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2024 Policies and Actions for Addressing Climate Change Issued

By WANG Jing

Ahead of COP29, which opened in Baku, Azerbaijan, on November 11, China's Ministry of Ecology and Environment (MEE) released "Policies and Actions for Addressing Climate Change (2024)," demonstrating the effectiveness of policies, actions, and achievements in addressing climate change since 2023.

In 2023, China vigorously promoted the reduction of carbon emission intensity, with non-fossil energy accounting for 17.9 percent of total energy consumption. The installed renewable energy capacity exceeded 1.5 billion kW, accounting for more than 50 percent of the country's total installed power generation capacity.

The level of green and low-carbon transportation continued to improve. According to the report released on November 6, in 2023, the number of new energy vehicles reached 20.41 million, and the charging infrastructure increased by 3.38 million units, an increase of 30.6 percent year on year.

The carbon sink capacity of ecosystems also improved. Preserved plantation area reached 1.3 billion mu, forest coverage was 24.02 percent, and the comprehensive vegetation coverage of grasslands was 50.32 percent.

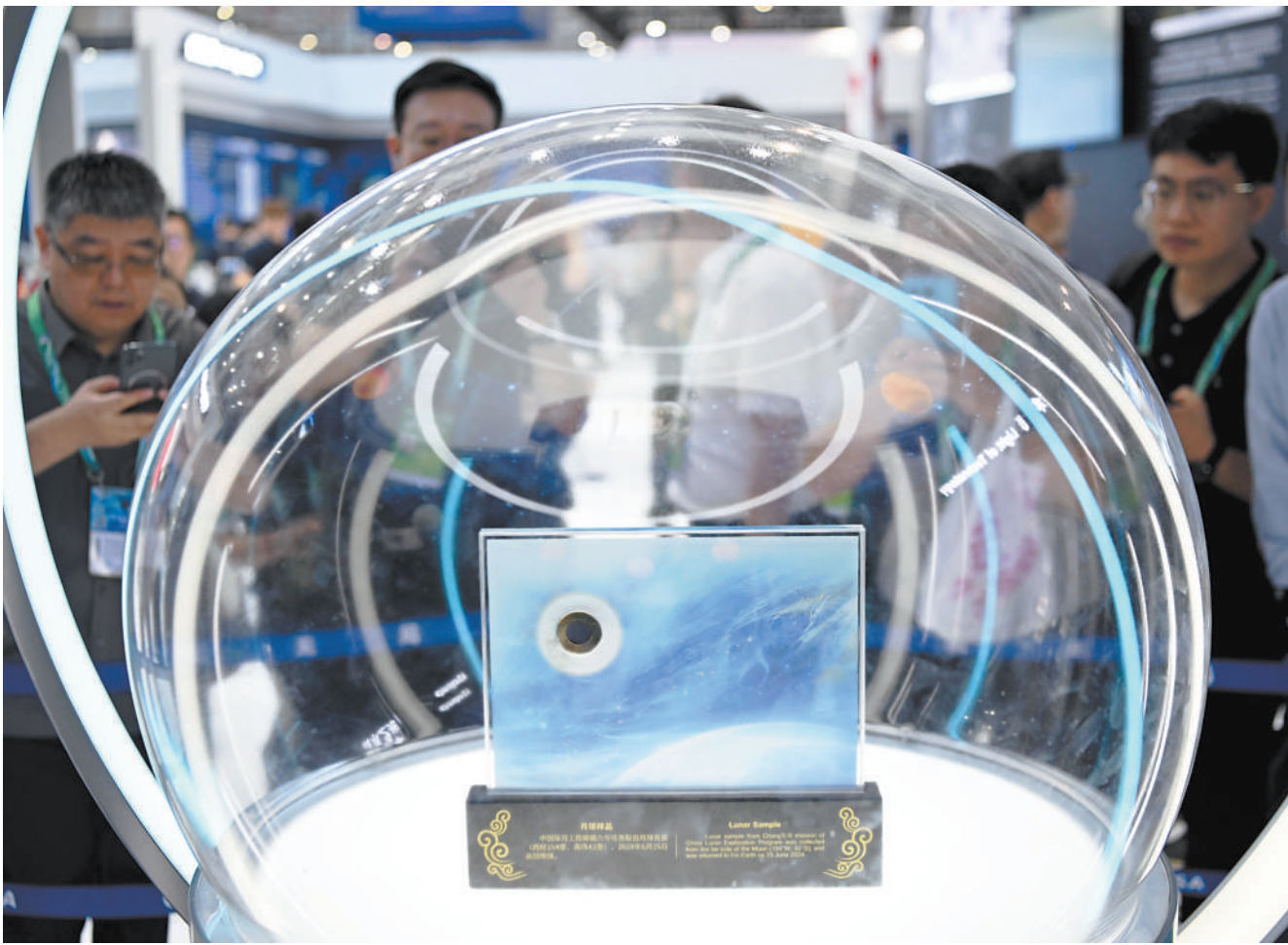
Since 2012, more than 3,400 wetland protection projects have been implemented, and more than 0.8 million hectares of wetlands have been added and restored.

The national carbon emission trading market is important for realizing the national determined contribution to climate change.

"Since the launch of the national carbon emission trading market in July 2021, the cumulative trading volume of carbon emission allowances has approached 500 million tons, with a transaction value of 29.7 billion yuan, showing a steady upward trend in trading prices," Xia Yingxian, director of MEE's department of climate change, said.

Addressing climate change is the common cause of humankind, Xia said, adding that China has carried out in-depth South-South cooperation on climate change to help least developed countries, African countries, small island states and others improve their ability to cope with climate change.

By the end of June 2024, China had signed 52 South-South cooperation documents on climate change with 42 other developing countries and carried out a series of assistance and exchanges to support them in enhancing their coping capacity.



Visitors look at lunar samples retrieved by the Chang'e-6 mission displayed during Airshow China in Zhuhai, south China's Guangdong province, on November 12, 2024. (PHOTO: XINHUA)

Editor's Pick

Floating FPSO in South China Sea a First

By CAO Xiuying & QI Liming

China has launched its first floating production storage and offloading (FPSO) unit. Named the Haikui No.1, it is a self-developed cylindrical FPSO facility, as well as the first cylindrical FPSO put into use in Asia. An FPSO is a floating vessel used by the offshore oil and gas industry to produce and process hydrocarbons and store oil.

Powering high quality development

Officially put into production on September 19, Haikui No.1 weighs a total of 37000 tonnes, towers at a height of about 30 floors, and is 72 meters in diameter. With such a huge area and weight, it looks like a gigantic rice bowl. It has a maximum oil storage capacity of 60,000 tonnes and can also process about 5,600

tonnes of crude oil each day, enough to power 900,000 cars simultaneously.

Haikui No. 1, in collaboration with the deepwater jacket structure Haiji No. 2, has made the re-use of a deepwater oil field in China a reality, extending the production life of the Liuhua Oilfield (China's first self-operated oilfield group, located in the Pearl River Estuary Basin of the South China Sea) by nearly 30 years. On the other hand, it also signals that China has fully mastered the integrated development technology of deep-sea oil and gas engineering over 300 meters, creating a new mode of economic and efficient deepwater oil fields.

"The independent design and construction of Haikui No. 1 not only revitalized the old oilfield that has been in production for decades but also led to the

high-quality development of China's offshore oil and gas development engineering equipment industry chain," said Li Da, chief engineer of Engineering Research and Design Institute, China National Offshore Oil Corporation.

Tough and cost-effective contour design

At the beginning of the design stage, the engineers decided that the FPSO should have a large throughput, be cost-effective, and be tough enough to "take root" in the deep waters of the South China Sea, where typhoons are frequent. Through intense brainstorming, a cylindrical FPSO emerged as the best choice.

After settling on the contour of the FPSO, determining the size of the "bowl" was the next challenge.

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Grand Water Diversion Project Transforming Lives

By LIN Yuchen

The South-to-North Water Diversion Project, a monumental infrastructure initiative, has marked a decade of operation since its full operation in 2014, fundamentally reshaping water distribution across China.

Launched to address the uneven water distribution between China's resource-rich south and the water-scarce north, the eastern and middle routes of the project have transported over 76 billion cubic meters of water from the Yangtze River Basin to northern regions to date.

The project, the biggest of its kind in the world, has enabled China to take a leap toward achieving a comprehensive water network, envisioned as "four horizontal and three vertical lines," for optimized national water distribution. This

network now supports over 40 major cities, providing high-quality drinking water to more than 185 million people across areas that include Beijing, Tianjin, Hebei and Shandong.

A lifeline of water reaching the north

The project's infrastructure spans thousands of kilometres. The eastern route begins in Jiangsu province, pumping water northward through an extensive network of pipelines and canals. The middle route, beginning at the Danjiangkou Reservoir in Hubei province, crosses the Yellow River and serves major northern plains.

This transformative project does more than quench the population's thirst; it provides a stable water source that mitigates risks associated with high-fluoride and saline water, especially in re-

gions like Hebei's Heilonggang Basin. Residents who once relied on mineral-laden groundwater are now benefiting from "southern water" with better quality and taste.

These achievements highlight the project's far-reaching impact on improving the quality of life and sustaining growing urban centers.

Advancing ecological resilience

The South-to-North Water Diversion Project has not only brought water but has also ushered in a new era of ecological and environmental protection.

From the source at Danjiangkou Reservoir to various transfer stations, the project has implemented a robust water-quality monitoring system, ensuring that water reaches its destination in an optimal state.

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An Eco Highway to Peru's Ancient Wonder

International Cooperation

By HU Dingkun & LIN Yuchen

While the world's eyes are on the 31st Asia-Pacific Economic Cooperation (APEC) Economic Leaders' Meeting in Lima, Peru, few perhaps are aware of intense work going on under the shadow of the Andes Mountains to build a nearly 30-kilometer highway to Machu Picchu, the legendary "Sky City" of Peru's ancient Incan empire.

The project is led by China Civil Engineering Construction Corporation (CCECC) from across the Pacific.

Complex ecosystems, rich biodiversity

The construction is being done with extra caution given the unique natural environment surrounding the project. The road starts in Santa Maria in the southern Cusco region, passes through the Santa Teresa district as Peru's longest tunnel, and a hydroelectric bridge, and extends to Machu Picchu. When completed, it will significantly improve local transportation and boost the tourism economy.

The Machu Picchu road is strategically positioned at the intersection of the Machu Picchu and Choquequirao protected areas, sites of ruins of the Incan civilization, and stretches through the Andes, following the Urubamba River southeastward toward the Amazon rainforest. This route traverses 24 distinct ecosystems, offering a full ecological transition from highland plains and snow-capped mountains to the dense Amazon jungle. Such diverse geography makes it an acutely environmentally sensitive project within a mountainous rainforest region, abundant in flora and fauna.

The area surrounding Machu Picchu is home to 75 mammal species, 444 bird species, 14 amphibian species, 24 reptile species, and 377 types of butterflies.

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WEEKLY REVIEW

Lijian-1 Y5 Commercial Carrier Rocket Launched

China launched the Lijian-1 Y5 commercial carrier rocket with 15 satellites onboard on November 11. The satellites, including the Jilin-1 Gaofen series, Yunyao-1 series, Xiguang-1 series, and a remote-sensing satellite for Oman, were put into their planned orbits.

Carbon-based Artificial Muscles Created

Scientists from the Institute of Chemistry under the Chinese Academy of Sciences and Ocean University of China have developed a novel type of artificial muscle that is based on carbon, a fundamental component of all known living organisms on our planet.

Novel Strategy to Repair Human Brain

Chinese scientists from Tianjin University have proposed a novel strategy of integrating two approaches to repair the human brain, namely connecting the brain to a machine and simulating brain cultivation. Their strategy involves implanting brain-like nervous tissue in a cerebral injury region and then electrically connecting it to an external control.

3D Bioprinter Mimics Human Tissues

Biomedical engineers from the University of Melbourne have invented a 3D bioprinter capable of fabricating structures that closely mimic the diverse tissues in the human body, from soft brain tissue to harder materials like bone and cartilage. This cutting-edge technology offers cancer researchers an advanced tool for replicating specific organs and tissues, significantly improving the potential to predict and develop new pharmaceutical therapies.

Pluripotent Stem Cells Used to Repair Cornea

Scientists at Osaka University in Japan have for the first time used corneal tissue transformed from human induced pluripotent stem cells to repair the corneas of four patients with limbal stem-cell deficiency. The research team plans to conduct a larger clinical trial to explore the efficacy of the treatment.

New Graphic

113 International Standards on TCM Promulgated

(By the end of 2023)

93,000

TCM medical institutions nationwide, providing **1.54 billion** patient consultations

46

National TCM inheritance and innovation centers

Source: The National Administration of Traditional Chinese Medicine
Designed by YAO Yilu / Science and Technology Daily

WECHAT ACCOUNT



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