaction for developing countries," and that other large economies and developing countries will also put forward their proposals, while their opinions will be taken into account.

Chinese Scientific Research Ranks Among the Best

By Staff Reporters

The *Nature Index Annual Tables 2022*, released on June 16, examined the high-quality scientific research output of different countries and scientific research institutions in the field of natural sciences. It is a ranking of institutions and countries based on publications in a group of highly selective science journals.



Researchers from Shanghai Institute of Technical Physics under the Chinese Academy of Sciences analyze the simulation data of space environment in laboratory. (PHOTO: XINHUA)

Four of the top ten leading institutions come from China, and of those ten, only the Chinese institutions have shown an increase in adjusted Share (the metric used to order Nature Index listings) from 2020-2021, according to the annual tables.

The Chinese Academy of Sciences leads the institutional tables for the tenth consecutive year since the Index was established, with a share of 1,963.00 in 2021. This is more than double that of Harvard University, in second place, with a share of 910.93.

In the 50 fastest rising institutes, the top 31 are from China, compared with 2021 only two of the top 10 were Chinese institutions. This year just 10 of the 50 come from

outside China.

According to *Nature Briefing*, the latest results could be a sign that the Chinese government's long-term investments in science are beginning to bear fruit, and the country's strong scientific performance is likely to be sustained in the coming years.

Cao Cong, a science-policy researcher at the University of Nottingham Ningbo in China, said the growing investment in research and development, which accounted for 2.4 percent of the country's GDP in 2021, continues to be a factor in China's progress.

"The Nature Index Annual Tables show that China's investment in research through their large and now well-established institutions is resulting in sustained research output in the natural sciences. This year, their funding impact on their research growth stands out more when compared to the changes we have seen in other countries, particularly Germany, UK, France and Japan," said David Swinbanks, founder of the Nature Index.

Chinese contributions to world science journals improved greatly, said Niels Peter Thomas, China president of publishing house *Springer Nature*, at last year's Zhongguancun Forum, noting that it was really impressive how much Chinese research has accelerated on the world stage.

"Taking the *Nature* journal alone as an example, we can see that from 1997 to 2020, the number of articles that were connected with Chinese authorship or Chinese authors coming from research and institutions in China surged from 0.5 percent to 18 percent," said Thomas.

Apart from the investment in R&D, how did China achieve such a dramatic rise in quality science output in recent years? Hans Proebsting, a former road and traffic engineer gave the answer "diligence" in Quora, an online question-and-answer platform, adding that people would understand what he means after spending some time in college/university and working alongside a Chinese student.

Hi! Tech

Smart! Beijing's New Train Station

By JIAO Yang & QI Liming

As the largest railway hub in Asia and an important railway gateway in the capital, Beijing Fengtai Railway Station (Fengtai Station) was officially put into operation on June 20.

Fengtai Station is the first large-scale modern railway station in China that has the facilities to operate both ordinary speed and high-speed trains. Much innovation has been adopted in the design and construction of this railway hub.

1. High-speed railway runs on top while ordinary speed on the ground

Fengtai Station has a building area of 400,000 square meters with 17 platforms and 32 rail lines.

There are 11 platforms with 20 ordinary-speed tracks on the ground floor and six elevated platforms with 12 high-speed tracks. The station can accommo-

date up to 14,000 passengers waiting for trains at the same time every hour.

Running high-speed railways on the top floor has stricter requirements for bearing beams. The main structure of the station is reinforced with reinforced steel, that allows components that can be pressed or pulled by hand as the main structure of the steel structure.

The maximum section size of the steel-filled concrete tube pillars supporting ordinary speed railway yard is 4.55m × 2m. Meanwhile the maximum section size of the reinforced steel beam supporting high-speed railway is 5.6m × 1.4m, spanning 21.5 meters. The construction of a single super beam requires intensive binding of 252 longitudinal steel bars and nearly 2,000 stirrups.

2. Natural light source pouring down from the roof

The station is fully illuminated by

natural light during the day. The top roof is "lit" by a transparent strip, and in the waiting hall, natural light also pours down from the roof.

The design of the station uses a magic light guide technology, namely, flat panel lighting devices with double mode non-electric lighting system, which is commonly known as "light guide tube." Looking up from downstairs, it's like having electric lights on the roof.

On the floor of the high-speed terminal, the design team used a specially made light guide tube device, to channel natural light and sunlight into the waiting hall for illumination. From dawn to dusk, even on cloudy or rainy days, the light filtered into the room by the system is quite sufficient.

More than 200 light guide tubes provide natural light for the 10-meter-high waiting hall. The overall energy saving rate is expected to reach more

than 10 percent with this technology, saving about 950,000 kWh of electricity every year and reducing carbon emissions of more than 900 tons.

3. Smart construction makes stations intelligent, safe and efficient

Fengtai Station also has an intelligent brain. A monitoring system based on the Beidou unified time-space benchmark, has been set up to monitor the natural environment and the condition of the structures in real time continuously, such as glass curtain walls and corroded steel components.

It also integrates passenger management, passenger service, passenger equipment, emergency commands and other services of the station with intelligent control service, data analysis and AI service, intelligent audio and video analysis, so as to realize intelligent operation and management of the station.

Opinion

Innovation Drives Low-carbon Transformation

By LI He & QI Liming

Green and low-carbon economic transformation is the only way for countries to achieve sustainable development. Countries should follow the trend of scientific and technological reform and industrial distribution, promote the transformation and upgrading of their economy, energy and industrial structures through innovation, and explore a path of sustainable development featuring increased production, higher living standards and a sound environment.

Over one billion kW installed capacity of renewable energy

China is now the world's largest producer, consumer and investor in renewable energy. By the end of 2021, the installed capacity of renewable energy had exceeded one billion kW in China, accounting for about one third of the world's total. The country's power generation in the fields of wind, solar and biomass all rank first in the world.

China has formulated the "1+N" policy system. "N" includes 37 implementation plans, involving energy transformation, energy-saving, circular economy and, green consumption. Taxation, finance, and statistical assessments are also included.

In recent years, China's investment in renewable energy projects in countries and regions along the Belt and Road Initiative has increased, and a number of green, low-carbon and sustainable clean projects have been implemented to help these countries and regions in need. This promotes advanced green energy technologies and contributes green solutions to high-quality cooperation.

"As a responsible developing country, China takes addressing climate change as an inherent requirement of its own sustainable development," said Xie Zhenhua, China's special envoy of climate change.

New green products entering daily life

Through innovation, new green products have entered people's lives and play an important role in carbon reduction.

New energy intelligent vehicles

have reached a higher comfort level, and autonomous driving capabilities have gradually improved in China. In the first half of this year, the market share has reached nearly 20 percent, far beyond expectations.

Green innovation has accelerated the digitalization of high-carbon industries such as traditional energy industries, which has brought many new opportunities in addition to carbon reduction. As the world's largest consumer market for idle goods, more than one million things are sold on second-hand e-commerce trading platform Ordinary People (Xianyu) every day, according to Alibaba.

AutoNavi and Beijing Municipal Commission of Transport jointly launched the MaaS platform, guiding users to take buses, subways, and other green ways to travel, which has encouraged 4.2 billion green trips and completed 24,500 tons of carbon emission reduction transactions on AutoNavi.

Technical transformation is the ultimate solution to green transformation

Fundamentally speaking, technical transformation is the core of green transformation. To replace the original high carbon technology with low-carbon or zero-carbon green technology is the fundamental solution to green transformation. Through innovation, a significant reduction in the cost of addressing climate change issues can be achieved.

The cost of photovoltaic power has fallen by 80-90 percent over the past decade, with the potential to fall further. The reduction in costs brought by innovation has greatly enhanced the confidence and ability to deal with climate change.

Green and low-carbon technological innovations, and the use of more economic and scientific means will be applied to reduce pollution and carbon emissions.

"New clean technologies and markets are developing, including zero carbon steel, zero carbon finance, zero carbon buildings and zero carbon cities, as well as carbon technologies and products with the recovery of carbon dioxide," said Steven Guilbeault, Canada's Minister of Environment and Climate Change.



1. Aerial view of Fengtai Station. (PHOTO: VCG)



2. The lights pouring down from the roof through light guide tube. (PHOTO: VCG)



3. Intelligent diversion of passengers in the waiting hall. (PHOTO: VCG)