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WEEKLY EDITION

International Cooperation

Building Global Community of Shared Future

By Staff Reporters

China's State Council Information Office on September 26 released a white paper titled "A Global Community of Shared Future: China's Proposals and Actions," stating that to build a global community of shared future, all peoples, all countries and all individuals must stand together in adversity and through thick and thin, navigating towards greater harmony on this planet that we call home.

The white paper proposed an implementation path in terms of building a global community of shared future:

Pressing ahead with new type of economic globalization

Economic globalization is an irreversible trend of global economic development, and is in line with the desire for development and cooperation held by people of all countries.

Promoting a new type of economic globalization is essential for building a global community of shared future. Countries need to pursue a policy of openness and explicitly oppose protectionism, the erection of fences and barriers, unilateral sanctions, and maximum-pressure tactics, so as to connect economies and jointly build an open world economy.

Following a peaceful development path

History tells us that for a country to develop and prosper, it must understand and follow the trend of global development; otherwise it will be abandoned by history. The trend now is the pursuit of peace, development, cooperation and win-win results.

The world needs peace, just like a human being needs air and living things need sunshine. Only when everyone follows the path of peaceful development can countries coexist peacefully, and can there be hope for building a global community of shared future.

Fostering new type of international relations

A new type of international relations should be built on the principles of mutual respect, equity and justice, and mutually beneficial cooperation.

The foundations for building a new type of international relations lie in broader and deeper global partnerships based on equality, openness, and cooperation.

Major countries are key actors in building a new type of international relations. Major countries should strengthen coordination and cooperation, respect each other's core interests and major concerns, consider the perspectives of other parties and value mutual understanding, and treat smaller countries as equals.

See page 2



The high-speed electric multiple unit (EMU) trains of the Jakarta-Bandung High-Speed Railway in Bandung, Indonesia. (PHOTO: VCG)

Editor's Pick

Jakarta-Bandung HSR: Chinese Tech Travels Overseas

By LU Zijian

As the first High-speed Railway (HSR) in Indonesia, the Jakarta-Bandung HSR officially went into operation on October 2, reducing the 142.3 km trip between the two cities from three hours to a blistering 40 minutes.

Chinese standards and wisdom

The Jakarta-Bandung HSR is not only a landmark project between China and Indonesia under the Belt and Road Initiative (BRI), but also the first overseas construction project that has adopted the entire system, elements and industrial chain of China's HSR.

The system includes sub-systems of the Jakarta-Bandung HSR, such as road-

bed, rail, tunnel, communication signals and electric multiple units (EMU). The EMU trains used by the Jakarta-Bandung HSR was custom-made, based on the Fuxing EMU technology platform, by CRRC Qingdao Sifang.

The elements refer to the entire HSR construction and operation, including survey and design, engineering construction, equipment manufacturing, operation management and business development. The track laying machine, CPG500, can lay sleepers weighing 360 kg on their exact location under the rail line and complete 1.5 km of track laying daily.

The engineering machinery, steel rail and train control equipment used by the Jakarta-Bandung HSR, were all pro-

duced by Chinese enterprises, covering the whole industrial chain of HSR. The onboard CTCS-3 train control unit meets the operational requirements of 350 km/h and the shortest tracking interval of three minutes.

Many of the latest achievements in China's HSR technologies have been applied to the construction of the Jakarta-Bandung HSR, such as the advanced precision management control system and the above-mentioned CTCS-3 train control system.

Tackling technological conundrums

However, the geographic features and climate of Indonesia posed a great challenge to the construction of the Jakarta-Bandung HSR. See page 2

China Releases White Paper on Belt and Road Cooperation

By Staff Reporters

China's State Council Information Office on Oct. 10 released a white paper titled "The Belt and Road Initiative: A Key Pillar of the Global Community of Shared Future."

The white paper will give the international community a better understanding of the value of the Belt and Road Initiative (BRI), facilitate high-quality cooperation under it, and ultimately deliver benefits to more countries and peoples.

Since its launch, the Belt and Road Initiative has evolved from ideas into actions, from a vision into reality, and from a general framework into concrete projects. It has been welcomed by the international community both as a public good and a cooperation platform.

Over the past decade, BRI cooperation has delivered real gains to participating countries. It has contributed to the sound development of economic globalization and helped to resolve global development challenges and improve global governance system.

It has also opened up a new path for all humanity to realize modernization, and ensured that the efforts of building a global community of shared future are delivering real results, said the white paper.

Looking forward, China stands ready to work with other countries to pursue closer and more fruitful cooperation under the BRI framework, implement the Global Development Initiative, the Global Security Initiative and the Global Civilization Initiative, and build an open, inclusive, clean and beautiful world that enjoys lasting peace, universal security and common prosperity.

WEEKLY REVIEW

π -HuB Project Headquartered in Guangzhou

An international research institute on intelligence medicine was recently established in Guangzhou as the global headquarter of the Proteomic Navigator of the Human Body Project, which can be abbreviated as the π -HuB project. This is a project proposed by Chinese scientists to better understand the human proteome and promote health monitoring through the sphere of proteome.

New Quantum Computer Prototype Developed

Scientists at the University of Science and Technology of China (USTC) developed successfully the third version of China's Jiuzhang quantum computing prototype with 255 detected photons, according to USTC on October 11. A study published on *Physical Review Letters* shows that the prototype this time round can process Gaussian boson sampling faster than its previous generation for around one million times.

Global Collaboration Opportunities for Chang'e-8 Lunar Exploration

China National Space Administration said on October 2 that China is opening up opportunities for global collaboration in its Chang'e-8 lunar exploration mission. Scheduled for around 2028, this lunar exploration program will carry out a range of research tasks, such as geological detection and research on multiple locations and areas on the moon.

FAST Discovers New Faint Pulsars

A study published on October 2 showed that China's FAST telescope has discovered 76 new faint and occasionally emitting pulsars. They are special because they occasionally radiate a pulse during rotation periods, now known as rotating radio transient sources.

Tech for Better Life in China

Technology Helps Protect Cultural Relics in Lhasa

By WANG Xiaoxia & YANG Yuhang

In recent years, technology has been playing an important role in the protection of the cultural heritage of the Jokhang Temple, according to Lobsang, a local manager of the temple on October 10, in Lhasa, China's Xizang autonomous region.

The Jokhang Temple, a UNESCO world heritage site in the old city of Lhasa, was founded in the 7th century, to promote Buddhism. The temple, constructed of wood and stone, is an outstanding example of the Tibetan Buddhist style. It is home to over 3,000 images of the Buddha and other deities and historical figures, murals depicting religious and historical scenes, manuscripts along with many other treasures.

To better protect and display the

cultural relics, efforts have been taken to digitalize them. Since 2013, the Jokhang Temple has been working with the Palace Museum in Beijing to establish a complete database of its cultural relics. Using advanced data acquisition techniques, restorers can detect the cracks in the murals and repair them accurately.

All the murals and statues in the temple have been scanned and the ensuing high-definition 3D images have been stored, according to Lobsang, adding that the digitalization of the building structures is underway.

A large amount of money has

been spent in the intelligent upgrade of the temple's security, power and fire-fighting facilities to protect the heritage site and its historical artifacts, said Lobsang.

Advanced technology is also being used to preserve and restore Barkhor Street, another famous scenic spot in Lhasa with Jokhang Temple at its center. The street community is working with institutions like the Chinese Academy of Sciences (CAS), which are providing technological support, said Xiao Youming, who works for the authority in charge of planning and managing the old city of Lhasa.



People walk on the Barkhor Street, a famous scenic spot in Lhasa, Xizang autonomous region, on October 10, 2023. (PHOTO: WANG Xiaoxia/S&T Daily)

WECHAT ACCOUNT



E-PAPER



Advancing New Industrialization for Chinese Modernization

Policy

By Staff Reporters

Chinese President Xi Jinping has made an important instruction on advancing the new industrialization to lay a strong material and technological foundation for Chinese modernization. His instruction was read out at a national meeting on pushing forward the new industrialization held on September 22-23 in Beijing.

Xi called for efforts to adapt to and lead the new round of scientific and technological revolution and industrial transformation, seek high-quality development in promotion of new industrialization, and integrate the construction of a manufacturing powerhouse with the development of the digital economy and industrial informatization, according to Xinhua.

Chinese Premier Li Qiang, who attended the meeting, stressed the importance of improving the resilience and safety of industrial and supply chains, accelerating the improvement of China's industrial innovation capacity, and constantly promoting the optimization and upgrading of the country's industrial structure.

Li also advocated deep integration of digital technology and the real economy, and the green development of the industrial sector.

China's new industrialization has shown remarkable results. China is the only country in the world with all the industrial categories mentioned in the United Nations industrial classification.

Its scale of manufacturing has been the largest for 13 consecutive years, and its output of new energy vehicles and photovoltaic industries leads the world.

Wang Weiming, director general of the First Department of Equipment Industry of the Ministry of Industry and Information Technology, said high-end



Employees work at a digital assembly line in Geely Changxing New Energy Automobile Company in Huzhou city, Zhejiang province. (PHOTO: VCG)

equipment manufacturing should be focused on. Besides, major projects should be implemented to support the new industrialization.

Enterprises should keep in mind new development concepts and work hard on innovation, said Lin Chao, a senior engineer at the China Railway Siyuan Survey and Design Group, adding that his company aims to create a Chinese-style intelligent survey and design platform for high-speed railways

to make engineering designs more digitalized and intelligent.

Zheng Lei, director of Sichuan Communications Administration, said Sichuan province will accelerate the construction and application of new information infrastructure, promote deep integration of informatization and industrialization, and accelerate large-scale application of "5G + industrial Internet" for high-quality economic and social development.

Setting Ethical Guardrails for R&D

By LI Linxu

In its latest efforts to set ethical guardrails for science and technology, China has unveiled a range of trial measures for the ethical reviews of R&D activities.

The document, jointly released by 10 government bodies, including the Ministry of Science and Technology (MOST), the Ministry of Education, and the National Health Commission, will take effect on December 1, 2023.

It puts forward a series of comprehensive and generic measures for the ethical reviews of R&D activities in various sectors, as well as unified requirements for the basic procedures, standards and conditions of ethical reviews, said an official from MOST.

With a total of 56 measures, the document is expected to lay an institutional basis for relevant authorities and innovation entities to conduct such reviews.

R&D activities involving human participants, including tests, surveys and observations using human beings as research subjects, as well as those activities using human biological samples and personal information data, are subject to ethical reviews in accordance with these measures.

R&D activities involving experimental animals shall also carry out such ethical reviews.

For those activities that are not directly involved with human participants or experimental animals, but may pose ethical risks or challenges in life and health, ecological environment, public order, and other fields, the ethical reviews are also required.

Universities, R&D institutes, health-care and medical institutions, and enterprises are responsibility entities for the ethical review of their own R&D activities.

For those entities engaged in life sciences, medical science, artificial intelligence, and other R&D activities that involve ethically sensitive areas, an ethical review committee shall be established.

For international cooperative R&D activities that are subject to ethical reviews, they should pass the required ethical reviews of all parties.

A list will be established for emerging R&D activities that may pose higher ethical risks or challenges, and expert review procedures shall be initiated in such reviews.

This list will be dynamically adjusted as per needs and then released by MOST.

China Enhances Efforts to Protect Black Soil

By ZHONG Jianli

China will boost its efforts to protect fertile black soil, which is mainly distributed in its three northeastern provinces and the eastern part of the Inner Mongolia autonomous region, according to the Ministry of Ecology and

Environment (MEE).

Liu Youbin, an MEE spokesperson, said at a recent press briefing that the ministry will continue to strengthen the protection of the ecological environment of black soil, including the prevention and control of the source of soil pollution on agricultural land, and

investigation and punishment of activities that damage the black soil according to law.

China has formulated the *Black Soil Protection Law*, which took effect in August 2022, to urge the improvement of the quality of black soil and promote its sustainable development.

In recent years, MEE has placed great emphasis on black soil conservation by undertaking several initiatives.

It has also enhanced monitoring and regulation of black soil ecological conservation, while the central ecological and environmental protection inspection team has prioritized its efforts to combat ecological damage to black soil.

Instances of local unauthorized occupation of black soil farmland, inadequate protection measures and insufficient remedial action have been investigated and exposed.

In addition, comprehensive measures have been taken to address black soil pollution in arable land, including preventing the introduction of heavy metal pollutants into agricultural land. This approach has effectively addressed some significant pollution issues that could impact the quality of soil environments.

Efforts have also been made to promote the utilization of agricultural waste resources such as straw, to improve the quality of arable land.

Besides, MEE has collaborated with the Beidahuang Group to establish a high-level research platform for the protection of black soil.

This platform brings together top research teams from across the country, focusing on comprehensive monitoring of black soil ecological environments, pollution and ecological surveys and assessments, as well as sustainable utilization of black soil.



A technical instructor checks the rice harvest in Jinxing village in Jilin province. (PHOTO: XINHUA)



Researchers conduct biospecimen medical research in a lab. (PHOTO: VCG)

Boosting Market Share for Major Technological Equipment

By CHEN Chunyou & CUI Shuang

Major technological equipment is part of the lifeblood of the national economy. To boost their application in the market, China will encourage the first piece or set of major technological equipment to participate in public bids on an equal footing as other equipment.

That's according to a guideline released in September by the Ministry of Industry and Information Technology, the National Development and Reform Commission, and the State-owned Assets Supervision and Administration Commission of the State Council.

The first piece or set of major technological equipment means equipment that has made a significant technological breakthrough and holds an intellectual property right but hasn't secured market performance, and requires continuous application verification for iterative innovation.

According to the public bidding law, winning a bid is the first step for major technological equipment to enter the market. It is also essential for the innovative development of major technological equipment and their popularization in research activities.

The guideline clarifies that the tenderers should not set unreasonable conditions, such as the equipment's mar-

ket share and application performance, to exclude their participation in public bidding.

The manufacturers of major technological equipment only need to submit supporting materials, which will be considered as valid documents to participate in bids. The bid evaluation methods should be conducive to supporting major technological equipment research and innovation, promoting low-carbon and recycling development, and maintaining the security and stability of the industrial chain and supply chain.

In recent years, the insurance compensation mechanism and encouraging policies for the demonstration and application of the first set of major technological equipment have motivated local governments to introduce corresponding measures to support their development. These include incentives and subsidies, supply and demand docking, talent incentives and intellectual property protection.

Major technological equipment is key to the transformation and upgrading of the manufacturing industry. The guideline will encourage equipment manufacturing enterprises to engage in major technological equipment innovation. It will also enhance the development quality of the equipment manufacturing industry, strengthening the motivation for innovation.

Jakarta-Bandung HSR: Chinese Tech Travels Overseas

From page 1

The crust movement is very active on Java Island, where the HSR is located. The entire line is in a district with a risk of earthquakes at magnitude 8 to 9, and 50 percent of the area that the railway runs through are hills and mountains. All these challenges require a very high standard of construction to resist earthquakes.

The design team first tried to avoid unfavorable geological bodies, like active volcanoes, as much as possible. When that was not possible, measures were taken to minimize the potential risk.

The entrance of one of the tunnels is located within a fault zone, and the design team optimized the standard tunnel design through consolidat-

ing the surrounding rock, and enlarging the fracture surface to make sure the train is safe when traveling through the tunnel.

The impact of climate change can also not be underestimated.

The content of salt fog is very high in the air as the two cities are close to the sea and the intensity of ultraviolet radiation is strong due to the low latitude.

The design team thus adopted a high-standard corrosion resistance solution, applied an advanced and new coating process and protection techniques, enhancing the EMU's performance of salt fog resistance and ultraviolet aging resistance by 50 percent.

The air conditioning system in the

HSR is also optimized accordingly to cope with the high temperature and high humidity in the area.

Specialized for Indonesia

In addition, the design of the stations and trains respect Indonesian culture, aiming to provide a comfortable customer experience.

The four stations of the Jakarta-Bandung HSR were designed based on the Indonesian hand-weaving culture and the beautiful curves of the natural mountains and coasts of the West Java island.

The Tegalluar Station in Bandung, which integrates modern technology with the local natural environment, is also a scenic tourist spot.

To meet the needs of Muslims, who

make up over 90 percent of the Indonesian population, all four stations are equipped with suitable bathrooms and prayer rooms.

The EMU trains are also full of Indonesian characteristics. The train body is silver and red, inspired by the country's national flag. The pattern on the link between the front face of the locomotive and the carriage resembles the texture of the Komodo dragon, regarded as the national animal of Indonesia. The chairs are also decorated with designs related to intangible cultural heritage of the country.

As a flagship project under the Belt and Road initiative, the Jakarta-Bandung HSR is sure to offer a great travel experience for local residents.

Building Global Community of Shared Future

From page 1

Practicing true multilateralism

Building a global community of shared future requires practicing true multilateralism. China opposes all forms of unilateralism and the formation of camps and exclusive cliques targeting specific countries, and opposes actions that undermine the international order, create a new Cold War or stoke ideological confrontation in the name of the so-

called rules-based order.

China actively participates in and leads the reform of the global governance system. It follows the vision of global governance featuring extensive consultation and joint contribution for shared benefits, that is, global affairs must be discussed by all, governance systems built by all, and benefits of governance shared by all, so that every country is a participant, contributor, and ben-

eficiary of world peace and development.

Promoting the common values of humanity

China advocates peace, development, equity, justice, democracy and freedom, the common values of humanity. With an open mind, China understands that different civilizations have different understandings of the nature of these values, and respects the efforts of people in different countries to ex-

plore their own development paths.

All countries should be open and inclusive, promote mutual learning, strive to remove all barriers to cultural exchanges, and seek nourishment from other civilizations to promote the common development of all civilizations.

China's solid actions in promoting the building of a global community of shared future were also illustrated in the white paper.

INSIGHTS

Hi-tech Asian Games

Witnessing Three Decades of Hi-tech Progress



By TANG Zhexiao

From 1990 to 2023, three Asian Games were hosted by China, marking memorable moments in the development of Chinese sports. This included reflecting on changes and development in the country, and the giant leaps made in science and technology over the past 33 years.

As an important part of large-scale sports events, the torch relay attracts wide attention. It embodies the characteristics of different countries and regions, records the changes of the times, and is a mirror of progress in sports, technology and culture.

The 11th Asian Games, which opened on September 22, 1990 in Beijing, was the first large-scale international sports event held in China. At the foot of the Nyaingqantlangha mountain in southwest China's Xizang autonomous region, a 15-year-old girl from Xizang lit



The 19th Asian Games closes in east China's Hangzhou, on October 8, 2023. (PHOTO: ZHOU Weihai/S&T Daily)

the torch flame with a solar lighter.

At the opening ceremony of the 16th Asian Games held in Guangzhou in 2010, China's dragon boat team leader Wu Guochong, one of the last five torchbearers, emerged from the Pearl River and ran onto the stage. Finally, Chinese world champion diver He Chong lit a cauldron flame by a big firecracker, which was full of Chinese characteristics.

Thirty-three years later, the 19th Asian Games officially opened on September 23, 2023, with a high-tech opening ceremony that wowed the world. An innovative and impressive highlight began with a giant digital torchbearer made up of over 100 million virtual sparks, each representing a participant of the online torch relay, running through the streets of Hangzhou before entering the stadium to light the cauldron

alongside Tokyo 2020 Olympic swimming champion Wang Shun.

Like the athletes, technology has also got faster. At the 1990 Beijing Asian Games, it took 15 minutes from printing out the competition results to releasing them at the press center. At the 2010 Guangzhou Asian Games, it only took less than 10 seconds from the time the official result was determined to it being announced on the official Asian Games website. Today's Hangzhou Games, which opened on September 23, featured a host of cutting-edge technology. Using a 5G network, it is possible to transmit high-definition sports game images in real-time with high speed and low latency.

Blending the realms of artificial intelligence and eco-friendly technology, the Hangzhou Asian Games kicked off with a truly unique opening ceremony,

according to the *Times of India*.

From green sporting venues equipped with wind, photovoltaic and other clean energy sources to technological applications including driverless buses, digital torchbearers and fireworks, eco-friendly and green technology is a highlight of the Hangzhou Asian Games.

Thirty-three years on, high-tech has integrated sports events with people. From Beijing to Guangzhou, and then to Hangzhou, we have witnessed and participated in the three Asian Games hosted by China, according to Kenneth Fok Kai-kong, vice-president of the Sports Federation and Olympic Committee of Hong Kong and head of Hong Kong delegation, who added that it is the Asian Games that make the world understand different periods of China.

Voice of the World

China Leads Global S&T Clusters

Edited by QI Liming

All of the world's five biggest Science and Technology (S&T) Clusters are now located in East Asia, and three Chinese S&T Clusters, namely Shenzhen-Hong Kong-Guangzhou, Beijing, and Shanghai-Suzhou, have been on the top five list, according to the 2023 edition of World Intellectual Property Organization (WIPO)'s Global Innovation Index (GII).

Top three S&T Clusters in China

Shenzhen - Hong Kong - Guangzhou — Shenzhen is a Chinese Special Economic Zone and technology hub, known as China's Silicon Valley, while the neighbouring Hong Kong is known as Silicon Harbor, according to Verdict website.

Beijing — The number of state-owned enterprises headquartered in Beijing saw the capital city place 54 companies on the Fortune Global 500 in 2022, accounting for 37 percent of all Chinese-headquartered companies on the list.

Shanghai-Suzhou — Shanghai, a global center for finance and an innovation technology hub, boasts the world's busiest container port. As of 2018, the Greater Shanghai area was estimated to produce a gross metropolitan product of nearly 1.33 trillion USD.

WIPO witnessed China's S&T contribution

The European Commission says GII ranks countries and economies based on their innovative capacity each year. In a preliminary release before the official launch on September 27, 2023, the GII 2023 S&T Clusters Chapter identified local areas with significant concentrations of

world-leading science and technology activity.

WIPO Director General Daren Tang said that, "S&T Clusters are among the most critical components for the innovation performance of any economy. By bringing science, businesses and entrepreneurs together, these cities or regions are able to build an ecosystem that translates scientific ideas into on-the-ground impact. It is also heartening to see that these S&T Clusters are growing at a particularly fast pace in emerging economies."

Tang acknowledged China's immense contribution to international intellectual property work. In his view, China has accomplished a major milestone, transforming itself into a global epicenter of creativity, technology and innovation.

Innovation hubs outnumber those in the U.S.

China, home to 24 S&T clusters, has the most clusters ranked among the top 100, overtaking the U.S. with 21 clusters for the first time, according to GII.

According to *Science* magazine, China now leads in the top 100 ranking of metropolitan areas based on their S&T productivity.

Vibrant local clusters are critical hubs of national competitiveness, and the new ranking suggests the U.S. has been slipping, said Mark Muro, a regional innovation specialist at the Brookings Institution.

The highest climbers in the ranking are three clusters in China, namely, Zhenjiang (+15 positions), Hefei (+13) and Wuxi (+13), according to the GII report.

Opinion

Can Internet Governance Ensure Multilateralism?

By ZHU Rongsheng

Global security governance vis-à-vis artificial intelligence (AI), especially addressing the risks caused by generative AI, has become a core issue at the 18th Internet Governance Forum in Kyoto, Japan, held from October 8 to 12.

In the opening speech at the forum, Japanese Prime Minister Fumio Kishida said the application of AI has accelerated the spread of false information on the Internet, and called on the international community to jointly deal with the global risks of advanced AI.

Nick Clegg, president of Global Affairs at Meta, formerly Facebook, said that digital technology should not benefit only a few. Greater openness and equity is urgently needed to maintain tech-

nology safety and drive innovation.

These calls by international and industry leaders highlight the need for true multilateralism in the international community's pursuit of maximizing the benefits and reducing the risks of digital technologies, rather than abuse of export controls and intensification of the geopolitical competition that is dividing the world.

Kishida said that Japan is working with other G7 members to complete the code of conduct for the Hiroshima AI Process, whose objective is to govern AI to ensure fairness and accountability while promoting transparency.

Though Kishida claimed to listen to the Global South, it is a fact that while the development of governance norms by a small number of countries may be more conducive to rapid theoretical formation,

it will never provide a broadly representative consensus to address the global digital governance challenges.

Countries that lack effective use of the Internet are less able to enjoy the benefits of AI, and countries that lag behind in the development of emerging technologies will find it more difficult to have a voice in international governance rules-making.

At a time when technology exchanges are politicized and digital governance is ideologized, it is increasingly necessary to build a community of shared future for mankind to solve the problem of unbalanced international development and governance deficit.

UN Secretary-General Antonio Guterres stressed the need for open and human-center cooperation in digital gover-

nance to bridge the global digital divide.

On September 26, China issued a white paper entitled *Jointly Building a Community with a Shared Future for Mankind: China's Initiatives and Actions*. China calls on all countries to uphold the vision of a shared future, fully communicate and consult, share governance responsibilities, and form broad consensus and concerted actions to address global issues.

Such a governance path based on extensive participation by the international community and general consensus is more conducive to ensuring true multilateralism in global digital governance.

Zhu Rongsheng is a research associate at the Center for International Security and Strategy of Tsinghua University.

Comment

U.S. Should Stop Its Long-arm Jurisdiction Tactics

By GONG Qian

On October 6, the U.S. added 42 Chinese companies to its export control list over their alleged support for "Russia's military and/or defense industrial base," claiming they were involved in activities contrary to the national security or foreign policy.

Washington's generalization of national security, abuse of export control measures, and arbitrary slapping unilateral sanctions and long-arm jurisdiction on Chinese companies is nothing new. In late September, it had added 11 Chinese companies to the same trade blacklist for similar reasons.

China's Ministry of Commerce (MOFCOM) called the action a typical act of economic coercion and unilateral bullying. The trade relationship between China and Russia is legitimate, and it is unreasonable to add the Chinese enterprises engaged in normal economic exchanges and trade business to the so-called export list.

Wang Wen, executive dean of the Chongyang Institute for Financial Studies at Renmin University of China, called it a typical act of U.S. hegemony and bullying in an interview with a Shenzhen-based news outlet.

Wang also said such bullying is the mark of a "paper tiger" as the targeted 42 Chinese enterprises are small entities and not big brands with global influence, which would retaliate if the U.S. attempted to impose sanctions on them.

A Bloomberg comment said "the success of sanctions is painted in shades of grey," referring to U.S. curbs on leading Chinese enterprises like telecom giant Huawei, which recently released its new smartphone using self-designed processors. It shows that China was capable of coming up with its own technology innovations in answer to sanctions.

China and the U.S. are two large and closely interconnected economies, and their bilateral trade in goods hit a new record in 2022, reaching 690.6 billion USD, according to the U.S. Bureau of Economic Analysis. While the U.S. deems arbitrarily imposing export bans as an effective way to slow China's economic rise, in reality such action is hurting the interests of American companies, which can be showcased by the escalating tech rivalry since the U.S. passed the *CHIPS and Science Act* last year to prevent companies from selling or sharing high-tech knowhow or equipment with China.

According to *The New York Times*, in recent months, American big chip companies Nvidia, Intel and Qualcomm have pushed back with a blunt warning: Cutting sales to China would gut their businesses.

Eventually, the U.S. would find that it is caught in a trap of its own making. What it should do is immediately correct its wrong practices and stop its unreasonable suppression of Chinese companies, as MOFCOM has said.

Science Parks Contribute to China's Innovation

By CHEN Chunyou

Over the last four decades, China has formed various development models. Science parks are among the most original, innovative and influential ones, experts said at a science park development forum in Beijing on September 25.

At the forum, held by the Institutes of Science and Development, Chinese Academy of Sciences (CAS), experts discussed the current status of China's science parks and their future development.

Science parks have become a calling card of China, which boasts a wide range of them, including high-tech zones, economic development zones and science cities. The first science park in China, the Beijing Zhongguancun Sci-

ence Park, was opened in the capital in 1988. Since then, other science parks have emerged, playing a major role in promoting industrial development and economic growth. They have nurtured industries on artificial intelligence, big data and blockchain, smart manufacturing, new-generation information technology and biomedicine.

Nie Changhong, director general of the Science and Technology Innovation and Development Center, CAS, said science parks have achieved integrated development with cities and established close connections with universities. With their accumulated resources, their innovation momentum is surging.

China's science parks have developed from small-scale to large-scale, be-

coming a catalyst for driving regional innovative development, said Jia Jingdun, a researcher from the Torch High Technology Industry Development Center, Ministry of Science and Technology (MOST).

"Take high-tech zones as an example," Jia added. "According to MOST, there were 177 national high-tech zones in China by 2022, contributing over 13 percent of the national GDP and creating the largest science and technology park groups in the world." Jia also said that science parks stimulate a culture of innovation and entrepreneurship, thus growing the knowledge-based economy.

Science parks play a key role in accumulating resources, and creating a good platform for the development of

enterprises. They also promote the agglomeration of innovative and entrepreneurial high-tech firms. By 2021, there were 5.6 million people engaged in R&D activities in national high-tech zones, said Fang Hanting, a researcher from the Regional Coordinated Development Research Center of Zhejiang University in east China, noting that science parks also represent a collaborative interplay among governments, industries and academics.

While science parks have benefited from China's rapid development, they are also a major contributor to it. In the new era, they are expected to bolster economic growth by cultivating new development drivers and developing emerging industries.

Deeper Cultural Value of Kung Fu

Dialogue

By BI Weizi & LONG Yun

Laurence J. Brahm has many strings to his bow. The American is an international lawyer, author and award-winning documentary filmmaker, a senior international fellow at the Center for China and Globalization, founding director of the Himalayan Consensus Institute, and co-chair of the Silk Spice Road Dialogues convened by the United Nations Development Programme. In 2019, Brahm received the Chinese Government Friendship Award for his contributions to promoting traditional Chinese culture at global stage.

Recently, in an interview with *Science and Technology Daily* at his quadrangle courtyard in Beijing, Brahm shared his first-hand experience of China's rapid development and changes over the past four decades.

As a senior kung fu practitioner, he also expressed that kung fu is an efficient way to promote traditional Chinese culture across borders and build cultural confidence, so that China's ancient traditional culture can not only be shared with more Western readers but cultural barriers can also be broken and better communication achieved.

Love for China started young

In June 1981, Brahm arrived in Tianjin, China, for the first time, before moving to Hong Kong to study law and Chinese language. In 1983, he came to Beijing and was appointed head of the China department of a British law firm at the age of 26.

Talking about his love for China, Brahm said he was very inspired by Nixon's visit to China in 1972. "[From] the first images we saw of China on our television set, the feeling I had was that this



Mr Laurence J. Brahm. (COURTESY PHOTO)

was a country that was about to open up and take its place in the world, and I wanted to be part of that process," he said.

Brahm also recalled his childhood in New York City, where he spent a lot of time in Chinatown and was impressed by Chinese kung fu and other aspects of Chinese culture.

Kung fu diplomacy

In 1972, Ping-Pong Diplomacy opened the door for President Richard Nixon's visit to China and provided a blueprint for establishing diplomatic relations that was simple and straightforward at a time, when the world was becoming increasingly complicated.

Brahm suggested that Kung fu diplomacy, as a new kind of Ping-Pong Diplomacy in this era of global confusion, is "the fabric of people-to-people communication."

To reveal the essence behind Chinese kung fu, Brahm put his four decades of martial arts training experience in various styles, into directing a documentary film called *Searching for Kung Fu*, in an effort to explore the origins of martial arts.

"The journey through China's heritage of martial arts traditions led us to understand that it is not about fighting, but about striving, and that there are key values inherent in martial arts. These range from perseverance, loyalty, respect, roots and identity, harmony with nature, flow and, at the core of it all, non-violence," he said.

The values of kung fu should be recognized as universal values. "This is one of the things I have talked about extensively and openly expressed, that if you really want to influence the world,

you should introduce kung fu to a wider audience.

All the values that are in Chinese culture can be found in kung fu," he said, adding there is a growing number of people globally who want to learn more about kung fu as a way to improve themselves.

According to Brahm, more attention should be paid to introduce the philosophy behind kung fu to the world. "There are a lot of good fighting skills in Western countries, but it's the philosophy [of kung fu] that's so important. And from kung fu you can actually understand everything," he said.

That's why his team have dedicated themselves to promoting the importance of Chinese culture to more people, especially young people, around the world through books and movies.

Feeling the Pulse of Anhui's Development

China Impression

By Qin Shuying & Zang Weiwei

China's remarkable development over the decades has attracted foreign experts who have actively contributed to and witnessed the nation's growth. Three foreign experts in east China's Anhui province have shared their unique perspectives on China's development.

BRI as a bridge

Abdulhamit, a Turkish citizen married to a Chinese woman from Tongling, a city in Anhui, has a Chinese name now, Wang Longli. This son-in-law of Anhui played an important role during the Anhui Blue Sky Rescue team's relief mission in Türkiye in February, after massive earthquakes struck central and southern parts of the country. He

served as the team's interpreter.

Wang, who came back to Tongling for his traditional Chinese wedding, shares his thoughts on China's remarkable development over the decades.

For Wang, the changes he has seen in Anhui's infrastructure are significant, particularly in transportation and mobile payment systems, which have made life more convenient and secure. He calls the transition from cash to mobile payments remarkable.

Wang, who considers China his second home and appreciates the Chinese culture and progress, also sees the Belt and Road Initiative (BRI) as a force that has transformed trade, lifestyles and people-to-people communication. Besides bringing economic benefits, he says the BRI fosters cultural exchanges.

High-tech landscape

Hara Takuya, a Japanese expert specializing in the production of mask

blanks, an essential component for semiconductor chips, says Anhui stands out in the field of quantum science, an area that holds immense significance for the future. The province's display industry and robust supply chain further underscore its potential for growth.

Takuya also highlights the speed and dynamism of business in China. He says foreign companies have a strong presence in China and predicts continued investment due to the country's role in the development of the global economy. He also applauds China's approach to modernization, which respects its rich history while forging ahead into the future.

Cultural richness

Natalia Deasy, an Indonesian teacher at Anhui's Hefei University of Technology, remarks on the rapid development of Hefei, the provincial capital, particularly in transportation, which has made daily life more convenient. To her,

the unique phenomenon of people, especially elders, dancing and enjoying outdoor activities is an important sign of China's vibrant culture.

She finds the Chinese warm, helpful and accommodating to foreigners and is impressed by the authentic flavors offered by the many foreign restaurants.

Her appreciation extends to China's cultural heritage and natural wonders, with Mount Huangshan, described as "the loveliest mountain of China" and lauded in art and literature, being a highlight.

Deasy regards China's modernization as beneficial to others, fostering strong international relationships and mutual support.

This article is based on a report by *Anhui News English*, *Anhui New Media Group*.

Letter to the Editor

The Nobel Laureate Who Almost Wasn't

By Nathan E. Stott

Despite the implication of the title, I believed from the time Professor Mounji G. Bawendi was my PhD advisor that he was destined to become a Nobel Laureate. I never doubted it. Recently, I even suspected that 2023 would be his year and had been awaiting the announcement of the prize for chemistry since the day before.

Mounji has a very quiet, reserved, soft-spoken, and easy-going personality. He is an amazing teacher who provides clear insight in such a manner that the brains of his audience and students will readily absorb whatever he is instructing. He is very creative and excited about science and technology, and his enthusiasm is contagious to all of his students and postdoctoral researchers.

I have an amusing anecdote that I would like to share, and I hope it is well-received in the spirit in which I intend it. It's a fond and endearing memory for me of my mentor.

One time, in the laboratory and while standing in front of a fume hood, Mounji told me and another graduate student a personal story, a rare occasion when he opened up about his life. When he was an undergraduate at the school down the street (what we at MIT humorously and slightly derisively, tongue-in-cheek, call Harvard University), he was also an undergraduate researcher.

One time, he was working at the fume hood and had a jar with pieces of sodium metal in mineral oil. He decided to toss some tiny pieces of sodium metal, using a little lab spatula, into a sink with some water in it at the back of the fume hood, and this made some of what he found to be interesting pops and sparks from the sodium metal reacting with the water.

Then, he became more curious and wanted to see what happens when tossing a larger chunk of sodium metal into the water in the sink at the back of the fume hood... BOOM!!! A big fire ball exploded inside the fume hood and went up the ventilation shaft, knocking out the exhaust fan! Mounji closed the sash of the fume hood and promptly walked away.

Mounji was softly chuckling and smiling while telling us this story as both my and my colleague's jaws dropped. Then, he told us never to do that ourselves and to always be safe in the laboratory. I noted to him that he might never have become a professor at MIT if he had been caught in such mischief as a student. He grinned.

The reason this story is so funny is because Mounji is a very quiet and reserved man. While an American, he is also a very proper French gentleman. Our shock and surprise delighted him.

It is with this same curiosity of that mischievous young man that Mounji continued to more seriously and soberly approach science and technology to lead his research group to many great discoveries and achievements about quantum dots (QDs). Isn't it also fitting that he won the prize from the inventor of dynamite?

Congratulations, Mounji! We are all immensely proud to have been taught and mentored by you.

Professor Nathan E. Stott serves as the team leader of Nanomaterials for Electronic and Renewable Devices (NERD) Team, Laboratory for Advanced Nano Materials and Devices, Ningbo Institute of Materials Technology and Engineering Chinese Academy of Sciences (CAS).

Traditional Eastern Wisdom

Water-powered Trip Hammer for Husking

By ZONG Shihan

The water-powered trip hammer is a grain processing tool that uses the power of running water to grind grains, invented in the Western Han Dynasty (202 BC-8 AD).

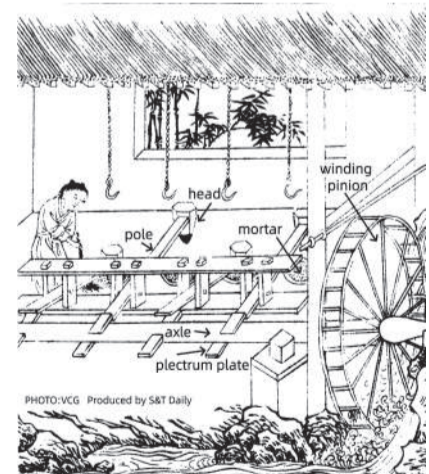
It consists of a winding pinion, axles, plectrum plates, poles, heads, mortars and other components. The running water rotates the winding pinion, and plectrum plates on axles stir the end of poles, which enables heads to rise and fall to crush cereals in mortars.

The water-powered trip hammer is a cleverly designed tool that harnesses the principle of leverage and uses water as its driving force. It operates continuously, day and night, as the perfect antidote for power shortages or time constraints.

Originally, the water-powered trip hammer had only one head. It was Du Yu (222-284) who invented the water-

powered trip hammer with multiple heads to work simultaneously, greatly improving production efficiency.

After the Tang Dynasty (618-907), the use of the water-powered trip hammer gradually expanded to process other materials such as medicine, spices, and minerals.



Unveiling Earthquake Mysteries

Science Outreach

By LONG Yun & BI Weizi

In today's world, the word "earthquake" has become increasingly common in conversations and news headlines.

French/Belgian geoscientist Marie Luce Chevalier from the Institute of Geology under the Chinese Academy of Geological Sciences, gave profound insights into the fascinating world of earthquakes in a recent interview with *Science and Technology Daily*.

Earth's emotional release: earthquakes

"Earth, much like us humans, has its way of expressing stress and energy," said Chevalier, adding that the earth releases its "emotion" through motion. Astonishingly, around 80 percent of the world's earthquakes occur along the margins of the Pacific Plate. This region is known as the "Ring of Fire" due to the numerous active volcanoes lining its boundaries.

However, earthquakes can also originate within a tectonic plate, as exemplified by the Qinghai-Tibetan Plateau, where the collision between the Indian and Asian plates unfolded around 55 million years ago.

The puzzle of earthquake patterns

According to Chevalier, there isn't

a straightforward pattern governing earthquake occurrences globally. However, along specific fault lines, such as the San Andreas fault in California, U.S., earthquakes tend to recur at somewhat regular intervals of approximately 150 years.

Predicting earthquakes remains elusive. The science of earthquake prediction is far from exact, and the precise timing and location of the next earthquake remain uncertain. Still, science provides us with hope. Today, scientists can estimate their frequency, magnitude, and surface rupture length through research or fieldwork.

The complex interplay between earthquakes and weather

The relationship between earth-

quakes and weather causes short-term and long-term effects.

In the long run, over geological timescales, repeated earthquakes can modify regional topography, giving rise to mountain ranges or rift valleys. Such changes can disrupt climatic patterns, affecting weather systems like monsoons and westerlies. Also, landslides triggered by earthquakes can further alter river courses, sometimes leading to catastrophic floods downstream.

As to the short-term effect, the sudden release of underground energy raises surface temperatures during an earthquake. This, in turn, causes surface water to evaporate, increasing atmospheric water vapor and potentially facilitating rainfall.

Service Info

IOP-HU Conference Empowers Early Career Researchers

By Staff Reporters

The IOP-HU early career researcher conference from October 12-14 in Liyang city, east China's Jiangsu province, is directed at early career researchers looking to present their research and interact with domestic and international condensed matter physicists, free of registration fees. The conference aims at provid-

ing early career researchers with a stimulating environment to discuss current research and pursue further research in China and Germany, aided with potential postdoctoral funding opportunities such as the IOP-Humboldt Postdoctoral Fellowship in Physics, the IOP International Young Scientist Fellowship and the CAS President's International Fellowship Initiative.