



# Science and Technology Daily

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## Xi Replies to Letter from Kenyan Students, Alumni at BJTU

Chinese President Xi Jinping has replied to a letter from representatives of Kenyan students and alumni at Beijing Jiaotong University (BJTU), encouraging them to continue contributing to the friendship between China and Kenya and between China and Africa.

In his reply on January 17, Xi noted that China and Kenya enjoy a time-honored friendship. The Belt and Road Initiative has turned the ideals of development and revitalization of China and Kenya into reality, and closely linked the well-being of the two peoples. The Mombasa-Nairobi Standard Gauge Railway is a flagship project and a successful example of China-Kenya Belt and Road cooperation, Xi said.

"I am glad to see that you have bonded with China through this road to happiness. You have witnessed and benefited from the China-Kenya and China-Africa friendship and cooperation, and you have helped build and spread the friendly cooperation between China and Kenya and between China and Africa," Xi said.

Looking ahead, the magnificent picture of the Belt and Road Initiative and the grand blueprint of the China-Kenya comprehensive strategic cooperative partnership need more promising young people to realize, Xi stressed.

"It is hoped that you can learn professional knowledge well, continue the traditional friendship, devote yourself to bilateral cooperation, tell well stories of China-Africa friendship, and make greater contributions to the building of a high-level China-Africa community with a shared future," Xi said.

Recently, representatives of Kenyan students and alumni at BJTU wrote a letter to Xi, expressing their great pleasure in coming to China to learn railway operation and management knowledge.

They also expressed their hope to serve as a bridge of friendship between Kenya and China and contribute to enhancing friendship and cooperation between the two countries and building a community with a shared future for mankind.

Source: XINHUA

## WEEKLY REVIEW

### Commercial Carrier Rocket Lijian-1 Y3 Launched

China launched the Lijian-1 Y3 carrier rocket with five satellites from the Jiuquan Satellite Launch Center in its northwest on January 23. The satellites, successfully sent into their planned orbits, are meant for disaster and environment monitoring, land and sea mapping and other functions.

### New-generation Large Language Model Released

A new-generation large language model, InternLM2, capable of accepting and processing about 300,000 Chinese characters at a time, was released in Shanghai on January 17. The Shanghai Artificial Intelligence Laboratory said it will license InternLM2 for free commercial use.

### 5,000-year-old Stone Processing Art Discovered

Two archaeological sites have been unearthed in Hangzhou city in Zhejiang province, which display stone processing dating back to around 5,000 years ago, according to a meeting on Zhejiang's archaeological work that concluded on January 21.

### Xuelong-2 Icebreaker Completes Oceanic Survey

Research icebreaker Xuelong-2 concluded a comprehensive cross-section ocean survey tasks in the Amundsen Sea and surrounding areas on January 23. This is China's 40th Antarctic expedition that started on December 28, 2023. Since then, the expedition team has conducted comprehensive multidisciplinary investigations.



The 7th China Picture Competition Collection Exhibition, themed "Jointly building the Belt and Road for a better future," opens on January 20 at the National Museum of China in Beijing. It will run till March 20. (PHOTO: HONG Xing / Science and Technology Daily)

## Editor's Pick

## 'Smart Mines' Herald One-person Coal Mining

By LIN Yuchen

Professor Lu Xinming is bringing his vision of "Smart Mines" to reality. As an expert in digital mine, his work at Shandong University of Science and Technology is revolutionizing China's mining industry.

### Innovation at the core

Smart Mines, hailed as a new path for mining transformation in China, integrates technologies such as cloud computing, big data and AI into mining operations, aiming for a future of unmanned or minimally manned mining.

After introducing the concept of Smart Mines domestically and elevating the "General Technical Specifications for Smart Mine Information Systems" to national standards, Lu's team received accolades such as the Second Prize of the State Scientific and Technological Progress Award for their work on "Software Key Technologies and Applications for

Digitized Mining."

Lu began his entrepreneurial journey as a university professor in the 1990s. The results of his research, including Smart Mines, found applications in over 400 mines owned by enterprises like Shandong Energy Group, CHN Energy, and China Coal Group.

### Making the impossible possible

Digging deep into the earth for coal, a process that spans exploration, tunneling, underground mining, transportation, screening and cleaning, requires intricate coordination. After over 40 years of dedicated work in the mining sector, Lu has identified the critical need to adopt suitable methods and advanced processes for safe and efficient coal extraction at mining faces.

One significant challenge is underground mining with issues like extensive tunneling, low coal yield, and challenging ventilation conditions. Lu's team, over 25 years, tackled these areas of con-

cern, gradually providing solutions up to a national scale.

Ventilation systems, akin to a mine's respiratory system, are crucial for diluting and expelling toxic gases and dust while preventing coal and gas explosions. Lu, with a background in computational mathematics, developed 14 key technologies for this purpose, focusing on adaptive ventilation optimization, pressure regulation, and directional adjustments. The result was a fully intelligent mine ventilation system with four-tier architecture, driven by computer software technology.

"Developing an intelligent underground ventilation system was challenging, and many people thought it was impossible before," said Lu. But with determination and innovation, he proved his detractors wrong, emphasizing that with the right direction and perseverance, success is inevitable.

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## Tech for Better Life in China

## Development Promotes Human Rights Progress

By WANG Xiaoxia

China has achieved great progress in protecting and improving human rights through its development, and made positive contributions to global human rights governance, according to experts from the China Society for Human Rights Studies and global representatives attending the United Nations Human Rights Council's Universal Periodic Review (UPR) in Geneva.

From January 22 to February 2, the UPR Working Group is examining the human rights records of 14 states, including China. It is the fourth time for China to be reviewed. The first, second and third UPR reviews took place in February 2009, October 2013 and November 2018

respectively.

At the UPR meeting on January 23, more than 120 countries spoke positively of China's progress in protecting and improving human rights and fully recognized China's efforts.

They said China has successfully charted a path of human rights development, which suits its national conditions and conforms to the aspirations of the people. It provides a new choice for other countries, especially developing countries, to independently explore the path of human rights development.

China attaches great importance to ensuring and improving people's livelihood in the course of development, constantly promotes economic and social development, and enhances people's

well-being. It realizes all-round human development, ensures that the fruits of development are shared by the people, and strives to promote comprehensive and coordinated development of economic, social and cultural rights and civil and political rights, according to the panelists at a side event in Geneva on January 23.

China has not only made remarkable achievements in the protection of its own economic, social and cultural rights, but also provided strong support to other developing countries through international cooperation and capacity building, said Greisy Cordero Suarez, third secretary of Cuba's Permanent Mission to the UN, Geneva.

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## Tianzhou-7 Delivers Experiment Kits to Tiangong Space Station

By Staff Reporters

China launched cargo spacecraft Tianzhou-7 from the Wenchang Spacecraft Launch Site in the southern island province of Hainan on January 17 to deliver supplies to its orbiting space station Tiangong.

The spacecraft completed its status setting and docked with the space station on January 18, the China Manned Space Agency (CMSA) said.

Tianzhou 7, designed and built by the China Academy of Space Technology in Beijing, is the 12th spacecraft to visit Tiangong. It has the largest carrying capacity and the highest transportation efficiency in its category in the world, according to the mission planners.

With the Tianzhou-7 mission, the space application system sent 16 standard cargo packages, one set of cell life support devices, and one set of 4°C microfluidic chips to the space station. In total, there are 61 sets of products, weighing approximately 473 kilograms, according to Liu Wei, chief designer of the space application system for the Tianzhou-7 mission.

"They have been put together by 18 domestic universities and institutes, and will be used in 33 experiments involving life and material sciences, microgravity fluid physics and combustion research," Liu said.

They also contain human bone cells, which will be observed and analyzed for changes in the microgravity environment in space, according to Shang Peng, a professor at Northwestern Polytechnical University's School of Life Sciences.

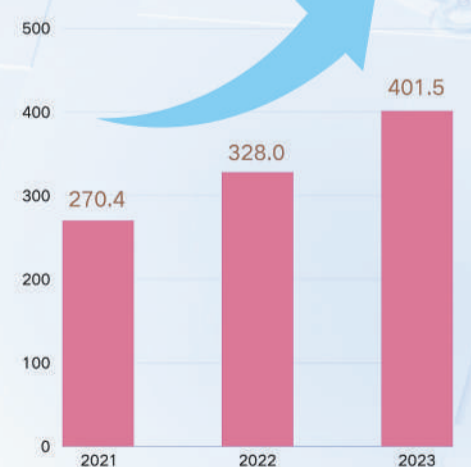
The results will help scientists better understand conditions such as bone density loss and muscle atrophy, and work out solutions to improve the health of astronauts in space as well as people on Earth, Shang added.

China will launch the Tianzhou-8 cargo spacecraft from the Wenchang Spacecraft Launch Site this year.

## New Graphic

### The Number of China's Valid Invention Patents

(ten thousand pieces)



Source: National Intellectual Property Administration, PRC

Designed by YAO Yilu / Science and Technology Daily

WECHAT ACCOUNT



E-PAPER





# Roadmap Unveiled for Biodiversity Conservation

## Policy

By LI Linxu

China unveiled its national biodiversity conservation strategy and action plan (2023-30) to promote the effective implementation of the Kunming-Montreal Global Biodiversity Framework that urged all countries to halt and reverse biodiversity loss by 2030.

The plan, issued by the Ministry of Ecology and Environment (MEE), is a scientific guide to comprehensively improve the level of biodiversity management in China, said an official from MEE, adding that China is striving to make its contribution to global biodiversity governance, as well as the goals set by the framework.

By 2030, the country is expected to restore at least 30 percent of its degraded terrestrial, inland-water, coastal and marine ecosystems. At least 30 percent of land, inland-water, coastal and marine areas will be effectively protected



Black-faced spoonbills are seen at a wetland park in Danzhou, Hainan province. (PHOTO: XINHUA)

and managed, according to the plan.

By then, nature reserves, composed mainly of national parks, will account for 18 percent of the country's

total land area. The terrestrial ecological red lines will take up 30 percent of the country's total land area at the minimum, while the areas covered by

the marine ecological red lines will cover at least 150,000 square kilometers.

The plan also laid out the long and medium goals and visions for 2035 and 2050 respectively. To achieve these goals, the plan put forward four priority areas: mainstreaming biodiversity, addressing threats to biodiversity loss, sustainable utilization as well as fair and equitable sharing of benefits, and modernizing biodiversity governance.

Under such priority areas, there are a series of priority actions, such as policy planning, ecological space protection, ecosystem restoration, sustainable management of biological resources, sustainable utilization of germplasm resources, smart governance, and international cooperation.

In recent years, China has made significant progress in biodiversity conservation, with improved laws and regulations, as well as rising public awareness of biodiversity conservation.

Now, the country is home to over 135,000 species, including more than 65,000 animal species and over 39,000 plant species.

## The Lancet's Timeless Mission: Driving Social Change via Medical Research & Science

By Kumsal Bayazit

*The Lancet* was founded in 1823 by Thomas Wakley with the vision to drive positive social change by advancing medical research and science for the greater good, by addressing inequities of the time with access to medical knowledge for "medical and surgical practitioners" in the UK and the British colonies (as they were referred to at the time), and by being more than a medical journal. *The Lancet* has remained true to its core mission to drive positive social change, which is as relevant today as it was groundbreaking then, through the past two centuries amid seismic changes in our world.

During the past 200 years, average life expectancy has more than doubled globally, partly thanks to better health care, hygiene and nutrition — all of which are underpinned by scientific, technological and economic progress. Two hundred years ago, about 40 percent of children worldwide perished before the age of five years; today, the under — five child mortality rate is below four percent.

Many diseases that were previously fatal are now curable or manageable thanks to antibiotics, vaccines, targeted medicines, immunotherapies and surgical advances.

*The Lancet* has remained steadfast in its belief that health and social progress go hand in hand, putting inclusion, equity and collaboration at the heart of scientific enquiry and policy change.

The journal has done this boldly, not shying away from uncomfortable debate, while evolving to become the world's number one medical journal with an unparalleled impact in both academic and public spheres. *The Lancet* has grown from a single journal with a hand-printed run of a few thousand copies for a privileged group in the UK to become a family of titles read by tens of millions of people around the world.

The centenary issue of *The Lancet* featured pictures of male doctors only, many of them also acting as editors. Now, half of *The Lancet's* international editorial advisory board are women. *The Lancet* has also put a spotlight on racism as a global public health emergency and published a special issue aimed at charting a path for advancing racial and ethnic equity in science, medicine and health.

Equally important is *The Lancet's* role in strengthening trust in science, including during public health emergencies. *The Lancet* team worked around the clock with researchers from across the globe during the COVID-19 pandemic, helping scientists understand and find cures for the SARS-CoV-2 virus, starting with the first research papers that came out of China in January 2020.

In an increasingly polarized world, *The Lancet's* belief in partnership continues to build bridges across borders, with



Kumsal Bayazit. (COURTESY PHOTO)

science and medicine as the unifying bonds. *The Lancet's* many commissions are strong vehicles for scientific review and enquiry into urgent and understudied health predicaments that affect people everywhere. They are multidisciplinary, global and focused on transformative change. The commissions are not led by *The Lancet*, or Elsevier as its publisher, but by science.

We are at the precipice of another pivotal moment for the world, tested by several grand challenges. As the Lancet Countdown report on climate change calls out, this existential crisis is a global health issue.

Meanwhile, populations worldwide are living longer and want access to quality health care, which comes with increased costs to systems and added pressure on doctors and nurses, many of whom are leaving their professions. Geopolitical tensions are at their highest since the end of the Cold War, challenging the spirit of global cooperation in science and health care. Long embedded inequities in society are also resulting in poor health outcomes for the most vulnerable. All these challenges require deep and profound focus and collaboration across health care communities, governments and society.

I remain confident that the future will bring even more openness, transparency, interdisciplinary research, reproducibility and more equitable and inclusive participation in the scientific endeavor. Responsible use of artificial intelligence and large language machine learning technologies, immense datasets, open channels of sharing knowledge, and greater public interest in the scientific process all present exciting opportunities.

As we look to the next 200 years, there is no doubt in my mind that *The Lancet* will continue to have a pivotal role in scientific enquiry and medical advancement, and that it will continue to boldly catalyze social and policy change that benefits people and our planet.

The progress made over the past two centuries gives me deep confidence in the positive progress to come. I thank Thomas Wakley, Richard Horton, and all the editors, authors, peer reviewers, and publishing teams past, present, and future for staying true to *The Lancet's* core mission.

The author is CEO of Elsevier, which publishes *The Lancet*.

# Promoting Integration of NEVs with Grids

By ZHONG Jianli

To strengthen the role of new energy vehicles (NEVs) in the electrochemical energy storage system, and support the building of a new energy and power system, China's National Development and Reform Commission and other departments recently issued a plan to strengthen the integration and interaction of NEVs with the power grid.

NEVs are connected to the grid through charging and swapping facilities.

The interaction between NEVs and the grid mainly includes intelligent and orderly charging, as well as bi-directional charging and discharging.

The plan says that by 2025, China's technical standards for vehicle-grid interaction will be initially established. By then, the peak-valley electricity pricing mechanism for charging is expected to be fully implemented and continuously optimized.

Efforts will also be made to ensure that in pilot cities, more than 60 percent of the annual total power of NEVs is

charged during off-peak hours, while the target for private charging piles is 80 percent. Furthermore, the potential of NEVs as mobile electrochemical energy storage will be preliminarily verified.

In terms of promoting core technological breakthroughs for vehicle-grid interaction, it proposes increasing efforts in key technology research for power batteries. Without significantly increasing costs, the lifecycle of power batteries will be increased by 3,000 times or more.

To improve the interaction level of

charging and swapping facilities, uniformly intelligent and orderly charging piles will be adopted, and the intelligent transformation of existing charging piles will be promoted as needed.

This move marks a significant step for China in promoting the integration of NEVs with grids, and fostering an environment conducive to the widespread use of vehicle-grid interaction technologies, ultimately contributing to the development of a more efficient and sustainable energy ecosystem.

# Silver Economy to Ameliorate Seniors' Lifestyle

By ZHONG Jianli

With the increase of its elderly population, China is taking measures to cultivate new drivers for economic growth by developing its "silver economy."

The General Office of the State Council recently released the Guideline on Developing the Silver Economy to Improve the Well-being of the Elderly. This marks the country's first specialized document supporting the development of the silver economy.

This economy primarily refers to economic activities offering services and products for the elderly. As the number of this demographic grows, the consumer base for elderly products and services continues to expand, driving the silver economy into a new phase of rapid growth.

According to data from China's National Bureau of Statistics, by the end of

2022, China's population aged 60 and above had exceeded 280 million, accounting for 19.8 percent of the total population. It is estimated that around 2035, this population will exceed 400 million, accounting for more than 30 percent of the total.

The guideline stresses the need to optimize medical and healthcare services for the elderly. Hospitals and healthcare institutions are encouraged to increase capacity to treat geriatric diseases and promote the application of R&D achievements in senior healthcare.

It proposes to plan a number of high-level silver economy industrial parks. Leveraging advantages of free trade pilot zones, various economic development zones and demonstration zones for service industries, efforts will be made to advance cross-regional and international cooperation in the silver

economy sector.

In providing standardized elderly care services and products, emphasis will be placed on prioritizing technologically-advanced, market-recognized products for the elderly, such as mobile terminals, wearable devices and service robots. The establishment of high-level, specialized third-party quality testing platforms is highlighted in the guideline.

To expand channels for consumption, e-commerce platforms and large retailers are encouraged to host themed shopping festivals and design elderly-friendly interfaces, so as to facilitate convenient online and offline shopping experiences.

In addition, the role of sci-tech innovation will be enhanced to make breakthroughs in rehabilitation aids and smart healthcare technologies. Data related to the silver economy will be shared and

used in an orderly and rational way to empower industrial development.



Seniors make paper-cuttings at the home care service center in Hexi district, Tianjin municipality in north China. (PHOTO: XINHUA)

# Qinghai Elevates Wetland Conservation

## Case Study

By LI Linxu

Thanks to the improving ecological environment, an ever increasing number of migratory birds are choosing the Qinghai Longbaotan Wetlands as their winter habitats.

The Qinghai Longbaotan Wetlands, located within the Longbao National Nature Reserve in Yushu city, Qinghai province, covers a total area of 9,529 hectares, with a wetland area of 3,349 hectares.

It is the first conservation area in China primarily focused on protecting

the breeding grounds of the black-necked crane, and also plays an important role as a breeding and resting site for migratory birds on the Central Asian Flyway.

In 2023, the site was listed as a Wetland of International Importance under the Ramsar Convention on Wetlands.

The Qinghai Longbaotan Wetlands optimizes the province's continuous efforts to scientifically manage and protect its wetlands.

Last year, three wetlands in Qinghai were newly added to the list of Wetlands of National Importance by the National Forestry and Grassland Administration.

The province is home to the Sanjiangyuan area, known as the country's

"water tower," containing the headwaters of the Yangtze, Yellow and Lancang Rivers.

As a major wetland province, Qinghai possesses an area of 7.123 million hectares of wetlands, accounting for 12.64 percent of the country's total, according to the latest statistics.

In recent years, the province has rolled out a series of policies as well as a package of measures to advance the conservation of wetlands.

It is among the first provinces to establish a mechanism of wetland conservation and public interest judiciary at the provincial level.

Last year, the province's Bureau of Forestry and Grassland, together with 18

other provincial government bodies, launched a joint meeting mechanism to protect its wetlands.

It also released an implementation plan to carry out the country's wetland protection law, and completed the formulation of the province's wetland conservation plan (2022-2030), as well as an implementation plan to conserve and restore the wetlands in the Yellow River Basin of Qinghai Province (2022-2030). Meanwhile, it has also set up a pool of wetland experts, which numbers 68 at present.

Due to making such great strides in wetland conservation, more and more migratory birds are expected to fly to Qinghai's wetlands to spend the winter.

## Development Promotes Human Rights Progress

From page 1

Suarez hailed China's work with other countries in addressing poverty, food security, malnutrition, foreign debt and climate change as a true example of promoting the protection of economic, social and cultural rights and South-South cooperation.

China has put forward the Global

Development Initiative, the Global Security Initiative and the Global Civilization Initiative to promote global development, safeguard world peace and promote exchanges and mutual learning among civilizations, providing China's proposals and making China's contribution to strengthening global human rights governance.

## INSIGHTS

Voice of the World

## Beautiful China, Beautiful World

Edited by TANG Zhexiao

China has unveiled a guideline to comprehensively promote the building of a "Beautiful China," detailing specific targets for the country's green and high-quality growth.

The guideline said China will accelerate the construction of a modern industrial system supported by the real economy, by vigorously boosting the development of emerging strategic industries, high-tech industries, green and environmental industries and modern service industries.

According to the guideline, the country's ecological environment is targeted to be healthy and beautiful by the middle of the century, its ecological and environmental governance system and capacity will be fully modernized, and a "Beautiful China" will be built in all respects.

**Building a beautiful China**

Former UN under-secretary-general and former executive director of the UN Environment Programme Erik Solheim thought the initiative of building a beautiful China is "so positive" and "inspires people."

"There is an enormous positive change in China, and it's a wonderful transformation," said Solheim, adding that creating a beautiful China has been a main driver for fighting pollution and climate change.

Work needs to be done to strive to realize a carbon peak by 2030 and lay a foundation for working hard to achieve the goal of carbon neutrality by 2060, the guideline noted.

China has established the world's largest clean power generation system currently, with the world's largest installed capacity of hydropower, wind and solar power.



Aerial photo shows the cloud sea in She county, east China's Anhui province. (PHOTO: XINHUA)

As *The Guardian* reports, China is on track to break its wind and solar goals five years ahead of schedule.

Driven by China's rapid growth, renewable energy capacity surged globally in 2023, generating green power faster than at any time during the last few decades.

China was the major driving force behind the world's rapid expansion of renewable power generation capacity last year, which grew by 50 percent to 510 gigawatts, the International Energy Agency said.

**Promoting global development**

These remarkable achievements China has made in ecological civilization construction have inspired the world, contributing Chinese wisdom and solutions to building a global ecological civi-

lization construction and supporting developing countries in this process.

Bradley Blankenship, a Prague-based American journalist, columnist and political commentator, hailed China's success in beautifying Beijing, saying that Beijing now stands as an example for megacities around the globe, particularly those in the global south.

The concept of a "Beautiful China" has a universal appeal, extending to a Beautiful World, according to Blankenship.

Besides establishing a South-South cooperation fund on climate change and the Kunming Biodiversity Fund, China also undertook nine projects to boost Africa's green development.

As most of Africa's energy currently comes from firewood and fossil fuels, China has prioritized clean energy in its

cooperation with African countries.

According to former Kenyan President Uhuru Kenyatta, the China-financed Garissa Solar plant puts Kenya on the path to achieving green energy sufficiency and adds to Kenya's rich profile as the center of green energy generation in Africa.

China-Africa cooperation in clean energy development is part of China's commitment to greening the continent, said Melaku Mulalelem, senior international relations and diplomacy researcher at Ethiopia's Institute of Strategic Affairs.

Earth is the only planet that humanity calls home, and therefore protecting the ecological environment and promoting sustainable development are responsibilities shared by all countries.

## A Major Driver of World Economic Growth

## Comment

By Staff Reporters

China's overall trend of long-term growth would not change, and the country's steady economic progress can handle highs and lows and would continue to provide global impetus.

Chinese Premier Li Qiang made the comments while delivering a special address at the World Economic Forum (WEF) Annual Meeting 2024 held in Davos, Switzerland on January 16.

The theme of this year's meeting, "Rebuilding Trust," resonates well with people's concerns, Li said in the event hosted by Klaus Schwab, founder and executive chairman of the WEF. China neither walks away from agreements or pulls out of organizations, nor does it ask other countries to pick sides, and it has always been a staunch supporter of multilateralism, he said.

China's gross domestic product (GDP) posted a growth of 5.2 percent year-on-year in 2023, higher than the annual target of around five percent, data from the National Bureau of Statistics (NBS) showed on January 17.

The country's GDP reached a record of 126.06 trillion RMB (about 17.71 trillion USD) in 2023, the NBS data showed.

Despite external pressure and internal difficulties, China has successfully achieved the major targets set for 2023 and recorded a rebound and improvements in the economy, Kang Yi, commissioner of the NBS, told a press conference.

Some Western outlets, which have been pessimistic about the Chinese economy, have predicted that its economic growth is set to slow in 2024.

However, according to UBS analysts, there's still growth potential in China, specifically in further movement of workers from rural to urban areas, as well as investment in manufacturing, services and renewable energy. The pace of China's growth remains faster than that of developed economies.

Weijian Shan, the chairman and CEO of PAG, a leading Asia-focused private equity firm, commented in the *South China Morning Post* last November that the growth of the Chinese economy matters, not only to China but also to the rest of the world. China is now the main trading partner of more than 140 nations and regions. Its share of the world economy is about 18.5 percent, contributing about 35 percent of global growth in 2023, Shan added.

As the second-largest economy in the world, China can contribute to rebuilding trust due to its significant economic and trade left, as well as its desire to build a more peaceful world, WEF President Borge Brende said. "The steps that China takes are incredibly important for the world."

Deloitte China Chair Jiang Ying told *Xinhua* China can create more opportunities for global economic growth and employment, by further opening up its market and promoting international trade and investment. At the same time, China's large-scale infrastructure projects under the Belt and Road Initiative, also help promote economic development and employment in countries along the routes.

Achieving security and cooperation in a fractured world is one of four key themes of the Davos' annual meeting. Klaus Schwab called on the international community to rebuild trust, and take strong and effective global measures to invigorate the ailing world economy.

## Reasons Behind China's Car Export Surge

Edited by GONG Qian

"There's a new king of the global auto market," said *Fortune* magazine.

China's auto exports last year surged 57.9 percent from a year prior to 4.91 million units, said the China Passenger Car Association (CPCA) on January 11, adding that China is estimated to surpass Japan to become the world's top automobile exporter for 2023.

This has the world sitting up and paying attention. Japan's NHK news agency reported that as of last November, the country's car exports stood at 3.99 million units, and it is almost certain that the figure will not exceed China's, once Japan's 12 month total is known.

The past several years saw China leapfrog from third to first place for car exports. CNN reported that Chinese car

exports took off in 2021, thanks to the country's surging EV shipments. That year, China's car shipments soared 103 percent to 2.2 million units, surpassing South Korea to become the world's third-largest exporter.

China overtook Germany in 2022 to become the world's second-largest exporter after Japan, and just one year on, it has claimed the top spot, said the *Detroit News*, adding that China's exports have jumped from one million units in 2020, to nearly five times that number in three years.

China's success is being driven by a domestic shift toward EVs, said *Fortune*. These figures represent the most recent indication that China is a global auto exporting giant, thanks in large part to its nimble automobile manufacturers and their ability to manufacture electrical vehicles, said Reuters. BYD

overtook Tesla as the world's top seller of EVs in the fourth quarter of 2023.

China's leading role in the global EV industry is also down to its market scale, cheap labor and supply chain dominance, according to analysts, CNN reported. "China is now leading in production and increasing its comparative edges, banking on its massive domestic market and the first mover advantage," CNN quoted analysts from a French investment bank as saying.

Paul Gong, an analyst at UBS, cited China's "advantage in terms of technology" and "good command of some manufacturing techniques" as reasons for the country's EV advantage, as reported by *South China Morning Post*.

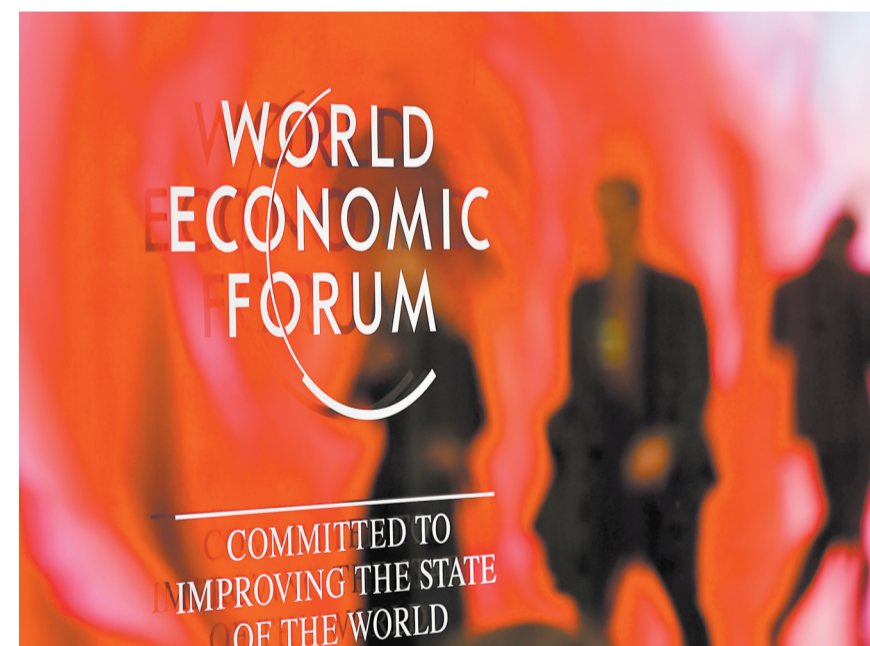
Chinese EVs are "snazzy, whizzy" and are "better-quality, particularly with respect to the smart features in EVs that

are made possible by Internet connectivity," said *The Economist*.

Reuters said that the Chinese EV manufacturers have also developed an advanced technology edge, particularly when it comes to software and the ability to design new models in a timely manner. "China's carmakers are going to be hard to overtake."

As the world decarbonizes, demand will rise further. Fitch Ratings said in a report last month that it expects the share of new energy vehicles, including hybrids, to rise to 42-45 percent of China's total sales in 2024, as reported by AP. It also projected that exports would grow 20 to 30 percent this year.

By 2030, China could double its share of the global market, to a third, ending the dominance of the West's national champions, especially in Europe, said *The Economist*.



The theme of the World Economic Forum Annual Meeting 2024 is "Rebuilding Trust", with key topics, including achieving security and cooperation in a divided world, creating growth and jobs for a new era, artificial intelligence driving economic and social development, and implementing long-term climate, nature and energy strategies. (PHOTO: XINHUA)

## 'Smart Mines' Herald One-person Coal Mining

From page 1

**Less labour and more efficiency**

"Reducing workers by 70 percent, yet increasing efficiency by 20 percent" — this is the transformation witnessed at Shandong Energy Group, thanks to Lu's team's Smart Mine system.

Once a mining area undergoes digital transformation, a visual, transparent, and controllable smart mine emerges. Workers above ground can access real-time information from any location within the mine and make informed decisions through large screens.

Safety is both the starting point and end point of their innovation. Lu's team project utilizes advanced equipment and software to precisely and visually model the entire geological structure and concealed attributes of a mine, allowing for early prediction and prevention of geological disasters and

hazards.

In Lu's company Shandong Lionking Software, 23 patented inventions are on display, with more in the pipeline. Their focus is on Smart Mine's core technologies, ensuring that they contribute to the creation of entirely new technologies.

In 2020, the National Development and Reform Commission, and eight other ministries, jointly issued guidelines to accelerate the intelligent development of coal mines, aiming for comprehensive intelligence by 2035. Lu sees this as an encouraging sign. His current mission is to refine the technology, shape the scenarios, and promote widespread implementation.

"Given time, with the technology chain in place, the era of 'one-person coal mining' is on the horizon," he said.

## 'Polar Bear Sweater' Knitted from Aerogel

## Hi! Tech

By QI Liming

If humans had hair like polar bears, they would be able to survive the severe cold without wearing heavy coats. Pondering on this point and inspired by the structure of polar bear hair, researchers from China's Zhejiang University have created an aerogel fibre that can be woven into clothing.

The polar bear's hair is a hollow structure that encapsulates a large amount of air, which reduces heat loss by inhibiting heat conduction and con-

vection. This principle is the same as the design of warm clothing.

Aerogel, the world's lightest solid material, has long been valued for its thermal insulation properties. By imitating the "core-shell" structure of polar bear hair, a kind of encapsulated aerogel super-warm artificial fiber was invented. The "core" is responsible for super warmth to prevent the loss of heat to some extent. The "shell" is responsible for strength and durability.

In this way, encapsulated aerogel material not only has the thermal insulation function of traditional materials, but can also block the infrared radiation from the human body. In addition,

the materials can be directly woven into fabrics with commercial textile machines.

Although the processing cost is

high at present, industrial mass production can drive further process improvements and cost reduction, making the "polar bear sweater" a reality on shelves.



Fabric made from a new type of fiber that mimics polar bear fur. (PHOTO: Zhejiang University)

# A Pakistani 'Citrus Doctor' in Yunnan

## Dialogue

By LONG Yun & BI Weizi

Citrus fruits are undeniably enjoyed worldwide for their refreshing flavors and are an excellent source of vitamin C. To ensure sustainable growth of the citrus industry, a group of scientists are doing research on citrus diseases. Dr. Shahzad Munir from Pakistan, also known as the "Citrus Doctor," is one of them.

Munir is an expert who mainly researches on the citrus Huanglongbing (HLB), also known as citrus greening, one of the most serious citrus plant diseases. His study in the field of HLB began in 2015, when he left Pakistan to pursue academic research in southwest China's Yunnan province. He was drawn to China by the reputation of his mentor, Professor He Yueqiu and his team's environmentally friendly research method.

Combating HLB will bring huge ecological and economic benefit to the citrus industry. Munir told *Science and Technology Daily* that the challenges posed by HLB are similar to the threat from a pandemic. "HLB is a citrus pandemic in the world and it impacts the citrus industry both technologically and commercially," he said.

The widespread presence of the disease across citrus planting regions worldwide has set off alarm bells for the urgent need of effective control strategies.

Munir's research team has been pioneering the use of endophyte-mediated control technology, an innovative and environmentally friendly approach, to combat HLB. "I think this



Dr. Shahzad Munir. (COURTESY PHOTO)

is a very important strategy that can be applicable both in [the] academic community and [from a] practical aspect," he said.

Now, his team has successfully isolated microbial strains in the form of native endophytes that have been successfully tested in 164 acres of citrus fields across China, demonstrating outstanding results in disease prevention and control.

"An outstanding scientist [in my field] should step out of [the] laboratory to assist farmers in preventing and managing plant diseases," said Munir.

Over the past eight years, Munir has actively shared his knowledge on HLB prevention with farmers in Binchuan county in Yunnan, China fostering a positive relationship with the local agricultural community. Farmers appreci-

ate Munir's patient explanations and consider him a welcome foreign expert who genuinely cares about farmers' challenges.

Some local farmers have even dubbed him the "Citrus Prince," and when asked about the tangible benefits of his research to local farmers, Munir highlighted the increased fruit yield resulting from effective HLB control.

However, "Patience is needed in our research," said Munir, emphasizing the long-term nature of their research and the need for sustainable solutions. Still, he remains optimistic about the potential of the endophytic approach as a safe, environmentally friendly, and effective strategy for disease control in the long run.

According to Munir, the broader im-

plications of their work are not limited to China. He hopes to collaborate with international research groups, aiming to extend their expertise to benefit farmers globally and offer solutions to combat HLB and promote the prosperity of the citrus industry.

Speaking about his academic journey in Yunnan, Munir mentioned that his academic achievements in recent years are inseparable from the support of China's talent policies.

"I don't face any difficulties in my work, and everything is very smooth," said Munir. He added that the favorable research environment and excellent laboratory conditions, as well as the friendliness of the people, make his research journey more productive. At the same time, he especially mentioned the abundant opportunities and rewards for young researchers. Munir noted that, "One of the most important help is from local farmers, who generously allow our research activities in their fields."

In addition, China is one of the top citrus-growing countries, with Yunnan province making substantial contributions to the citrus industry. Sharing statistics from 2020, Munir pointed out the vast area of citrus orchards and the impressive annual citrus fruit output all provide a promising stage for him to unleash full research potential.

Looking ahead, Munir stressed the urgency of continuously finding new and innovative approaches to control HLB and therefore ensure the sustainability of citrus production. He highlighted the collaborative efforts needed to encourage more researchers to join the cause and work together to pursue a sustainable agricultural goal in the future.

## Letter to the Editor

# Nigerien Student: BRI Ignites Hope for Africa

By Saibou Zakou Souleymane

I have learned that President Xi Jinping has replied to a letter from representatives of Kenyan students and alumni at the Beijing Jiaotong University, encouraging them to continue contributing to the friendship between China and Kenya and between China and Africa.

As an African studying in China, I share the same sense of inspiration. Like Kenya, my home country Niger has also participated in the joint construction of the Belt and Road Initiative (BRI).

Since the inception of the BRI, cooperation between China and African countries has further deepened, including in infrastructure and industrial collaboration, trade and cultural exchanges.

The progress has been substantial, benefiting both China and Africa. In terms of infrastructure development, China has engaged in various projects across African countries, including ports, railways and roads, significantly improving Africa's transportation network and promoting its economic development.

I have been a beneficiary of cultural and educational exchanges between our two countries and will seize the opportunity provided by the BRI to act as a messenger for mutual cultural exchange.

In my opinion, the BRI is a crucial international cooperation plan to foster development in such areas as connectivity, trade cooperation and people-to-people exchanges with partner countries. Sino-African cooperation has been a vivid example of this initiative.

Through the BRI, Sino-African cooperation continues to achieve breakthroughs and accomplishments, injecting fresh impetus into the development and prosperity of Africa.

Additionally, the BRI has provided more development opportunities for African countries by facilitating trade and investment cooperation, which will help strengthen economic ties between Africa and China, as well as other BRI partner countries.

In summary, the BRI brings immense hope to Africa. It not only contributes to Africa's economic growth, but also fosters friendship and cooperation between China and Africa.

The author is an international student at Tianjin University.



Saibou Zakou Souleymane. (COURTESY PHOTO)

## Traditional Eastern Wisdom

# Oracle Bone Script: Signature of Ancient Chinese



A piece of oracle bone inscription is displayed at the Henan Provincial Museum. (PHOTO: VCG)

By BI Weizi

Oracle bone inscriptions are the oldest form of Chinese characters engraved on turtle shells or animal bones. They were used for divination and recording events in the late Shang Dynasty (1400-1100 B.C.) They are the earliest known systematic and mature writing in China and even East Asia.

More than 100,000 pieces of oracle bone inscriptions have been found

mainly in Anyang and Zhengzhou, Henan province. They are records of divination and prayers to the gods related to a wide range of issues such as the king's affairs, the weather, harvest and military matters.

The oracle bone characters were carved with a knife on hard turtle shells or animal bones. The characters are therefore mainly straight and thick, showing a 3D visual effect. Although the inscriptions vary in size,

they have shown a stable pattern, with relatively balanced and symmetrical structures.

Oracle bone inscriptions have both their linguistic communication and calligraphic artistry. They are not only the earliest and most systematic data for studying the origin of Chinese characters, but also a valuable asset for studying oracle bone calligraphy. In October 2017, they were included in UNESCO's Memory of the World Register.

## Service Info

# NHC Deals with Seasonal Influenza Concerns

By Staff Reporters

On January 14, the National Health Commission (NHC) held a press conference to disseminate information on how to prevent winter respiratory diseases, give health advice and answer questions from the media.

According to the Chinese Center for Disease Control and Prevention (CDC), seasonal influenza is an acute respiratory illness caused by influenza viruses. It tends to be more common in most of China from January to March/April.

Three types of seasonal influenza viruses are recognized to cause human infection, namely A, B and C. Since the immunity generated after having influenza A does not provide effective immunity against influenza B, one still has a good chance of catching the latter.

The CDC recommended getting

vaccinated each fall. Approximately two weeks after vaccination, the body develops a sufficient level of protective antibodies against the influenza viruses.

### COVID-19 may resurface

Wang Dayan, director of the National Influenza Center of the CDC's Institute of Viral Diseases, said that recent data from the multi-channel surveillance system show that COVID-19 is still present at a low level after the New Year holiday.

It's estimated that alternating or co-epidemic trends of multiple respiratory pathogens will occur with the Spring Festival around the corner. Due to multiple factors, such as continued importation of the foreign JN.1 mutant strain, gradual decrease in domestic influenza, and the decline in population immunity, COVID-19 may spread this month, and the JN.1 mutant strain will most likely become a dominant strain in China.

### Getting medical help

Wang Guiqiang, director of the Department of Infectious Diseases at Peking University First Hospital, said in winter respiratory diseases are more common, including influenza A, influenza B, novel coronavirus, respiratory syncytial virus, adenovirus and mycoplasma. The immunity established after being infected with these pathogens does not last long.

At the same time, there is no cross-protective immunity and these pathogens can infect people simultaneously or alternately.

Repeated infections within a short period often result in a milder condition because the immunity established by the previous infection is still in force. However, simultaneous infection with different pathogens may worsen the condition, especially in the elderly, children, and patients with underlying medical

conditions.

Getting prompt medical attention is recommended as well as taking prescribed medication to shorten the course of the disease and reduce the risk of severe illness and hospitalization.

The number of visits to fever clinics shows a fluctuating downward trend.

Mi Feng, NHC spokesperson, said since the New Year holiday, tourism has been booming across the country. As more and more tourists travel from the south to the north to enjoy the exotic natural and cultural atmosphere, the huge temperature difference poses a challenge to their immune systems, and the influenza virus may sneak in.

Practicing good hygiene habits is advised, such as wearing a mask, frequent hand washing, frequent airing, and social distancing, as well as recognizing respiratory symptoms promptly and seeking medical care if necessary.

## Expats Activity

By DENG Zhuoyuan

More than 40 foreign experts had a taste of Spring Festival celebrations at an event hosted by the Foreign Experts Bureau of Guangxi Zhuang autonomous region in Nanning on January 20.

The 2024 Chinese New Year Celebration for Foreign Experts in Guangxi was attended by expats from Canada, the UK, Italy, Malaysia, Vietnam, Thailand and 11 other countries.

The guests participated in traditional folk games such as throwing the pot and tossing the ring. They also immersed themselves in the unique charm of Chinese traditional culture through writing auspicious characters, and making paper-cuttings.

Pauciullo Alfredo, a researcher

from Italy working at the Buffalo Research Institute in Guangxi, expressed great interest in ethnic clothes. He participated in the carnival in resplendent traditional attire.

Khotphat Tanaporn from Thailand, deputy director of the China-ASEAN Research Institute at Guangxi University, said the rich festive atmosphere in China made him miss his hometown.

British expert Alex Short said the traditional folk activities have deepened his understanding of Chinese New Year customs and culture.

The organizers thanked the foreign experts for their contributions to the economic and social development of Guangxi and welcomed more foreigners to work and live in Guangxi.

This article is an edited version of the original Chinese article contributed by the Foreign Experts Bureau of Guangxi.



Foreign experts in Guangxi Zhuang autonomous region celebrate the 2024 Chinese New Year. (COURTESY PHOTO)