



Science and Technology Daily

VOL.3-NO.123

THURSDAY, DECEMBER 21, 2023

WEEKLY EDITION

International Cooperation

China, Vietnam See New Chapter of Relations

By Staff Reporters

In the first 11 months of this year, the total import and export value of Sino-Vietnam trade in goods was 1.45 trillion RMB, an increase of 3.6 percent. The import and export value in November was 162 billion RMB, a year-on-year increase of 12.5 percent, according to data released by China's General Administration of Customs on December 12.

This year marks the 15th anniversary of the Sino-Vietnamese comprehensive strategic cooperative partnership, and the bilateral trade continues to maintain a positive trend.

Bilateral trade soars

For many years, China has been Vietnam's largest trading partner and import market. The Association of South East Asian Nations (ASEAN) is now China's largest trading partner and Vietnam is China's largest trading partner in ASEAN.

Specifically, the cooperation between China and Vietnam in the industrial chain and supply chain has become increasingly close. In the first 11 months of this year, imports and exports of intermediate goods between China and Vietnam reached 1.01 trillion RMB, accounting for 69.8 percent of China-Vietnam trade. Among them, flat panel display modules, audio and video equipment, and lithium battery products increased by 12.3 percent, 17.1 percent and 10.8 percent respectively.

Complementary partnership

Cooperation between China and Vietnam in agriculture is continuously expanding. In the first 11 months of this year, China imported 44.6 billion RMB worth of Vietnamese agricultural products, up 20.3 percent. And in turn, Chinese vegetables and temperate fruits are also welcomed by the Vietnamese market. In the first 11 months, the total value of China's agricultural exports to Vietnam was 34.3 billion RMB, up 3.1 percent.

"Cooperation in traditional areas including agricultural products, infrastructure construction and raw materials reflects the highly complementary nature of economic and trade cooperation between China and Vietnam," Xu Liping, director of the Center for Southeast Asian Studies at the Chinese Academy of Social Sciences, told *Global Times*.

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With a length of 179.8 meters and a width of 32.8 meters, China's first domestically built drilling ship has been officially named "Mengxiang" (Dream). The "Mengxiang" starts her trial voyage on December 18, 2023. (PHOTO: XINHUA)

Editor's Pick

Southwestern Natural Frontier for Global Ecological Research

By LIN Yuchen

The currently established natural forest transect zone in China's southwestern forest region has been an effective area in biological research. According to the Chinese Academy of Forestry (CAF), the transect in this area now contains 44 sample plots of one hectare in size that cover 12 forest types and are inhabited by several key wildlife species under national protection, like Asian elephants and Yunnan snub-nosed monkeys. In addition, based on incomplete statistics, 969 species of woody plants, totaling 143,800, lie within this established transect.

The southwestern forest area is the largest natural forest area of China and also key to a functioning ecology. As part of the country's major ecological projects, the natural forest protection project and the systematic construction project for protective forests along the Yangtze

River Basin area operate here. Improving the quality of the forest ecological environment in the southwestern forest area serves an irreplaceable role in promoting the construction of an environmentally friendly China.

Rich in plant species

With a large altitude span that extends from 650 meters to 4,300 meters above sea level, the forest plant species of the southwestern transect are well represented. It includes more than 10 types of forest such as tropical rain forest, monsoon evergreen broad-leaved forest, cold-temperate coniferous forest, and dry-heat sparse-tree shrubs and grasses.

"Here, the tropical rainforest includes three types such as Shorea wangi forest, Terminalia myriocarpa, and Pometia pinnata forest; the broad-leaved evergreen forest includes five types, and the coniferous forest includes seven types of forests," said Li Shuaifeng, researcher of the Institute of Highland

Forest Science at CAF.

Li also added that there are also mixed evergreen and deciduous broad-leaf forests dominated by Fagus, cold-temperate scrub dominated by Rhododendron pingianum, and dry-heat rare-tree shrubs and grasses such as Terminalia franchetii.

Various survey objects

It is understood that the researchers investigated plant richness, functional, phylogenetic and soil microbial diversity before deciding to construct the southwestern transect.

"We obtained a total of 5,550 soil samples and 969 species of plant functional trait indicators, along with 88 soil profiles in the southwestern transect. Thirteen ecosystem functional indicators of four types, including carbon storage, soil nutrients, decomposition and maximum water holding capacity, had been collected," said Li.

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Tech for Better Life in China

Xinjiang Powers Ahead with Renewables

By LI Linxu

With wind turbines and solar panels seen everywhere in its vast Gobi and deserts, Xinjiang Uygur Autonomous Region is making great strides in renewables, a boon to its green and low-carbon development.

Visiting the 50-megawatt solar power station in Hami, east Xinjiang, is like immersing oneself into a Hollywood sci-fi film set.

On a wide stretch of Gobi, more than 14,500 pentagonal mirror-like devices are installed in concentric circles. At the very center of the circles stands a 220-meter-high molten salt tower for heat absorption.

"When the sun rises, these mirrors will move like sunflowers," Wang Chao, deputy chief engineer of the station, told *Science and Technology Daily (S&T Daily)* recently. With its "light-heat-electricity"

power generation mode, the station can generate power 24/7, because it can store solar energy and provide stable electricity supply at nights.

"It is also zero-polluting," said Feng Xiaoheng, operational director of the station, adding that as Xinjiang's first solar thermal power generation demonstration project, the station can generate 198 million kWh annually, saving 61,900 metric tons of standard coal a year.

"Tapping its abundant solar and wind energy, Hami is advancing the high-quality development of renewables in light of local conditions," said Zhang Xiaoyi, director of the Hami Municipal Development and Reform Commission, during an interview with *S&T Daily*.

By the end of 2025, the prefecture-level city's installed capacity of renewable energy is expected to reach 40 million kilowatts, according to Zhang. Cur-

rently, the figure stands at 16 million kilowatts, ranking first in Xinjiang.

Hami epitomizes Xinjiang's green and low-carbon push, with a slew of large-scale renewable projects going at full throttle. Apart from Hami, Xinjiang is accelerating the construction of more 10-million-kilowatt renewable energy bases in areas such as Zhundong and Ruoqiang.

This year, Tulum, a prefecture-level city in Xinjiang, kicked off four solar-thermal-photovoltaic integrated projects, with a total installed capacity of four million kilowatts.

At present, the capacity of renewable energy projects under construction exceeds 70 million kilowatts in Xinjiang, according to the latest official statistics. With the construction of such projects at full steam, Xinjiang's low-carbon push has shifted into high gear, laying a solid foundation for its high-quality development.

NEVs Help Shift to Low-carbon Future

By LIU Yin & ZHONG Jianli

The global sales of new energy vehicles (NEVs) reached 9.75 million in the first three quarters of 2023, with China accounting for 6.28 million. This data was presented by Wan Gang, president of the China Association for Science and Technology during the 2023 World New Energy Vehicle Congress held in early December in south China's Hainan province.

"Developing NEVs is crucial for the global automotive industry to achieve green, low-carbon and sustainable development," said Chen Jiachang, vice minister of science and technology.

Chen added that China has been consistently advancing R&D of key core technologies for NEVs and bolstering the two-way development of the NEV industrial and innovation chains. The continuous improvement in technological research and industrialization has been pivotal in propelling the comprehensive marketization of NEVs.

From January to October this year, China saw both production and sales of NEVs surpass seven million, with a market penetration rate exceeding 30 percent. Notably, Hainan, the first province in the nation to publicly announce a sales ban on fuel vehicles by 2030, has achieved a NEV market penetration rate of nearly 50 percent.

Feng Fei, secretary of the Hainan Provincial Party Committee, said the province is developing the entire NEV industrial chain, encompassing research, design, manufacturing and sales. It is also actively promoting the access and trial operation of intelligent connected vehicles (ICVs), aiming to establish a smart transportation system and an ICV networking application demonstration area.

The "Roadmap 1.0 for Green and Low-carbon Development of the Automotive Industry" was officially released during the congress. For the first time at industry level, it explicitly defined the carbon emissions accounting scope of the automotive industry and outlined the vision for green and low-carbon development.

"Automobiles are a significant source of carbon emissions in China. In 2022, the carbon emissions from vehicles accounted for approximately eight percent of the total emissions and 80 percent of the emissions in the transportation sector," said Li Jun, academician of the Chinese Academy of Engineering, adding that the country still anticipates an approximately 200 million increase in automobile ownership, with the domestic total vehicle sales expected to exceed 30 million by 2030, posing a challenge for achieving carbon peaking.

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New Graphic



WECHAT ACCOUNT



E-PAPER



IUSTC International Union for Science & Technology Communication

National Sci-tech Awards Nomination Regulations Updated

Policy

By ZHONG Jianli

The Ministry of Science and Technology of China recently issued the Regulations on Nomination for National Science and Technology Awards, in a bid to further standardize the nomination process for the awards and motivate scientists' enthusiasm for sci-tech innovation.

The newly released regulations state that the nomination for national science and technology awards should strengthen incentives for basic research in natural science and applied science. It encourages both cutting-edge technology research and research with social welfare implications.

Moreover, the regulations have emphasized the support for national major sci-tech missions, major sci-tech infrastructure, and vital engineering projects.

Of particular note is that the regulations stress importance of creative contributions of nominees, stating that nominees



Engineers debug equipment for the Comprehensive Research Facility for Fusion Technology (CRAFT) system, one of China's major scientific engineering projects. (PHOTO: XINHUA)

should be scientists and front-line technical personnel who have genuinely made creative contributions.

Eligible nominators include recipients of the highest national sci-tech awards, academicians of the Chinese

Academy of Sciences and the Chinese Academy of Engineering, as well as individuals who have been primary awardees for National Natural Science Awards of second class or higher, National Technology Invention Awards of first class or

higher, and National Science and Technology Progress Awards of first class or higher since the year 2000.

The nominators themselves should not be candidates for the national sci-tech awards in the same year, and should not participate in the evaluation of awards in which they have proposed nominees.

To improve the nomination process, the regulations call for increased academic oversight. Before nominations are made, the opinions of no fewer than five experts in the relevant professional fields need to be sought.

In terms of maintaining discipline and fostering a positive atmosphere, the regulations outline several measures, including establishing a clear supervisory mechanism, exerting stricter penalties for violations, and setting up a "black-list" credit management system.

That means the names of individuals and organizations engaging in dishonest behavior during the nomination process will be recorded in the database, and punitive measures will be implemented in accordance with relevant national regulations.

S&T Daily Joins Hands with South Africa's HSRC

By LI Linxu

As part of efforts to promote sci-tech exchanges between China and South Africa, *Science and Technology Daily* (*S&T Daily*) has established a cooperative relationship in news communication with the Human Sciences Research Council (HSRC).

Zhang Biyong, president of *S&T Daily*, and Palesa Sekhejane, director for the Strategic Partnerships of HSRC, signed an MOU on November 27.

Under the MOU, the two sides will strengthen information sharing and news communication, in a bid to disseminate Sino-South African cooperation stories in the field of science and technology.

Meanwhile, relevant events will be co-hosted to boost the sci-tech cooperation

between China and South Africa at various levels.

Zhang said that as the two countries' sci-tech exchanges and cooperation become more frequent, *S&T Daily* will take the opportunity to expand the communication channels with South African partners, to facilitate the two-way exchange of sci-tech knowledge.

Focusing on leveraging the power of sci-tech innovation, HSRC hopes to strengthen cooperation with its Chinese partners to find solutions in areas such as food security and poverty alleviation, said Sekhejane, adding that media should play a greater role in such a process.

Established in 1986, HSRC is engaged in cutting-edge research that supports development in South Africa, the Southern African Development Community and Africa.

ANC: Learning from China on Poverty Alleviation

The African National Congress (ANC) says it is taking lessons from China's unprecedented development and poverty alleviation story, seeking to implement the strategies locally for the benefit of all South Africans.

The remarks were made by Dakota Legoete, an ANC national executive committee member and member of the party's sub-committee on international relations while speaking at the Chinese Embassy in Pretoria.

Legoete said in contrast with the Western media narrative, China has experienced unprecedented success in fostering equality for all, including ethnic minorities.

"We have witnessed growing strength in which China's ethnic minorities have enjoyed the best years in the last two decades, in terms of economic and social development, ethnic unity, culture, education, protection of freedom of religious belief and many other aspects,"

said Legoete. The fight against poverty in Xinjiang has made remarkable achievements, included in the celebration of elimination of absolute poverty.

Through the development of the people and economy, Xinjiang has achieved great progress in human rights development, with greater integration and greater celebration of cultural diversity.

"This is a great theme for us in South Africa, a nation also born from histories of colonialism and apartheid, which historically stoked racial and ethnic divisions. Our task as a democratic government continues to be to inculcate building of one nation, unity in diversity, a phrase popularly known and associated with our inaugural President Nelson Mandela," he said.

Source: Independent Online, 07-12-2023

China Spurs Biodiesel Consumption

By CHEN Chunyou

China will expand the use of domestic biodiesel to establish a replicable policy and development path for wider application of biodiesel and other green liquid fuels nationwide, the National Energy Administration (NEA) said in a notice in November.

Derived from vegetable oils, animal fats, or recycled restaurant grease, biodiesel is an internationally recognized green

and clean fuel. China has always encouraged the consumption of biodiesel. For example, the report to the 20th National Congress of the Communist Party of China in 2022 proposed to speed up the construction of a waste recycling system. China's Renewable Energy Law encourages the production and use of bio-liquid fuels, while the 14th Five-Year Plan for the Modern Energy System also calls for the development of biodiesel.

According to the NEA notice, demonstration projects to promote eco-

friendly liquid fuels will be piloted in automotive biodiesel and marine biodiesel.

Industrial parks, logistics parks, mining areas, tariff-free zones and free trade zones are being encouraged to use automotive biodiesel while marine biodiesel will be promoted in tariff-free zones, free trade zones and waterways.

The NEA will give priority to eligible pilot demonstration projects for receiving medium- and long-term loans

for the manufacturing industry. It will promote the establishment of a biodiesel carbon emission reduction methodology, and push ahead with the inclusion of biodiesel into China's certified emission reduction mechanism.

The NEA will also encourage local governments to conduct demonstration projects across various segments of the biodiesel industry. It proposes to optimize the approval process for the pilot projects and extend financial support for them.

Henan Redefines Itself by Gaining Edge in 5G

Case Study

By CHEN Chunyou & CUI Shuang

Henan province in central China has been frequently appearing on social media platforms for its innovative representation of traditional Chinese culture in TV programs. However, this month it caught public attention again due to the recently-concluded 2023 World 5G Convention in provincial capital Zhengzhou,

where 115 cooperation projects with a total investment of more than 11 billion RMB were signed. The convention has provided new opportunities for the development of Henan's digital economy and informatization.

In April, Henan released a plan to accelerate 5G network construction and industrial development to enhance 5G development.

According to Tao Manxi, deputy director general of the Henan Provincial Department of Science and Technology, Henan has built a new digital infrastruc-

ture system based on 5G and gigabit optical networks, with computing infrastructure such as super-large data centers as the core.

The rapid development of 5G has strengthened the convergent development of cross-industries, giving Henan a competitive advantage in 5G development.

One example is the Jinling Coal Mine in Henan's Dengfeng city. Affiliated with the Zhengzhou Dengcao Group, it has become an intelligent coal mine with 5G signal in its deep underground areas, and a digital intelligent scheduling center equipped with 45 safety monitoring and control subsystems. With 5G, the mine has achieved information sharing, data interoperability and real-time monitoring.

This application scenario was made possible thanks to cooperation with China Mobile and Huawei Technologies, making Henan the first province in China to realize full coverage of commercial 5G-A network in underground areas in October. The uplink speed can go up to 1.1 Gbps, enabling data return from more than 100 high-definition camera videos simultaneously.

Moreover, 5G-A base station equipment can cover 50 percent more than the area covered by the original 5G network equipment, while the deployment

cost has been reduced by over 30 percent. Underground miners can use explosion-proof mobile phones to connect with the world outside at any time and report the underground situation. Both the voice and video calls are clear and smooth.

Henan's superior regional transport access, broad market, and massive data resources have contributed to its digital economy development and 5G reform. The integration of 5G with cloud computing, big data, the Internet of Things, AI, intelligent sensing and machine communication has led to the creation of vertical industrial applications in intelligent manufacturing, industrial Internet, vehicle networking, smart medical care and smart logistics.

In November, Songshan Laboratory based in Zhengzhou announced two research achievements: a multi-modal network environment and an endogenous cloud-native security platform. These will be promoted in sectors such as electric power, healthcare and finance to provide Chinese solutions for network environment facilities and network security protection.

"This new round of 5G innovation will bring major opportunities for consolidating Henan's economic strength and building it into an innovation hub in central China," Tao said.



A visitor learns the operating process of an intelligent mining production platform at the exhibition of the 2023 World 5G Convention in central China's Henan province. (PHOTO: Zhou Weihai / S&T Daily)

Competition Helps Foster Entrepreneurship

By CHEN Chunyou

The national finals of the 2023 China Innovation & Entrepreneurship Competition was held in Chengdu, Sichuan province in southwest China, from December 12 to 14, under the guidance of the Ministry of Science and Technology (MOST), Ministry of Finance and three other departments.

A total of 100 enterprises were shortlisted from the fields of new-generation information technology, biomedicine, high-end equipment manufacturing, new materials and new energy for the national finals. Twenty-two of them were awarded the top three prizes.

As a comprehensive sci-tech innovation race, the competition focuses on national strategies and highlights key areas of high-tech industries and strategic emerging industries. The aim is to build an enterprise-led and innovation factor-gathering platform that stresses deep integration of industry, academia and research institutes, and create a new engine for high-quality industrial development.

Qin Haoyuan, deputy director-general of the department of research commercialization and regional innovation at MOST, said in the opening speech that China has always given

priority to strengthening the role of enterprises as major innovation drivers in research activities. The competition provides a state-level platform to advance the commercialization of research results, and promotes a virtuous cycle among science and technology, industry and finance, thus fostering an innovative and entrepreneurial spirit across society.

"The competition has pooled talented individuals with the same ambitions nationwide. During this event, we not only established friendship with other contestants but also found potential partners," said Li Xuefa, the founder of the Yangzhou Nanopore New Materials Technology Co., Ltd., which won the second prize for the development of innovative battery materials.

"Following its inception in 2012, the China Innovation and Entrepreneurship Competition has grown from a small event with fewer than 6,000 participating enterprises to a large-scale competition with over 320,000 enterprises," Qin said.

"To date, it has attracted over 100 billion RMB financing by banks and other investors for these enterprises, and facilitated more than 200 participating enterprises to list on the stock market," Qin added.

NEVs Help Shift to Low-carbon Future

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According to Li, the vehicle industry should steadily transition from the control of energy consumption to the management of carbon emissions, and

focus on promoting green and low-carbon technological innovation, and establish eco-friendly and low-carbon manufacturing systems.

Wan stressed that global automot-

ive industries should strengthen collaborative breakthroughs in key technologies such as power battery systems, new chassis architectures, and autonomous driving systems. He also highlighted the

significance of hydrogen energy for achieving a green and low-carbon transformation, and emphasized the need to focus on core technological innovations in hydrogen and fuel cell vehicles.

INSIGHTS

China's Economic Recovery Spurs Positive Growth Forecasts

Voice of the World

By Staff Reporters

Chinese leaders decided the priorities for the economic work in 2024 at the annual Central Economic Work Conference held in Beijing last week.

It was noted at the meeting that China's economy has achieved recovery, with progress made in high-quality development in 2023. Projections from international organizations also validated the resilience and positive trajectory of the Chinese economy.

The International Monetary Fund (IMF) expects the Chinese economy "to meet the government's 2023 growth target of around 5 percent, and this reflects the post-COVID recovery," IMF spokesperson Julie Kozack said at a press briefing.

The forecasts by the Asian Development Bank (ADB) and the World Bank are slightly higher. On December 13, the ADB revised upward its 2023 growth estimate for China to 5.2 percent from 4.9 percent.

The World Bank estimates that China's economy would grow 5.2 percent in 2023, propelled by gradual recovery of consumer sentiment and poli-



A view of Beijing's CBD area. (PHOTO: VCG)

cy stimulus.

As global growth is projected to remain tepid at 2.4 percent next year, the world's second-largest economy is expected to expand by 4.5 percent in 2024, according to the latest China Economic Update released by the World Bank on December 14.

Investors are closely watching for clues to next year's policy and reform agenda as China's economy shows

strong post-pandemic recovery. J.P.Morgan Private Bankers posted an article on its website in December, titled "Where is the Chinese economy heading in 2024?" It said for investors, "policies encouraging innovation and supporting the digital economy bolster our positive view on large cap China internet stocks, especially after the recent correction."

Efforts to attract foreign invest-

ment are evident. The government is becoming more open to foreign concerns, providing greater access to officials, according to Julian Fisher, chair of the British Chamber of Commerce in China.

Last month, the government highlighted issues impeding foreign business, such as regional laws that impose longer licensing procedures on foreign businesses compared with domestic companies, according to *Financial Times*.

"That really has shifted, this year has seen a lot more action," Fisher told *Financial Times*. He said one example was China's recent acceptance of some UK vocational education qualifications after a specific British request.

Looking ahead to 2024, PricewaterhouseCoopers China's senior economist G. Bin Zhao anticipated a pick-up in China's GDP growth. Zhao told *Forbes* that private sector investment is expected to rise from the previous year's low, and government measures aimed at supporting the economy are predicted to yield positive results.

As for stimulus, Zhao said China's annual budget deficit in 2023 estimated to be 3.8 percent of the GDP, was relatively low compared with the United States', leaving room to offset unexpected weakness in 2024.

Opinion

Barriers Against Green Development Won't Work

By GONG Qian

While China is becoming a major player in the global wind power industry, demonstrated by being capable of creating the most advanced world-class products, it has also faced its fair share of hurdles in this field.

The EU complaints of China's cost-effective wind turbines edging out some local players and distorting the European market are growing. In response, the EU has taken the same approach it took previously to the Chinese photovoltaic industry.

For example, in October, the EU called for an anti-subsidy investigation into wind turbines made in China. Yet such an artificial barrier would actually prevent the EU from achieving its goal of using wind energy as a major component of its green development transition.

On the one hand, with its low penetration, China's robust growth in the wind industry hasn't greatly benefited from the European market. Contrarily, China's wind industry grew out of domestic demand, raw materials advantages and an import substitution effort by the government, according to a report by Institute for Energy Economics and Financial Analysis. China's ample steel production, policy clarity, and home-grown supply chain have created a diverse market of large-scale offshore wind turbine choices.

Literally, the success of China's wind power industry is a result of early investment, tech innovation and favorable policies, not subsidies. For example, in 2003, the Chinese government launched a wind power concession to encourage Chinese companies to compete in the renewables space. Furthermore, some politician's argument of "anti-subsidy" won't hold up, as subsidies

are a widely used industrial policy tool in many countries. European countries like Germany and Spain were pioneers of renewable energy subsidies to help those industries at their inception, said Bloomberg.

On the other hand, the problems faced by the EU are not caused by China. The EU's wind industry is currently facing several challenges, due to high inflation rates and commodity prices, which heightened the prices of European turbines, resulting in a fall in turbine orders and new investments in wind projects, said *The Diplomat*. Furthermore, permitting backlogs of renewable energy projects also limits its manufacturing expansions, according to Reuters.

The EU is not going to launch a formal probe into China's wind industry-source as it lacks "very clear evidence" of unfair practices, an EU official was quoted as saying by Reuters. Meanwhile, EU commissioner for energy Kadri Simson acknowledged that the EU needs more turbines than it's able to produce through the end of the decade, said Bloomberg.

In this case, rather than putting up an artificial barrier, it is a sensible option for the EU to strengthen cooperation with China to speed up the development of its wind capacity, thus enabling it to reach the goals of its green development faster.

This year marks the 20th anniversary of the China-EU comprehensive strategic partnership. Both sides agreed to step up cooperation in such areas as green development and jointly respond to global challenges such as climate change. Therefore, deepening cooperation in the wind power industry is conducive to achieving mutual benefits and win-win results, improving the well-being of humanity.



The Pinghai bay offshore wind power project in Putian, southeast China's Fujian Province. (PHOTO: XINHUA)

EU Agrees on 'Historic' AI Act

Comment

By TANG Zhexiao

The world has its first comprehensive rules on the use of AI. This came after European Union lawmakers and member states reached a provisional agreement on regulating artificial intelligence on December 8.

According to the EU Council, technical work will continue in the coming weeks to finalize the regulation details, and it will not take effect until 2025 at the earliest.

The new rules established obligations for providers and users depending on the level of risk from artificial intelligence said the European Parliament. It includes safeguards on the use of AI

within the EU, including clear guardrails on its adoption by law enforcement agencies, consumers have been empowered to launch complaints against any perceived violations, as well as the additions to the initial proposal by the European Commission.

The European Commission proposed the first EU regulatory framework for AI in April 2021, which said that AI systems that could be used in different applications are analyzed and classified according to the risk they pose to users. Unacceptable risky AI systems such as real-time and remote biometric identification, and cognitive behavioral manipulation of people or specific vulnerable groups are considered a threat to people and will be banned.

Strong and comprehensive regulation from the EU could "set a powerful example for many governments consid-

ering regulation," according to Anu Bradford, a law professor with Columbia Law School who is an expert in digital regulation.

The agreement was described as "historic" by Thierry Breton, the European commissioner for the Internet market, noting it established clear rules for using AI. "The AI Act is much more than a rulebook — it's a launchpad for EU startups and researchers to lead the global AI race," Breton wrote on social media platform X, former Twitter.

Currently, countries including China, the U.S. and UK have proposed their AI regulatory initiatives. Other countries "may not copy every provision but will likely emulate many aspects of it," Bradford told *The Guardians*.

Others have worries and doubts about the agreement, thinking it is to be perfected.

China, Vietnam See New Chapter of Relations

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Cultural exchange

Cultural exchange between the two countries has also flourished. Vietnam's Ministry of Education will include Chinese as a compulsory course in the third and fourth grades of primary schools from

2024, becoming the fifth country in the world to include Chinese as a compulsory course in schools. Last year, China announced that it would provide Vietnam with no less than 1,000 Chinese government scholarships and no less than 1,000 scholarships for internation-

al Chinese language teachers in the next five years. This will help Vietnam train talented personnel and international Chinese language teachers, which will further promote China-Vietnam education cooperation, according to *China Youth Daily*.

In addition, more and more popular Chinese movies and TV dramas are being introduced into the Vietnam cultural market, being well received by Vietnamese people and promoting cultural exchanges between the two countries.

Southwestern Natural Frontier for Global Ecological Research

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The dynamic monitoring sample plots in the southwestern transect also include wildlife under key national protection endeavors.

"At present, a total of 45 kinds of national key protection wild plants have been found in the transect, among which there are four kinds of wild plants under national level-I protection; and 41 kinds of wild plants under national level-II protection, like *Alsophila costularis* and so on," said Li.

Meanwhile, the transect zone involves the habitats of Asian elephants, Yunnan golden monkeys, baiyaji chickadees, as well as Qian golden monkeys. All of them are rare wild animals that

have been put under protection a long time ago.

"In the future, we will conduct surveys and monitoring on a cyclical basis, with surveys every five years; on top of the existing arrangements, we also plan to add animal and microclimate monitoring, combining infrared cameras and small weather stations to monitor animal diversity and meteorological factors such as temperature, precipitation, and humidity in the sample site," said Su, adding that the monitoring of the southwestern transect is proposed to last more than 30 years.

High standard construction

It took Su Jianrong, director of the Institute of Highland Forest Sci-

ence at CAF, along with his team many years to construct this transect. "The establishment of ecosystem function sample zones like this can systematically monitor the overall pattern of ecosystem function changes, and reveal the mechanism of how an ecosystem functions."

"In order to ensure the long-term continuity of dynamic monitoring and long-term research on the samples collected in the transect, our institute has signed a 30-year agreement with 10 organizations for the co-building of dynamic monitoring samples," added Su.

The construction of the southwestern natural forest transect has high standards. These are in accordance with

the national forest ecological positioning research station sample construction standards, drawing on the technical specifications of the Smithsonian Tropical Research Institute Tropical Forest Science Research Center of the U.S. as references.

The transect's construction draws on a satellite positioning system to determine such elements as the slope, slope direction, concavity and elevation of the sample plots. Every 20 meters the transect builders installed fixed stakes in cement piles; and all woody plants whose diameter at breast height was greater than 1 cm were marked for positioning survey, which records their species name, height, exact coordinates.

Special TBM Aids Metal Mining

Hi-tech

By TANG Zhexiao

A tunnel boring machine (TBM) Jishi was put into use in northeast China's Anshan recently, marking the first time the country applied TBM in the underground mine construction. The TBM, also known as "mole", is the equipment used to excavate tunnels through hard rock, wet soil or sand which requires spe-

cialized technology. It is widely used in tunnel projects such as railways, hydro-power, transportation and subways.

As a type of full section hard rock TBM, Jishi has a diameter of 7.03 meters and a length of 188 meters, with a total weight of 1,200 tons and the advantages of fast excavation and high efficiency.

It can increase mine construction efficiency by more than three times compared with the traditional drilling method. By avoiding surface vibration and noise through non-blasting excavation, it is also environmentally-friendly.



The tunnel boring machine "Jishi" in Xi'an Iron Ore Mine, Anshan, Northeast China's Liaoning province. (PHOTO: ANSTEEL GROUP)

Exploring Dynamics of Earth's Changes

Dialogue

By LONG Yun & ZHONG Jianli

"In my opinion, the ultimate goal of [scientific research] has to be about improving our relationship with the world that keeps us alive on this planet, which can be achieved through many different routes," well-known physical geologist Professor Michael Meadows told *Science and Technology Daily*. Currently, he is a dedicated researcher and educator at the School of Geography and Ocean Sciences at Nanjing University (NJU).

Adventurous and fun
Hailing originally from Liverpool, UK, Meadows' interest lies in understanding "how and why environments change over time." The last 20,000 years, including the Holocene and the ongoing Anthropocene, are his playgrounds. Based on his observation "as a person and a scientist," sustainability has become a pivotal theme in his work. "Environments are changing because of human impact. Geographers have a unique part to play in addressing environmental and socioeconomic sustainability," he said.

Challenges serve as an inevitable part in Meadows' research on physical geography. Because his work depends on fieldwork, it allows him to go on adventures in remote corners of the globe. He recalled an incident in which he fractured five ribs during a sediment coring assignment. He didn't complain, saying, "Fieldwork is an adventure and is great fun."

The culmination of his work gives people insights into the delicate balance between humans and nature. "The relationship between people and nature is breaking down," he said, calling for a re-evaluation of our connection with nature and emphasizing that mismanagement poses risks not just to the environ-



Professor Michael Meadows receives the Royal Geographical Society's Special Gold Medal on behalf of the International Geographical Union. (COURTESY PHOTO)

ment but to humanity itself.

One of Meadows' notable contributions lies in his extensive research on an important wetland and lake located in the north of Cape Town, South Africa. His work shattered preconceptions by unveiling the lake's ecological history through sediment analysis. In fact, the seemingly pristine ecosystem was highly disturbed, with significant changes occurring centuries ago. "It had major implications for ecological management. The system is potentially very vulnerable," he said.

Awakening curiosity of students
According to Meadows, cultivating young talent in the field of physical geography requires more than just academic instruction, as it demands a mentor's ability to ignite curiosity and foster a partnership between teacher and student.

The scholar's task is clear: "Awakening curiosity in students is the challenge." He believes in injecting energy

into lectures, turning them into a dynamic and entertaining performance. "Revealing the uncertainty of what we know to students is quite exciting," said Meadows. Rather than passively accepting information, he encourages students to question, explore, and dive into both the landscape and the academic literature.

What sets his approach apart is the personal engagement he values with students. "I want my students to ask me questions, even criticize my research," he said. To him, students are not just learners but partners in the research journey. Meadows always views his relationship with students as a collaborative partnership. "They're the ones doing the hard yards," he said.

When it comes to inspiring the next generation, Meadows painted a vivid picture of the evolving role of geographers. He stressed the value of a multidisciplinary approach in the interconnected world with environmental chal-

lenges. "Students who major in geology are increasingly attractive to employers," he noted, saying the broad and integrated thinking that geographers bring is becoming increasingly important across various sectors.

A dreamland for research
Reflecting on the challenges he faces, funding emerges as a pivotal aspect. Meadows mentioned his experiences in South Africa, emphasizing the difficulty of securing resources for research in developing countries. However, the landscape has evolved since he arrived in China. "To be honest, it's a dream [to conduct research] in NJU," he said. The resource transformation allows him to explore fields previously constrained by financial limitations.

Meadows' enthusiasm for his time in China is genuine. Having spent three years commuting to a Chinese university in Shanghai before joining NJU, he feels embedded in the NJU community. "I feel privileged to be part of that," he said, praising the excellent leadership and the outstanding co-workers in his field.

Meadows applauded the remarkable growth of China's academic achievements. In his field, China stands at the forefront globally. He said that sustainability studies are gaining prominence globally, with China becoming a recognized center, fueled partly by significant government investment.

As President of the International Geographical Union (IGU), Meadows sees international scientific cooperation as integral to the organization's mission. Celebrating over a century of existence, IGU aims to bridge geographical communities worldwide. "We want to bring Chinese geographies to the world and bring the world to Chinese geographies," he said, emphasizing the core philosophy of fostering global collaboration and networking.

This article is also contributed by ZHANG Rong, JIANG Peiye from NJU.

My China Story

Government-led Environmental Protection Effective

By LIN Yuchen

Makram El-Shagi, a German economist working at Henan University, has lived in Kaifeng, Henan province for around 10 years. Captivated by Chinese culture, he chose to leave Germany and come to China and brought his wife as well as his two daughters along, both of whom are now studying in a local public school.

El-Shagi recently shared his thoughts on the changes he has seen in China over a decade with *Science and Technology Daily*. He also contrasted the differences between China and Germany, especially in terms of environmental protection.

First and foremost, for El-Shagi, China's political system may appear complicated, "But when it matters, it's not like in Germany, [where] if you want to do something new and big, it takes years to get approval and to get it done. We took like 20 years to build an airport. But when China says, we need an airport, one year later you will have an airport," he said.

He showed his approval of the high efficiency of China's political system, highlighting the fact that the central government's instructions can be fully implemented in China. "The lower levels of administration fall in line relatively quickly," he said, adding that this can be different in Germany, where all the various parts of government seem to fight against each other so nothing gets done.

Reflecting on China's efforts in improving air quality, El-Shagi said there has been a big improvement.

"I think China has been a driving power behind the change to a green or greener economy. And as you see, it's December now and when we [first] moved to China in December ten years ago, you couldn't really see the sun. [This happened] basically, from the time the [internal] heating period began in November to March. Now, smog is not a major problem



Makram El-Shagi. (COURTESY PHOTO)

anymore," he said.

In contrast to environmental protection in the U.S., El-Shagi said a friend who lived in Los Angeles told him that after almost 20 years living there, he just recently began to realize that it's even possible to see the mountains from Los Angeles. "That's because there was just so much dust and pollution all year round, and you could not see the mountains clearly. Now you typically can see them on a clear day," he relayed what his friend said.

He held positive views towards China's future development. However, he believes that, "The further you improve, the harder it is to improve even further." That's because the development was so extremely fast in the beginning, where it went from a lot of pollution to fairly little pollution quite easily, but to go from a little pollution to no pollution is extremely hard, said El-Shagi.

The next stage in greening development will require more funding and will therefore take more time and effort, he said.

"But I don't see any reason to believe that China won't continue on this path or won't make progress in the decades to come," he said.

Expats Activity

Telling China's Stories from Expats' Perspective

By ZONG Shihan

A symposium with the theme of creating high-quality works and telling China's stories well was held in Beijing on December 17. A new book on foreign experts' China stories was also released on the occasion.

Written by Xu Qingqun, editor-in-chief of *International Talent Magazine*, the book tells the stories of 16 foreign experts working and living in China, recording their thoughts on the progress of education and technology, the improvement in medical and health care, and the achievements of rural revitalization in

the past decade.

Laurence J. Brahm, an American documentary filmmaker, said at the symposium that China and foreign countries need a new "ping-pong diplomacy" and "kung fu culture," and more foreigners need to understand China's values.

British-Canadian Michael Crook, who has lived in Beijing for 50 years, said in the current complicated international situation, it is necessary to tell China's stories from the perspective of foreign experts, and also to tell the story of the Chinese helping overseas, so that more foreigners know the real China.



The symposium with the theme of creating high-quality works and telling China's stories well is held on December 17. (PHOTO: Publishing House of Electronics Industry)

Traditional Eastern Wisdom

Heaviest Gold Mask of Sanxingdui

By ZONG Shihan

Among the gold masks unearthed at the Sanxingdui archaeological site, one that covers only half a face holds China's record for the heaviest gold object.

After restoration, the gold mask weighs about 280 grams and is about 23 centimeters wide and 28 centimeters high. Its gold content is about 85 percent and silver content about 13 to 14 percent. It is projected that the complete gold mask would weigh more than 500 grams, which is larger and heavier than the gold mask unearthed at the Jinsha Site in Chengdu, and also heavier than the 463-grams gold scepter unearthed at Sanxingdui, making it the heaviest gold object of the Shang Dynasty (1600-1046 BC) unearthed in China to date.

The production process of the mask is complex and exquisite. Ancient Chinese first hammered pure gold into beaten gold and shaped it to resemble the outline of the head of a bronze figure statue.

Then, they hollowed out the eyes and eyebrows, and attached the mask to the bronze human figure statue. Finally, the mask was polished to a high luster, which indicates that craftsmen over 3000 years ago were very proficient in polishing techniques.

A large number of gold artifacts have been unearthed from the Sanxingdui site, all of which are related to religious rituals, which is very different from the use of jade and bronze artifacts as sacrificial items in other regions during the same period. This phenomenon indicates that the ancient Shu people seemed to have a special worship using gold artifacts.

It is inferred that the gold mask was also used for ritual purposes. However, the specific use of the gold mask is still an unsolved mystery, and further archaeological excavation and research are needed to verify its use.



The half gold mask at the new Sanxingdui Museum. (PHOTO: VCG)

Service Info

Foreign Experts Recruitment Fair a Vital Platform

By WANG Xin

More than 800 job positions spanning diverse fields, including technology, education, media, and international trade were available in a recent foreign experts recruitment fair held in Shanghai.

Over 500 of these posts were in the high-demand science and technology sector, including positions in new energy, mechanical manufacturing, applied materials, software engineering, and the burgeoning field of biopharmaceuticals.

The fair attracted over 430 foreign experts from more than 90 countries and regions across diverse fields. Recruitment representatives from over 50 organizations based in Shanghai, Beijing, Tianjin and other regions were on hand to facilitate the process. In addition, science and technology departments from Tianjin, Hebei, Shanxi, and Shandong actively mobilized local enterprises to send delegations to the fair.

Expressing satisfaction with the first offline recruitment fair after the pandemic, participating employer organizations noted a significant demand for

foreign experts.

To enrich the fair's content, two policy and service lectures were initiated. Officials from the Science and Technology Commission of Shanghai Municipality (STCSM) policies related to foreign experts working in China. Furthermore, eChinaCareers briefed employers on major channels for recruiting foreign experts and addressed common recruitment queries.

As part of the efforts to promote international exchanges, the "Overseas Talent Experience Fengxian" event was also organized to help foreign experts experi-

ence China's development in the sci-tech field and understand historical context and future plans of Shanghai's Fengxian district.

The fair was co-organized by the Foreign Talent Research Center and the STCSM. Since its inception in 2005, the fair has organized 70 events in cities like Beijing, Shanghai, Guangzhou, Chengdu, and Hong Kong, providing over 20,000 opportunities for job seekers from 100-plus countries and regions.

This article is also contributed by Foreign Talent Research Center.