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Ecological and Environmental Code Comes into Force

By Staff Reporters

China's Ecological and Environmental Code came into force on August 15, following its adoption at the fourth session of the 14th National People's Congress in March. It is the world's first unified legal code named specifically for the ecology and environment, and China's second statutory code after the Civil Code.

The Code consists of 1,242 articles in five chapters, covering pollution control, ecological protection, and green and low-carbon development. These three areas directly address the three planetary crises of climate change, biodiversity loss and pollution identified by a 2021 United Nations Environment Programme report, *Making Peace With Nature: A Scientific Blueprint to Tackle the Climate, Biodiversity and Pollution Emergencies*.

Before the Ecological and Environmental Code was formulated, there were more than 30 ecology and environment-related laws. Ten of them, including the Environmental Protection Law, have been comprehensively revised and incorporated into the Code. These laws cease to be in force with the Code taking effect.

Key principles and provisions from the existing laws concerning river basins, regions, natural resources, biodiversity and other ecological elements and ecosystems, as well as those concerning the circular economy and energy conservation have been incorporated into or reflected in the Code. These laws will continue to remain in force.

To address legal needs related to climate change, carbon peaking and carbon neutrality, and green and low-carbon development, the Code sets out certain principles and forward-looking provisions in the areas where no dedicated laws have yet been enacted.

Homegrown Chinese practices, including the river and lake chief system, ecological and environmental zoning-based management and control, and ecological conservation red-lines, have been incorporated into the Ecological and Environmental Code. These institutional innovations, born of China's own experience, form the strongest practical foundation for the Code. *See page 2*

WEEKLY REVIEW

New Chip Converts Light Signals into Tokens

A team led by Miao Feng and Liang Shijun from Nanjing University, in collaboration with the National University of Singapore, has developed an ultra-low-power intelligent vision sensor chip that directly converts light into tokens. The tokens generated by this chip can be fed directly into an encoder for image recognition.

AI Large Model Facilitates Soybean Breeding

Chinese researchers have unveiled an upgraded version of "Fengshu" 2.0, a vertical large model tailored for soybean science, to facilitate data-assisted breeding of soybeans, according to Anhui Agricultural University.

Light-powered Nanorobots Can Collect Bacteria

Researchers from the University of Würzburg have built microscopic, light-driven robots that can rapidly navigate through liquid, collect bacteria, and deposit them in chosen locations. These tiny "cleaners" could open new possibilities for manipulating cells and microbes with remarkable precision.

Type of Breast Cancer Found Manipulating Immune System

New research from the University of Oklahoma has revealed how an aggressive type of breast cancer can manipulate the immune system to draw nerves into tumors, creating conditions that may help the cancer grow.



China launches its reusable rocket Zhuque-3 Y2 on August 19, and achieves its first successful land-based controlled recovery of a rocket's first stage using deployable landing legs. (PHOTO: XINHUA)

STI Frontier

Green Power Hub in Canyon

By LU Zijian & SUN Yu

A great dam stands on the Lancang River in a canyon located between the counties of Nanjian and Fengqing in Yunnan province, southwest China. This is the Xiaowan Hydropower Plant, a key power source for China's west-to-east power transmission program and a flagship project in the cascade hydropower development of the Lancang River Basin.

The Xiaowan Hydropower Plant has been advancing on a path of innovation, from the excavation of a 700-meter-high slope to the independent development of the core control system of the 700 MW hydropower unit.

Tackling complex geology

When the first group of builders walked into the unfrequented canyon, they were met by nearly vertical cliffs, a

rapid river and complex geology. Excavating a 700-meter-high slope was unprecedented in global hydropower history.

Soon after construction began, Slope No.2 developed dangerous creep deformation. It created the risk of a landslide that could block the river and form a landslide-dammed lake, threatening the safety of the arch dam and the underground powerhouse.

The situation was traced to three main factors: the excavation disrupted the slope's original stability, the blasts during construction caused vibrations, affecting the slope, and the rainfall softened the soil. In addition, delays in implementing support and drainage measures aggravated the situation.

Although some experts thought the site would be extremely difficult and risky to stabilize, the building team ultimately settled on a comprehensive treatment

plan. It meant using prestressed anchor cables, with anti-slide piles as a supplementary measure.

More than 1,380 bundles of anchor cables, 15 anti-slide piles and retaining walls, 10 steel-frame anti-slide piles, and a three-dimensional drainage tunnel system comprising nine levels with a total length of 3,750 meters were all completed within just over a year.

"The anchor cables stabilize the accumulated mass by pulling it from above, while the anti-slide piles act like a row of supporting columns to hold the bottom in place, and the drainage system promptly alleviates the impact of rainfall," Sun Yamin, a hydraulic engineering technician, said. Through these intensive, comprehensive stabilization measures, the deformation was brought under control in about six months and reached long-term stability after one year. *See page 2*

Robotics Wows the World at WRC 2026

By LI Linxu

Do you want to watch robots boxing, dancing, or even cooking? Are you interested in finding business partners in robotics? Or perhaps you just want to have some fun? Come to the World Robot Conference 2026 (WRC 2026).

Themed "Human-Robot Symbiosis, Production-Demand Convergence," the 2026 edition of WRC kicked off in Beijing on August 19.

Speaking at the opening ceremony, Xin Guobin, vice minister of industry and information technology, said the operating revenue of industrial enterprises above designated size in China's robotics sector exceeded 300 billion RMB in 2025, with an average annual

growth rate of over 20 percent over the past five years.

This year's event gathered more than 300 exhibitors, presenting over 3,000 products — including more than 300 debuts.

At the booth of Beijing Innovation Center of Humanoid Robotics, the Tian-gong Omni, a new intelligent species of humanoid robot, demonstrated versatile skills such as walking on plum-blossom piles, navigating stairs, and crawling on all fours, vividly illustrating its motion control, environmental adaptability, and task execution capabilities.

At Fourier's booth, a Robot Butler's Day, an immersive experience space, drew crowds of visitors. Multiple GR-3 robots acted as "intelligent butler

assistants" in a simulated home environment. Visitors could control the robots with natural language commands, enabling them to autonomously allocate tasks and independently perform a range of duties — from home security and item delivery to daily companionship and visitor reception, showcasing new possibilities for robots to integrate into future family life.

This year's WRC witnessed greater international participation with support from about 30 international organizations, including the United Nations Industrial Development Organization, the International Federation of Robotics, and the World Federation of Engineering Organizations.

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International Cooperation

C919 Goes Global with Open Collaboration

By YAO Yian

On August 12, Air China's C919 commenced daily round-trip service between Beijing and Ulaanbaatar in Mongolia, marking China's first domestically built trunk jetliner entering a regular international commercial route, integrated into the global ticketing system.

This signals the C919 has entered a new phase of cross-border passenger service — a step made possible by not waiting for Western certification but by leveraging bilateral cooperation.

Under the China-Mongolia mutual airworthiness recognition framework, the C919 can operate without going through the lengthy U.S. FAA or European EASA certification process. Tian Linchuan, an assistant researcher at the School of Aeronautics and Astronautics at Shanghai Jiao Tong University, said the Western certification is a "bonus, not the only threshold" for China's jet to go global. The roughly 1,200-kilometer route, with a flight time of two hours 15 minutes, falls well within the C919's optimal operating range. It will help China accumulate overseas operational data and build replicable international service standards.

This milestone is preceded by years of overseas cooperation by another homegrown Chinese civil aircraft, the C909. The jet has already opened 25 overseas routes in Indonesia, Laos and Vietnam, serving over one million passengers and building experience in overseas regulation and maintenance systems. Air China operated the C909 on the Hohhot-Ulaanbaatar route for nearly a year, ensuring Ulaanbaatar's airport had full support capabilities for Chinese-built aircraft before the C919's arrival.

International airshows and industry expos have further expanded enterprise-level cooperation. At the July 2026 Farnborough International Airshow in the UK, models of the C909, C919 and the under-development C929 wide-body jet were displayed, drawing inquiries from overseas aviation professionals.

At the fourth China International Supply Chain Expo in Beijing in June, the AVIC SAC Commercial Aircraft Company Ltd., a key C919 supplier, announced stable partnerships with over 500 suppliers across 20 countries and regions. Wang Cui, Airbus global senior vice president, pointed out that China is the company's largest single-country market, with 2,334 aircraft in service in Chinese mainland as of May 2026.

The C919 is expected to expand to Southeast Asia and Central Asia, using Belt and Road operations as a foundation for regional spare-parts depots and maintenance centers. EASA certification, projected to take three to six years, will open access to the European Union and over 90 countries. In an era of geopolitical uncertainty, the C919's international debut reinforces a clear message: What enables aircraft to fly farther is never going it alone, but open collaboration.

New Graphic

From January to July

China's Value-added
Industrial Output of
High-tech Manufacturing

13.8% Y-O-Y

Source: National Bureau of Statistics
Designed by SONG Ziyao / Science and Technology Daily

WECHAT ACCOUNT



E-PAPER

