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International Cooperation

BRICS Expansion Signals Promising Future

Edited by LIANG Yilian

The BRICS membership doubled on January 1, from 5 to 10, after Saudi Arabia, Egypt, the United Arab Emirates, Iran, and Ethiopia joined the group of emerging-market nations.

For years, BRICS has witnessed concrete cooperation results in economic, political, scientific and cultural spheres, and continues to prosper in a spirit of openness, inclusiveness and win-win cooperation.

On the medical front, BRICS countries have established a research network for tuberculosis (TB), which has greatly promoted communication among policymakers and scientists and contributed to the global drive of ending TB, according to China's National Health Commission.

In addition, BRICS members explored more medical cooperation opportunities through a series of international conferences. Neuroscientists from five BRICS countries gathered in 2023 at the Neuroscience Symposium in Shanghai, and exchanged latest academic advances in the fields of brain function, brain mapping, sleep regulation, mental diseases, degenerative diseases and new techniques for brain research.

As emerging markets and agricultural powers, BRICS countries are an important force in ensuring world food security. To promote the high-quality development of agriculture, the countries turned to science and technology.

In June 2023, the "Chinese + Agricultural Science and Education Development Center" jointly built by South China Agricultural University and Brazil's Federal University of Mato Grosso was officially inaugurated.

Taking advantage of discipline construction and international resources, the center plays the role of a language bridge, and builds a platform for agricultural science and education cooperation.

On July 5, 2023, the China-Russia Soybean Joint Research Center was officially inaugurated. The center will promote the advantages of soybean science and technology and personnel resources of the two countries, creating an international soybean research platform of joint innovation and resource sharing.

Ethiopian Prime Minister Abiy Ahmed in November 2023 said Ethiopia's membership in the BRICS mechanism is advantageous as the group promotes the South-South cooperation framework.

Meanwhile, Saudi Arabia's Prince Faisal bin Farhan was quoted by Reuters as saying the BRICS group was "a beneficial and important channel" to strengthen economic cooperation.

According to Chinese Foreign Ministry spokesperson Wang Wenbin, China is fully confident in the BRICS' future, and BRICS expansion has shown positive prospects. He noted the BRICS cooperation mechanism has increased cohesiveness and influence, and become a positive and stable force for good in international affairs.

"We will work with BRICS partners to strive for new results in greater BRICS cooperation," Wang said on January 2.

New Graphic



A Long March-2C carrier rocket carrying a new astronomical satellite named Einstein Probe blasts off from the Xichang Satellite Launch Center in southwest China's Sichuan province on January 9, 2024. The satellite uses the "lobster eye" microarray focused imaging technique to accurately capture more distant and faint transient sources and erupting objects. (PHOTO: XINHUA)

Editor's Pick

Harmony Between Railway Construction and Natural Protection

By DU Peng & ZONG Shihan

In the cold of winter, the sleek speeding train is like a dragon, flying across Poyang Lake leaving ripples on the blue water's surface. The Hangzhou-Nanchang high-speed railway is now full-line operational, after the section connecting Huangshan city in Anhui province and Nanchang city in Jiangxi province officially went live on December 27, 2023.

Nearly 90 percent of the Huangshan-Nanchang section is elevated above lakes, plains, and hills. It passes through Poyang Lake, a habitat for Yangtze finless porpoises, Junshan Lake, a pollution-free aquatic products breeding base, and Jinxi Lake, a habitat of white swans. Protecting the beautiful ecological environment along the line has become an important task in the construction of the railway.

Reducing environmental pollution
"The construction environment

along the railway is complex. This did not mean the environmental protection requirements were reduced, but were in fact given priority," said Huang Zhirong, the technical director of the Huangshan-Nanchang section of the Hangzhou-Nanchang high-speed railway.

At the design inception, railway designers achieved maximum protection of the ecological environment through various technical means such as optimizing railway lines and bridge types.

Compared to the 32-meter continuous beams used in traditional railway bridges, the Huangshan-Nanchang section adopted the 40-meter simply supported beams to cross the lake area, which can reduce more than 230 piers and minimize the ecological impact on lake areas, said Huang.

The Huangshan-Nanchang section spans 8.8 kilometers across the Poyang Lake wetland, with some bridge piers located within the provincial-level nature

reserve of the salangid spawning ground. Throughout the construction process, workers transported all the mud, debris, and sewage outside. Mud boxes were used to prevent potential splashing of sludge and lake water pollution.

Protecting wild animals and birds

Poyang Lake is an important habitat for finless porpoises, which rely on sonar to communicate and are very sensitive to sound. In order to reduce disturbances to wild animals and residents along the line, the construction team used a noise-reducing reverse circulation drilling method for construction, and only scheduled high noise-level construction during daytime.

At the same time, sound sensors were installed at all temporary sites. The construction team assigned dedicated personnel to detect, analyze, and record noise emissions in real time, and took timely control measures to minimize noise impact on local life and the ecological environment. *See page 2*

Overseas Echoes

Stronger China-Sweden Sci-tech Cooperation for Global Well-being

By CUI Aimin
Chinese ambassador to Sweden

Recently, I've read a story that a Nobel laureate introduced about a special map of innovation. Each time a research was completed, he would express gratitude to all the team members in the laboratory, sometimes not only by announcing their names, but also taking out a world map and marking their birthplaces on it with pins. He exclaimed that such a map was quite spectacular, reflecting the rich geographical diversity of the team members who were from Asia, Europe and the Americas.

This anecdote shows that science has no borders. Major sci-tech innovation achievements have never been created by a single country or team alone, but are

the results of international cooperation. China and Sweden are similar in terms of innovation. Sci-tech innovation infused China's modern industrial system with strong vitality. In recent decades, China's innovation capability has achieved leapfrog development.

China climbed to the 12th place on WIPO's Global Innovation Index 2023, rising by more than 20 places in the past decade. Scientific research papers published by Chinese researchers accounted for 24.6 percent of the global total, and the number of valid Chinese patents reached 4.8 million, both ranking first in the world.

China has made a number of significant original innovations with international influence in the fields such as quantum technology, stem cells, and

brain-like chips. Sweden is a leading country in sci-tech innovation. It has been top-ranked in the Global Innovation Index and the EU innovation scoreboard for years, maintaining a leading position in multiple fields such as life sciences and advanced manufacturing. It is one of the earliest countries in the world to implement environmental protection and to introduce the concept of sustainable development. Leading environmental products and technologies such as fossil-free steel, waste recycling and reuse, and sustainable energy from renewable sources have contributed to Sweden's sustainable development.

In the past decade, sci-tech innovation cooperation between Sweden and China has grown rapidly. *See page 4*

Space Advances To Be Expected in 2024

Edited by WANG Xiaoxia

In 2023, China made some major advances in space exploration. In 2024, the in-orbit China Space Station will welcome new "visitors," and the country will make the first ever attempt to collect samples from the far side of the Moon. Meanwhile, the commercial space industry is expected to continue the positive momentum made last year.

Four missions to Tiangong

Four missions will be concluded in the country's space program in 2024, namely the launches of the cargo craft Tianzhou-7 and Tianzhou-8, and the crewed spaceships Shenzhou-18 and Shenzhou-19, according to the China Manned Space Agency.

Among them, both Shenzhou-18 and Shenzhou-19 are composed of three crew members, which means that the space station will see two in-orbit "shifts" this year, and six astronauts will work and live in the "space home."

As for the Tianzhou cargo craft, its loading capacity has reached 7.4 tons, making it one of the most powerful cargo spacecraft in the world. When Tianzhou-7 is launched, the in-orbit inventory and the cargo craft's supplies combined can support the crew for one year.

Collecting samples from the Moon's far side

As one of the science events to watch for in 2024, selected by the journal *Nature*, China's lunar probe Chang'e-6 will be launched to collect samples from the far side of the Moon, according to the China National Space Administration (CNSA).

Before the probe, the newly developed relay satellite Queqiao-2, or Magpie Bridge-2, will be launched in the first half of 2024, to support the communications between the Moon's far side and the Earth. After Chang'e-6, the satellite will continue to serve the Chang'e-7, Chang'e-8 and subsequent lunar exploration missions, said the CNSA.

It noted that the Chang'e-6 lunar probe will carry payloads from France, Italy, Pakistan and the European Space Agency, which include a negative ion detector and a radon gas detector. At present, China is leading the development of the International Lunar Research Station to promote international cooperation in lunar exploration. *See page 2*

WEEKLY REVIEW

Chinese Products Shine at CES 2024

The 2024 Consumer Electronics Show (CES) kicked off in Las Vegas, U.S. on January 9, with over 4,000 exhibitors from all over the world. More than 1,100 Chinese companies participate in this year's CES, covering various categories of the consumer electronic industries, including well-known brands Lenovo, BOE, Hisense and TCL.

Over 400 Million Tonnes of Grain Purchased in 2023

China maintained its grain purchase level at over 400 million tonnes last year while its grain output achieved another bumper harvest in 2023, ensuring abundant stocks, according to the State Grain and Reserves Administration on January 9.

World's Largest Container Ship on Trial Voyage

The world's largest container ship, the OOCL Valencia, departed for sea trial on January 9 through the Nantong section of the Yangtze River. It is the first ship of its kind completed in China in 2024.

Researchers Publish Map of Human Limb Development

A research team from the Zhongshan School of Medicine at Sun Yat-sen University innovatively used single cell transcriptome technology and single cell spatial transcriptome technology, making it possible to explore the cell evolution process. The study has been published in the journal *Nature*.

WECHAT ACCOUNT



E-PAPER



Lancang-Mekong Cooperation for Subregional Development

Policy

By CHEN Chunyou

China's Ministry of Commerce (MOFCOM) and the economic and trade authorities of the five ASEAN member countries the Mekong River runs through — Cambodia, Laos, Myanmar, Thailand and Vietnam — adopted the Five-Year Development Plan for Cross-Border Economic Cooperation Among Mekong-Lancang Countries (2023-2027) in December 2023. The plan was incorporated into the Nay Pyi Taw Declaration of the Fourth Lancang-Mekong Cooperation (LMC) Leaders' Meeting as an outcome in the field of economy and trade.

The plan aims to implement the consensus reached by the leaders of the Mekong-Lancang countries at the fourth LMC Leaders' Meeting on promoting economic and trade cooperation.

The LMC is a new type of subregional cooperation mechanism to promote peace, stability and sustainable development in the region. The plan identifies enhanced connectivity, production capacity cooperation, cross-border economic cooperation, water resources, agriculture and poverty reduction as the key areas of cooperation.

MOFCOM said, "This holds great guiding significance for economic and trade cooperation among Mekong-Lancang countries, and will further enhance the level of cross-border economic cooperation among member countries and promote the integrated development of



A view of the China-Laos Railway's Ban Ladhan Mekong River Super Major Bridge, located some 230 km north of Vientiane, Laos. (PHOTO: XINHUA)

the sub-regional economies."

As per the plan, in order to establish a vibrant innovation ecosystem, a framework for cooperation in science, technology and innovation in the Mekong-Lancang region will be developed, and R&D, application, commercialization and technology transfer will be promoted in mutually agreed key areas. Innovation corridors will be established to support industrial development of the subregion, especially in border areas and special economic zones.

Efforts will also be made to promote cooperation in technologies and research related to the development of a bio-cycling green economy. This includes promoting technologies and innovative solutions for transitioning to a cir-

cular economy, and achieving carbon neutrality and net-zero emissions.

Moreover, measures will be taken to deepen cooperation in satellite development and satellite ground stations, with the goal of enhancing the space capacity of Mekong-Lancang countries.

The countries are also welcome to participate in the International Lunar Research Station and cooperate at different levels and stages, including joint demonstration, mission design, technical cooperation and payload ride.

In addition, based on the needs of each country, action will be taken to promote the application of advanced space technology in sectors such as agriculture, forestry, safety production, road

transport management, disaster prevention and mitigation, weather forecasting and urban management. A Lancang Earth observation data cooperation center will be established to facilitate the use of relevant technologies in these sectors, and ensure that all countries have equal access to information.

Young people from the Mekong-Lancang countries will be supported to apply for the atomic energy scholarship program and pursue postgraduate education in nuclear science and technology in China.

Enhancing cooperation on digital economy, public health, energy, climate change and environmental protection is also on the agenda, according to the plan.

Xinjiang's Fabulous Winter Wonderland for Skiers

By GONG Qian & ZHU Xi

"It is really a great experience," a snowboarding lover, surnamed Bin, told *Science and Technology Daily (S&T Daily)*.

As a beginner, Bin has chosen the Jiangjun Mountain Ski Resort in Altay, Xinjiang Uygur autonomous region in northwest China, for his first try at snowboarding.

It took him over 10 hours of flight to arrive at Altay from Nanning, capital of Guangxi Zhuang autonomous region, a distance of about 4,300 km.

"The resort is very close to downtown Altay, taking 10-odd minutes of driving," Bin said. "So it is very convenient for us newbies."

The Jiangjun Mountain Ski Resort has become an ideal skiing destination in recent years. A series of entertainment projects, dining services, guest houses and other facilities have been constructed and upgraded to give snow enthusiasts a better skiing experience. It has welcomed a large number of tourists since the opening of its ski season in November 2023.

Shi Zhiqiang, deputy general manager of the Xinjiang Altay Tourism Group, told *S&T Daily* that 72 ski trails have been built to cater to skiers with different ability levels.

Le Wen, a veteran snowboarder, comes to Altay every year to enjoy the ice and snow. Her five-year-old son is learning snowboarding in the resort and Le thinks he has become braver and more capable of dealing with stress

since then. She is hoping her younger child will also fall in love with the sport.

After Beijing was chosen to host the 2022 Olympic Winter Games, ski sports have become hugely popular, especially among young people. Le has seen the number of skiers coming to Altay rising.

She has rented a house in the city to enjoy the snow season. "We're going to stay here for two months," Le told *S&T Daily*.

This year, the resort cooperated with Club Med Ski Academy from France, bringing in international coaches to train its certified ski instructors so that they can provide more specialized training courses, Shi said.

"I have been working in many different ski resorts in Russia and abroad like Finland and Austria. Compared with ski resorts in European countries, this is a good one. It looks really amazing," Russian coach Marina Denisova told *S&T Daily*. "I love the snow conditions of the resort. The slopes are well prepared and arranged."

It is Denisova's first visit to China. She will work in the Jiangjun Mountain Ski Resort for the whole 2023-2024 snow season.

The resort is also providing more new services such as electric music performances at sunset, offering skiers the charm of music, a beautiful scenery and skiing at the same time.

"The atmosphere is so pleasant and relaxing," said Bin, adding, "I'll definitely come back next year."



A coach teaches beginners how to ski at the Jiangjun Mountain Ski Resort. (PHOTO: GONG Qian / S&T Daily)

Upgrading Traditional Manufacturing Industries on Fast Track

By LI Linxu

As part of efforts to build a manufacturing powerhouse, China recently unveiled a guideline on accelerating the transformation and upgrading of traditional manufacturing industries.

The guideline was jointly released by eight government bodies, including the Ministry of Industry and Information Technology (MIIT) and the National Development and Reform Commission (NDRC).

As the main body of the county's manufacturing industries, traditional manufacturing industries are the foundation of a modern industrial system,

said an official from NDRC, adding that their transformation and upgrading are critical to enhance resilience of the industrial chain and supply chain.

Focusing on quality, efficiency and innovation, a series of goals were put forward in the guideline.

By 2027, the country's traditional manufacturing industries are expected to achieve notable progress in their high-end, intelligent, green, and integrated development.

Meanwhile, their position and competitiveness in the global industrial division will be further strengthened.

For industrial enterprises, the popu-

larizing rate of digital R&D and design tools is expected to exceed 90 percent, while the numerical control rate of key processes is on track to surpass 70 percent.

The intensities of industrial energy consumption and carbon dioxide emissions are also going to be continuously decreased.

By then, the water consumption for every 10,000 RMB of industrial added value will have been down 13 percent compared with that of 2023, and the comprehensive utilization rate of bulk industrial solid wastes could be more than 57 percent.

To achieve these goals, the guide-

line calls for upholding innovation-driven development, speeding up the application of digital technologies, and advancing intelligent manufacturing.

It also attaches great importance to the green and low-carbon development, promoting industrial convergence, and building a favorable development environment.

In recent years, significant achievements have been made in the transformation and upgrading of traditional manufacturing industries.

Latest statistics show that value added of traditional manufacturing accounts for about 80 percent of the country's manufacturing industries.

Digital Engine for Common Prosperity

By ZHONG Jianli

Chinese authorities recently released an implementation plan for promoting common prosperity through the digital economy, aiming to address the imbalance in development and share

digital dividends among all the people.

The introduction of the plan comes at a time when the digital economy is playing a pivotal role in fostering a more equitable and inclusive economic landscape. The plan sets out comprehensive objectives and practical measures to har-

ness the potential of the digital economy in narrowing the developmental gaps across various sectors.

Over the past decade, new technologies such as big data and AI have empowered various industries, leading to significant productivity gains and streamlined processes.

According to statistics, intelligent manufacturing projects have shown an average 48 percent increase in production efficiency, a 38 percent reduction in product R&D periods, and a 35 percent decrease in product defects.

The plan stresses the role of digital infrastructure in promoting equal access. China now has over one billion Internet users and the Internet penetration rate has exceeded 76.4 percent. Rural areas in particular have seen a penetration rate surpassing 60 percent. The availability of diverse software also now facilitates equal access to opportunities, while the circulation and application of data assets enable various innovation entities to participate in creating new formats and models.

The plan outlines four practical

measures aimed at narrowing gaps and advancing coordinated development.

- It seeks to promote coordinated regional digital development, bolster digital infrastructure, and foster industrial collaboration to reduce regional disparities.

- It emphasizes the development of digital villages to bridge urban-rural gaps by promoting digital agricultural infrastructure and enhancing digital governance.

- It focuses on nurturing digital talent and ensuring employment through continual enhancement of digital literacy and skills for vulnerable groups.

- It aims to improve the equitable supply of essential public services by facilitating the sharing of quality digital education and healthcare resources and expanding digital social security services.

By prioritizing the digital economy as an engine for common prosperity, China is positioning itself to leverage technological advancements for widespread and inclusive progress in the country's socioeconomic development.

Space Advances To Be Expected in 2024

From page 1

Nurturing commercial space industry

Recently, construction work was completed on the No.1 launch pad of China's first commercial spacecraft launch site in Wenhang, Hainan province, marking a key step forward in China's commercial space industry development.

The commercial space industry, as one of the strategic emerging industries, will be prioritized in 2024, according to the annual Central Economic Work Conference held last December. This year, the Hainan commercial spacecraft launch site is expected to carry out its first commercial spaceflight mission.

Harmony Between Railway Construction and Natural Protection

From page 1

In addition to finless porpoises, various rare birds are also regular visitors to the Huangshan-Nanchang section. Every autumn and winter, tens of thousands of migratory birds from all directions gather in Poyang Lake, including white cranes. At that time, stable pillars supporting the railway's power contact network became favorite places for migratory birds to visit.

In order to protect migratory birds from being injured by high voltage electricity and avoid contact network tripping caused by objects such as bird nests, builders installed reflective bird deterrents on all important contact network pillars.

At the same time, the team also used an intelligent monitoring platform to dynamically monitor and analyze various important equipment along the line during bird migration, and timeously discover bird nests in the process of being built. The young workers in this section also spontaneously formed a migratory bird protection team to learn emergency treatment measures for injured birds and strengthen promotion of migratory bird protection.

Now that the Hangzhou-Nanchang high-speed railway has commenced full operation, Huang is looking forward to seeing the ecological beauty of the harmonious coexistence of finless porpoises, white cranes and high-speed trains.



Staff check Miao embroidery products made via the digital production platform in southwest China's Guiyang city where the Miao ethnic group lives. (PHOTO: XINHUA)

INSIGHTS

China-U.S. Sci-tech Cooperation Needs Repair, Not Persecution

Comment

Edited by TANG Zhexiao

January 1, 2024 marked the 45th anniversary of the establishment of diplomatic relations between China and the United States. With many highs and lows, the relationship has come a long way over the years.

According to China's Ministry of Foreign Affairs, bilateral trade surged from less than 2.5 billion USD in 1979 to close to 760 billion USD in 2022, two-way investment increased from almost zero to over 260 billion USD, and 284 pairs of sister provinces, states and cities were set up. The two countries have also carried out many instances of useful cooperation on various global issues.

At the summit meeting in San Francisco last November, President Xi Jinping and President Joe Biden reached over 20 deliverables in such areas as political affairs and foreign policy, trade and finance, people-to-people exchange, global governance, and military and security. They advanced a future-oriented San Francisco vision, which points the way forward for bilateral relations.

The Sunnylands Statement on Enhancing Cooperation to Address the Climate Crisis, jointly issued by China and the U.S. in November 2023, committed to implementing the Paris Agreement, tripling renewable energy capacity globally by 2030, implementing respective national methane action plans, implementing technologies and measures to control greenhouse gas emissions and air pollutants, and supporting climate cooperation between



The APEC 2023 signs in front of the APEC 2023 International Media Center in San Francisco, the United States. (PHOTO: XINHUA)

states, provinces, and cities in each country.

The deal puts "some wind in the sails for global climate action," according to Alan Yu, the senior vice president for National Security and International Policy at the Center for American Progress.

The governments of China and the U.S. have been cooperating in areas of science and technology for 35 years, under the 1979 China-U.S. Science and Technology Cooperation Agreement.

Over these years, the Agreement has facilitated a complex government-to-government relationship, consisting of some 30 agency-to-agency protocols and more than 40 active sub-agreements and annexes between the techni-

cal agencies of the two countries in a wide range of fields including agriculture, energy, environmental protection, and public health.

Jenny Lee, a professor of higher education at the University of Arizona, told *Science Business* that the China-U.S. science and technology agreement is "largely a gesture of goodwill between the two countries to work together on scientific advancement in ways that benefit both countries."

Washington temporarily renewed the deal for six months in 2023, with so-called concerns over research data restrictions and national security threats. Stanford University physicists Steve Kivelson and Peter Michelson argued that the agreement should not

lapse. Instead every effort should be made to nurture open and transparent scientific cooperation.

The China-U.S. science cooperation needs repair, not persecution, said the U.S. magazine *Scientific American*, noting that science plays an enormous unseen role in keeping international avenues of contact open. One country's success is an opportunity for the other, and China and the U.S. can help each other succeed and prosper together.

"History shows that the growth of China-U.S. relations not only contributes to the good of the two peoples but also to world peace, stability and development," remarked China's Foreign Ministry spokesperson on January 2.

U.S. Should Change Its Distorted Perception of China

Opinion

By GONG Ting

On January 1, Dutch microchip machine manufacturer ASML said its government, at the request of the U.S., had revoked an export license covering the shipment of some of its equipment to China. This is a clear indication that the U.S. is making the process of global supply chains more ideological.

In recent years, containment in the high-tech field has been at the core of the U.S. strategic competition strategy towards China. In Washington's view, cutting off and restricting China's access to frontier technologies is key to preventing the rise of China's technological and comprehensive national strength.

From decoupling to de-risking, although the U.S. has realized that it is impossible to cut off economic ties with China in a globalized world, it is maintaining and even intensifying a high-tech containment policy towards China.

For instance, the U.S. has been continuously tightening its export con-

trol policies towards China. More and more Chinese high-tech enterprises were moved onto a series of export control lists—the entity list, prohibiting them from purchasing many high-tech products, components and services.

The U.S. is also identifying an increasing number of frontier technologies to bring them under the scope of strict restriction, such as semiconductors, artificial intelligence, and quantum tech. All points to its newly published policies in semiconductor export control towards China being extremely hawkish.

However, major U.S. semiconductor giants have expressed their dissatisfaction and opposition to such policies, since China is the world's largest semiconductor market and an extremely important sales market for these companies.

Additionally, the U.S. is also attempting to establish high-tech supply chains aiming at excluding China, especially in areas such as semiconductors, critical minerals, and electric vehicles. It is trying to change the logic of global division of labor in such industries based upon production efficiency, and is working towards so-called friend-

shoring among its allies.

Apart from this, a good number of measures hindering bilateral sci-tech exchanges and cooperation used in the Trump administration are being continued in the Biden administration. Such measures have brought about apparent harm to bilateral scientific cooperation projects and personnel exchanges. This is shown by the China Initiative of the U.S. Department of Justice and Federal Investment Bureau, creating a strong sense of fear among scientists, visiting scholars, and international students on both sides of the divide.

Recently, it seems that the U.S. made some adjustments in its policy overtones. Beforehand, the U.S. sent negative signals in regard to renewing the China-U.S. Science and Technology Agreement, which was a milestone in sci-tech cooperation between the two countries. In August 2023, the White House announced a six-month extension of the agreement, in order to negotiate renewal issues with China. Last month, U.S. Ambassador to China Nicholas Burns said he had started talks with Beijing on renewing the cooperation agreement.

In addition, China and the U.S.

have also reached a consensus on establishing an intergovernmental dialogue on artificial intelligence in November 2023. These moves may alleviate the tension in the high-tech field between the two sides in the short term.

However, it should be noted that as long as the U.S. government does not change its distorted perception of China, and does not change its strategy centered on competition with China, it will be difficult for the U.S. to make substantial adjustments to its containment policy in high-tech fields against China.

The International Science and Technology Cooperation Initiative put forward by China points out the direction for jointly building a global science and technology community. As human society is facing more and more global challenges, it needs science, technology and innovation cooperation to explore solutions to global issues, rather than artificial obstacle to undermine the common interests of the international community.

GONG Ting is an associate research fellow at the Department for American Studies, China Institute of International Studies.

The spray does not contain alcohol and other stimulating ingredients that harm the clothing material. So it is suitable for removing odors from cotton and hemp fabrics and textiles.

The product's curing factor and quadruple hydrolyzed protein can trigger the vitality of the fabric, effectively reducing instances of sweat and dampness.

In addition, the spray's unique aroma of essential oils softens clothing while reducing fiber friction and removing static electricity. The spray also has a strong anti-bacterial function. It can effectively prevent the re-growth of bacteria, meaning it is also useful in closets and vehicles.

Voice of the World

Big Tourist Number Reflects China's Economic Recovery

Edited by GONG Qian

Robust consumption, especially in the tourism sector, is playing a big role in China's accelerated economic recovery. Thanks to a multitude of supportive policies, the country's tourism market recovered steadily in 2023, and tourist arrivals and spending showed bright results, said *South China Morning Post*.

Unsurprisingly, tourism keeps fueling the economic momentum in 2024. Commenting on the outlook for China in 2024, China's online travel agency Trip.com Group's CEO Sun Jie told *Forbes* that she was upbeat about a continued recovery in China's travel industry this year — both for domestic travel and international inbound and outbound spending.

Results of the just concluded New Year holiday are self-evident, with tourism injecting life back into China's economy at the calendar turned over a new page. According to figures by Trip.com, the number of domestic travel orders for the New Year holiday increased by 168 percent year-on-year, while the amount of outbound travel orders increased by 388 percent during this period.

"Travel in China flourished over the three-day New Year's holiday, with 135 million domestic tourist trips, up 155 percent from last year, while domestic tourism revenue rose to 79.73 billion RMB," said Reuters, citing data from China's Ministry of Culture and Tourism. Tourism revenue tripled from the same period in 2022 and was up 5.6 percent from the New Year holiday in 2019.

During the New Year holiday, more than 128 million passenger trips were made on China's transport network, up 78.4 percent from 2023 and 33.1 percent from 2022, said Reuters.

In addition to the boom in domestic tourism and consumption, China has also made concrete efforts to boost cross-border travel in 2023, said *Economy Middle East*. For example, China has improved entry and exit procedures to

unilaterally expand the list of countries eligible for visa-free access.

In December 2023, 214,000 people from France, Germany, Italy, the Netherlands, Spain and Malaysia entered China, up 28.5 percent from November, according to China's National Immigration Administration.

The jump followed in the wake of a unilateral visa-free policy for ordinary passport holders from the above six countries, allowing them to enter China for a stay of up to 15 days without a visa, from December 1, 2023, to November 30, 2024. More than 77 percent of the ordinary passport holders via visa-free channels visited China for travel or business activities.

According to The Edge Malaysia, a leading financial news organization in the country, the relaxation of visa entry for tourists from China, India and Middle East countries and better flight connectivity will drive the resurgence in Malaysian tourism.

Apart from easing visa burdens, an increase in airline traffic between China and the U.S. is expected after the two countries' leaders agreed to increase the number of flights.

Starting from January 1, China simplified application documents required for tourist visas (L-visa). Travelers from the U.S. no longer need to submit proof for round-trip air tickets, hotel reservations, their itinerary or an invitation letter to apply for a tourist visa, as confirmed by the Chinese Embassy in the U.S., according to CNN.

"A faster than expected restoration of China-U.S. flights is a key catalyst for the recovery of international flights," Parash Jain, head of transport research for Asia-Pacific at HSBC Holdings, told the *Strait Times*.

With China continuously deepening its opening-up policies, both the country's inbound and outbound tourism will be significant in pushing for its economic growth.



Tourists enjoy ice and snow sports in Harbin, northeast China's Heilongjiang province. (PHOTO: VCG)

U.S. Limitations on Chinese Influence in Academia Risk Backfiring

Research Box

The academic decoupling of the United States and China began a little more than five years ago after U.S. government agencies began to crack-down on academic collaborations, fearing that close ties between American and Chinese universities, scholars, and scientists were threatening the national security of the United States.

Recent research has demonstrated that the Department of Justice's China Initiative curtailed U.S.-China academic collaboration, resulting in

fewer publications and patents for U.S.-based scientists, and increased the number of Chinese-born scientists seeking to leave the United States.

Restrictions and guardrails to protect scientific integrity and national security should be applicable to all, not based on ethnicity or national origin. Universities should work in tandem with government agencies to implement rules that are transparent and narrowly tailored to restrict certain types of research.

Mary Gallagher, *US Efforts to Limit Chinese Influence in Academia Risk Backfiring*, *World Politics Review*, 26-12-2023.

Green Odor Removing Spray Smells like Success

Hi! Tech

By QI Liming

In winter, it is very inconvenient to wash your down jacket and heavy coat frequently to get rid of lingering odors from barbecue and hotpot evenings. Fabric fragrance spray that removes odors and sterilizes garments could be a huge help in solving this and many similar frustrating life situations.

Now, a spray product with a range of floral and fruity aromas is available, using an odor removal factor extracted

from plants, which can decompose the odor at its source.

Different from covering the smell with a fragrance, the principle of this spray breaks down odors step by step.

The first step is to release the odor removal factor and effectively cover it, followed by locking up odor molecules, so as to inhibit the diffusion of smell. The third step is to lock in the fresh scent. All these steps can be realized immediately through one single spray.



PHOTO: VCG

Syrian People Aspire to Learn from China

Dialogue

By XU Qingqun & LONG Yun

Compared with his first visit to China in 2001, Dr. Hassan Risheh, a former minister of higher education of Syria, said on his visit in 2023 that, "The transformation in China is truly remarkable." Risheh has been committed to international cooperation for decades, focusing mainly on higher education. He said Syrian people aspire to learn from China's successes in this field.

A Syrian education reformer

During his position as the minister of higher education in Syria from 2000 to 2003, Risheh dedicated himself to educational and technological development. He designed and drafted a new strategy aimed at connecting higher education with all sectors of the Syrian economy.

The new strategy was to establish private universities in Syria, promote innovative educational methods such as digital learning and open universities, and establish numerous higher education institutions like the College of Business Administration and the College of Public Management. As part of the upgrade plan for the Syrian higher education system, he forged new academic connections with institutions worldwide.

In addition, Risheh has long been involved in some cooperation projects between Syria and multiple countries, having substantial international influence and academic reputation in fields such as information technology, higher



Dr. Hassan Risheh. (PHOTO: International Talent Magazine)

education, public management, and international relations.

Establishing bridge between Syria and China

On September 15, 2023, Risheh was welcomed by Fan Jiuli, the president of Northwest University of Political Science and Law in China. During the meeting, Risheh expressed his intention to assist in establishing a comprehensive bridge between the University of Damascus and Northwest University of Political Science and Law. During his visit, Risheh toured smart classrooms and delivered a lecture on promoting people-to-people exchanges around the world.

On his 12-day visit to China, Risheh and his Chinese counterparts facilitated

the strategic cooperation agreement between the two universities.

"The Syrian people have always regarded the Chinese people as brothers, holding great respect for China and aspiring to learn from its successful experiences," he said.

During his first visit in 2001, he witnessed China's economic success through visits to economic zones, observing the digitization of many ports. Inspired by the Chinese spirit of innovation and reform, he suggested establishing similar economic zones in Syria. He was keen to draw inspiration from China's advanced social development experience, fostering mutual understanding and trust between the people of

China and Syria.

Enhancing international cooperation

Historically, the spirit of the Silk Road, characterized by peace, cooperation, openness, inclusiveness, mutual learning and mutual benefits has been passed down, pushing human civilization forward and fostering prosperity among countries along the route.

According to Risheh, the Belt and Road Initiative (BRI) will enhance cooperation between Syria and China in various fields, such as infrastructure, advancing collaboration not only between the two countries, but also with neighboring countries.

Risheh, who has witnessed the long-standing cooperation between China and Syria, believes this collaboration has also driven in-depth cooperation in many fields, especially in the educational sector.

For example, an online Arabic language education platform has been established for Chinese residents in Syria. Risheh hopes to extend this model to Chinese language education, creating a platform for people in the Arab world to learn Chinese.

He values the importance of language as the key to breaking down barriers, facilitating cultural exchange, and truly achieving a "common understanding of the people." Fluent in Arabic, English, French and Russian, Risheh also knows he needs to learn Chinese to further excel in his area of work. He firmly believes that online education in Arabic and Chinese should be integral to construction of the BRI.

Article written in cooperation with International Talent Magazine.

Tech for Better Life in China

A Greener Future from Eco-civilization

By Staff Reporters

In a recent interview with *Science and Technology Daily*, Professor Michael Meadows, a prominent physical geographer and educator at Nanjing University's Geography and Ocean Sciences School, shared his insights on China's ecological development and the significant strides it has taken in environmental protection.

"There's been huge progress in China's ecological development and it's not even only recently," said Meadows, highlighting tangible actions undertaken by the Chinese government. He noted that China has made substantial progress, both historically and in contemporary times.

Earlier this year, Meadows co-authored a paper on environmental sustainability with experts from Beijing Normal University. The paper documented environmental protection measures by the Chinese government, dating back to the 1970s, particularly focusing on soil conservation. "We're seeing huge improvement in land use and management in rural areas of China," he said, underscoring the profound impact of these policies on environmental sustainability and improving people's livelihood.

He also pointed out that China's achievement in poverty eradication is noteworthy, which is accomplished in part through environmental conservation efforts. "China is the only country in the world that's eradicated extreme poverty," said Meadows, emphasizing "the twin benefits of looking after the environment, in particular the soil, are improving the productivity and the livelihoods of the people who are working on the land."

Expressing personal admiration for China's policy-level achievements, Meadows

lauded the concept of "eco-civilization" or ecological civilization, a vision he believes is gradually becoming a reality.

"In China, the air quality has massively improved compared to what it used to be," Meadows said, dispelling misconceptions about the country's air conditions. As a jogger, he fully experiences the air quality in Nanjing and other cities around the world. He acknowledged the progress China has made in addressing air quality, a concern often raised by people in Western countries. He often shows his friends that Nanjing's air quality is better than that of other cities like London via a weather app. "There are still places from time to time where pollution concentrates, but on the whole, there's been huge progress made," he said.

China's commitment to carbon neutrality by 2060 and the increased share of renewable energy in its national energy structure were also highlighted by Meadows. He commended the efforts to phase out consumption of coal mines and increase the number of electric vehicles powered by renewables despite challenges.

"We could work faster and harder" Meadows said, emphasizing the importance of continuous efforts in environmental protection. While expressing his optimism about China's future, he applauded the progress the country has made and encouraged further advancements in the realm of environmental sustainability. As China continues its journey toward a greener future, the world is watching with keen interest the nation's evolving ecological achievements, he said.

ZHANG Rong and JIANG Peiye from Nanjing University also contributed to this article.

Service Info

Shanghai Launches New Portal for Foreigners

By Staff Reporters

Deciding where to go in Shanghai has just become much easier. Clicking on the new version of the Shanghai international service portal (english.shanghai.gov.cn), foreigners not only find the Seven Must-Visit Attractions in Shanghai, but can also access the country's specialty restaurants' information recommended by foreign consuls general in Shanghai.

Called International Services Shanghai, the new website provides a variety

of information for foreigners traveling to and living in Shanghai.

Five landscapes have been designed, namely business, work, tourism, overseas study, and consumption. The portal also has a Living in Shanghai section, which uses scene simulations and corresponding service guides to effectively solve the various needs of foreigners, from express entry, applying for residence permits and bank cards, to necessities such as food, housing, and transportation.

Moreover, a series of offline activi-

ties, such as policy introduction sessions, business consultations, themed salons, cultural experiences, and learning and training events, will be organized to better serve and engage the expat community.

In addition to the English version, the website will soon be made available in eight other languages — Japanese, Korean, German, French, Spanish, Portuguese, Russian and Arabic.

(PHOTO: Shanghai Municipal People's Government)



Abacus: Chinese Counting Symbol

Traditional Eastern Wisdom

By ZONG Shihan

The abacus, a manually operated counting aid that originated in China, was hailed as "the fifth great invention in China" by Joseph Needham, a renowned British biochemist and historian. Before the advent of Arabic numerals, the abacus was a widely used counting tool globally.

For thousands of years, the ancient Chinese used simple objects for calculations in agriculture and commerce. Over time, counting rods replaced randomly picked up stones and bones used for calculations. Then, the abacus replaced counting rods, and finally the seven-bead abacus replaced the five-bead abacus.

The discovery of counting rods made of animal bones in ancient Han tomb indicates that as early as the Western Han Dynasty (206 BC- 24 AD), the Chinese used wooden or bones rods for calculations. However, the shape of the rods had to be constantly changed during calculations, which was very time-consuming. So they were gradually developed into the abacus.

The early abacus used small round beads instead of long rods, which were comparatively clumsy. The beads were strung into strings with rods, saving cal-

culating time. Over time, the number of beads increased, leading to the seven-bead abacus from its five-bead predecessor to adapt to the hexadecimal system.

The existing abacuses have different shapes and are made of different materials. A typical abacus is mostly made of wood and consists of a series of beads arranged in a rectangular wooden frame. A crossbeam in the middle divides the beads into two parts. Each bead in the upper half represents five, and each bead in the lower half represents one. Each string of beads represents the values of ones, tens, hundreds, thousands, and tens of thousands from right to left.

As it was simple to make, affordable, and easy to use, the abacus was widely used in China, from where it gradually spread to countries and regions such as Korea, the U.S. and Southeast Asia.

In today's era of computers and other electronic devices, although few people use abacuses, it has become a symbol of counting in China. In recent years, it has often appeared on postage stamps and postcards. It is also part of some special occasions.

For instance, "Zhuazhou" is a traditional Chinese celebration of a child's first birthday when several objects are placed before the child to choose. The chosen object is supposed to indicate the child's future career. The abacus is among these objects, representing business or wealth.



A child plays with a giant abacus at Mozi Memorial Hall in Tengzhou city, Shandong province. (PHOTO: VCG)

Stronger China-Sweden Sci-tech Cooperation for Global Well-being

From page 1

China has become one of Sweden's most important scientific research partners. Shortly after the outbreak of COVID-19, 50 experts from the two countries quickly set up a joint research and treatment team to conduct multicenter international clinical trials.

The leading life-science research institutes of both countries have been deepening cooperation in clinical treatment and disease research to jointly address global health challenges and make greater contributions to global health.

Both countries' universities and research institutions have been actively cooperating and exchanging personnel in natural sciences, engineering technology, especially environmental protection, smart cities and clean energy.

In recent years, the number of papers they have jointly published has doubled, and the impact factor has grown. Several technologies developed through

joint research have become world-leading. The new solar energy storage and power generation system developed by China and Sweden can store the captured solar energy up to 18 years and convert it into electricity.

China is also one of the key collaborators of Swedish research funding agencies. The research foundations of the two countries have deepened policy dialogue and exchanges, jointly promoting R&D of high-quality sci-tech innovation achievements.

The cooperation in scientific and technological industries between the two countries has continued to expand and unleash new vitality, making contributions to the global reduction of emission and the carbon footprint, while promoting sustainable development.

Atlas Copco, AstraZeneca, Scania trucks, Sandvik and many other large Swedish technological manufacturing enterprises have invested in setting up factories and establishing R&D centers in China. A series of investment and co-

operation projects have been successfully established in the fields of automobile manufacturing, energy conservation and environmental protection and smart cities.

Sweden's leading enterprises in new energy and new materials have accelerated their cooperation with Chinese firms. Scientific and technological cooperation in clean energy is burgeoning. The China-Sweden Hammarby Eco City Alliance has set up its first ecological city pilot in Yantai, China's Shandong province.

China has launched the Global AI Governance Initiative, upholding the principles of mutual respect, equality, and mutual benefit in AI development. The country for the first time proposed the International Science and Technology Cooperation Initiative, advocating and practicing the concept of open, fair, just and non-discriminatory international cooperation in science and technology.

Sweden also attaches great impor-

tance to international scientific and technological cooperation, continuously enhancing the internationalization of scientific research and encouraging researchers to engage in international exchange, responding to global challenges and economic and social development demands with high-level scientific research.

China and Sweden coincided with each other on the policy of expanding international sci-tech cooperation and improving the common well-being of the two peoples through science, technology and innovation.

It is expected that in the future, more researchers, experts, scholars, business leaders and entrepreneurs from China and Sweden will become friends and partners, promoters, participants and leaders of innovation cooperation between the two countries, to jointly explore the rich mine of innovation, create more practical achievements, and enhance the common well-being of entire humanity.