

China to Scale Up High-level Education Opening Up

Policy Express

By QI Liming & GONG Qian

China's State Council has issued an outline plan for the development of the education sector during the 15th Five-Year Plan period (2026-2030), focusing on building a strong, globally competitive educational system to underpin the country's modernization drive.

By 2030, China will have essentially completed constructing a high-quality education system, establishing a society of lifelong learning and enhancing the influence, competitiveness, and voice of its education sector on the global stage.

A total of 23 key tasks have been laid out in five aspects: fostering virtue through education, strengthening education's supporting role for the development of science and technology and human resources, improving the quality of education as a kind of public service, building a higher-caliber teaching workforce, and scaling up high-level education opening up.

International exchanges and cooperation in basic research will be deepened while leading research universities



Children in Shijiazhuang, Hebei province participate in a game to celebrate the Dragon Boat Festival at their kindergarten, June 17, 2026. (PHOTO: XINHUA)

will be supported to initiate or participate in international big science programs and projects. World-class science and engineering universities from overseas are encouraged to establish joint education programs in China, and international training programs for outstanding talents will be launched.

Chinese education brands with global influence will be built. Coopera-

tive mechanisms with European and American countries will be developed and consolidated, while deepening collaboration with neighboring nations, countries participating in Belt and Road cooperation, and other Global South countries. The focus will be on sharing Chinese standards and solutions in areas such as vocational education, basic education, engineering

education, artificial intelligence education, and teacher development.

The plan emphasizes active participation in and leadership of global education governance. Multilateral platforms including international organizations will be fully leveraged to advance cooperation with UNESCO and other international bodies, as well as multilateral frameworks such as BRICS and the Shanghai Cooperation Organization.

The plan also introduces the Global Impact Enhancement Plan for Chinese Education. Key measures to be taken abroad include establishing an elite engineer training program, science and technology backyards, and traditional Chinese medicine education centers, as well as establishing or upgrading approximately 20 Luban Workshops (Chinese vocational workshops.)

Additionally, demonstration zones for international education cooperation and exchange bases for Chinese and foreign youth will be set up. Major international conferences, hosted or co-hosted by China such as the World Digital Education Conference, the World Chinese Language Conference, and the World Vocational and Technical Education Development Conference, will continue.



National Action Plan to Promote Green Lifestyles

By Staff Reporters

China has unveiled a new national action plan aimed at mobilizing public participation in ecological conservation and promoting greener lifestyles over the next five years.

The Ministry of Ecology and Environment, together with five other government departments, jointly released a five-year plan (2026-2030) to strengthen the cultural foundation for the Beautiful China Initiative, raise public ecological awareness, promote green and low-carbon living, and establish a nationwide participation framework by 2030.

The document outlines 15 specific measures across five key areas, aiming

to continuously improve the public participation framework, stimulate society's intrinsic motivation to protect the environment, and encourage people from all walks of life to adopt green and low-carbon lifestyles.

One major focus is the preservation and promotion of ecological culture. The plan calls for incorporating ecological and environmental elements into projects under the Beautiful China Initiative, national ecological civilization demonstration zones, "lucid waters and lush mountains are invaluable assets" practice and innovation bases, national parks, and other protected natural areas. These efforts are intended to enrich ecological culture and create new "Beautiful China" landmark

destinations for public visits.

The plan also encourages museums, exhibition halls and research institutions to expand ecological exhibitions and interactive educational programs.

To encourage broader public engagement, it proposes expanding the opening of environmental protection facilities to the public. Enterprises with the necessary capacity and willingness are encouraged to make their facilities accessible, while exploring innovative formats such as virtual immersive tours and hands-on offline experiences. It also promotes integrated models combining facility visits, educational programs, cultural tourism, and consumer activities to enhance both public participation and operational safety.

In addition, the plan promotes sustainable tourism by encouraging travelers to reduce the use of disposable products and protect the ecological environment of scenic destinations. It also calls for strengthening public communication on standards, certification, and labeling for green and low-carbon products to improve consumers' ability to identify environmentally friendly goods and encourage greener consumption.

To strengthen long-term incentives, the plan proposes conducting regular surveys of citizens' environmental behaviors to assess changes in public green practices and provide data support for more targeted policymaking.



Standards Proposed for Humanoid Robots

By TANG Zhexiao

The Ministry of Industry and Information Technology has issued a notice soliciting opinions for formulating and revising plans for multiple industry standards. The proposed standards also include technical requirements for humanoid robots in scenarios such as electrical substations and home appliance manufacturing.

Electrical substations, the heart of the power grid, currently rely mainly on wheeled or tracked robots for intelligent inspection. However, approximately 30

percent of inspection points inside substations are still blind zones that wheeled robots cannot access.

Yet humanoids with their human-like mobility, bipedal walking capabilities, and multi-joint coordination can effectively compensate for the shortcomings of the existing inspection robots. However, the lack of standards has become a bottleneck restricting the large-scale application of humanoid robots in substations.

The proposed technical requirements for humanoid robots in substation scenarios will establish a termi-

nology system tailored to such robots, set out technical specifications across eight dimensions, and stipulate full-process management rules for their deployment. These standards will provide a unified technical guideline and testing evaluation methodologies for the industry.

At present, many Chinese home appliance companies have deployed humanoid robots in their manufacturing plants. Therefore, establishing evaluation standards for their operational performance is particularly crucial.

The proposed technical require-

ments will build a complete indicator system to assess the operational performance of humanoid robots used in home appliance production and define relevant evaluation methods. They will guide manufactures on technical development, enable users to more efficiently evaluate and optimize robot performance, and serve as a reference to assess the performance of humanoid robots in other fields.

Additionally, other standards proposed for approval include the general technical requirements for humanoid robot interconnection systems, technical specifications for automated battery-swapping systems, and after-sales service specifications for humanoid robots and embodied intelligence.

encourage scientists to pursue high-risk, high-reward exploration. These changes have gradually established a foundational institutional framework that supports comprehensive innovation.

By 2025, China's full-time R&D personnel had reached 7.95 million person-years, ranking first globally. China ranked second worldwide in the number of highly cited researchers. These metrics reflect a systemic shift in innovation capacity.

From upstream basic research to downstream industrial application, and from institutional restructuring to talent empowerment, these changes are collectively accelerating China's progress toward high-level self-reliance in science and technology.

Case Study

Zhangjiang: Accelerating High-end Manufacturing Circle for Embodied Intelligence

By TANG Zhexiao, WANG Chun & SHEN Han

At the recently held 2026 Zhangjiang Embodied Intelligence Supply Chain Conference, a number of enterprises joined the Zhangjiang Robot Valley alliance, with a host of industrialization projects for embodied intelligent robots signed. Focusing on the emerging track of embodied intelligence, Zhangjiang is evolving from a source of innovation into an industrial hub.

In Zhangjiang, a town located in Shanghai's Pudong district, innovation in embodied intelligence is not confined to individual company labs. Technical bottlenecks are often overcome through brainstorming sessions in shared pantries.

Thanks to the industrial agglomeration effect where upstream and downstream partners work in the same building, R&D cycles have been greatly shortened. This highly efficient industrial ecosystem stems from the region's systematic planning for the industrialization of embodied intelligence.

For startups, supply chain coordination from scheme design to prototype manufacturing used to take at least one to two months. In Zhangjiang Robot Valley, the whole process can be completed within two weeks.

To accelerate robotics industrialization, Zhangjiang has unveiled an embodied intelligence supply chain platform, enabling precise cooperation matching for design, prototyping, and manufacturing of humanoid and embodied robots.

Hosting a large number of suppliers and buyers along the industrial chain, the valley provides ideal conditions for the platform's operation, said He Hongjun, head of Zhangjiang Robot Valley.

Zhangjiang's efforts go far beyond spatial agglomeration. At the supply chain conference, a large batch of orders for the platform was signed.

The platform has integrated resources from nearly 8,000 core enterprises in the embodied intelligence supply chain, enabling companies to achieve "one-day matching, three-day prototyping, and one-week trial production," He said.

The accelerated product iteration is not limited to complete machine manufacturers. Many companies along the supply chain are also speeding up. "In the first half of 2026, our dexterous hand shipments already exceeded the total for the entire year of 2025," said Wang Zhenkun, chief marketing officer of OYMotion Technologies.

He added that the lifespan of their self-developed dexterous hands has currently reached 500,000 air grasps, and the technical team is striving toward a target of two million grasps.

The implementation plan for the development of Shanghai's embodied intelligence industry, released in 2025, designates Zhangjiang as the core industrial carrier and calls for accelerated development of the full industrial chain of embodied intelligence.

At present, Zhangjiang is home to more than 130 enterprises along the embodied intelligence industrial chain, among which nearly 80 specialize in the humanoid robot sector. Centered on building a complete industrial chain for embodied intelligence, Zhangjiang covers over 70 percent of all segmented industrial sectors.

Centered on Zhangjiang, a high-end manufacturing cluster for embodied intelligence is taking shape within a 150-kilometer radius.



Robots take part in a goods transfer competition at the Zhangjiang Science Hall in Shanghai. (PHOTO: XINHUA)

World's Highest Plateau Railway, 20 Years On

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It has proved itself with reduced maintenance costs and the ability to be serviced domestically. Today, trains equipped with the upgraded system run smoothly on the Golmud-Lhasa section.

Safeguarding 550 km of permafrost

Along the 550-km core permafrost section, gray metal rods known as thermosiphons line both sides of the track. This technology originated from a permafrost observation station on Fenghuoshan Mountain, at an elevation of 4,750 meters, built in the 1960s and still operational.

"The success of the Qinghai-Xizang Railway lies in the subgrade, and the success of the subgrade lies in the permafrost," said Li Yongqiang, chief engineer of the Northwest Research Institute Co., Ltd. of China Railway Group.

In 1961, China's first permafrost observation station was established on the northern slope of Fenghuoshan Mountain, where researchers have worked for generations despite extreme cold and low oxygen.

In the late 1980s, researchers developed China's first thermosiphons for civil engineering use. The sealed iron pipes, filled with liquid ammonia, absorb heat during warm seasons, vaporize and rise, then condense and flow

back when temperatures drop, continuously extracting heat from the permafrost. During cold seasons, the process automatically stops, requiring no external energy. This wickless gravity-assisted heat pipe technology has safeguarded the railway for two decades.

However, climate change is presenting new challenges. The original design considered an increase of about 1.5°C over 50 years, but the latest projections suggest it could reach 2°C.

To address this, Li's team developed solar-powered thermosiphons, which use the plateau's intense solar radiation and significant day-night temperature differences to achieve cooling, delivering 1.5 times the capacity of ordinary thermosiphons. These have been applied to 117 permafrost sections along the Qinghai-Xizang Railway, reducing settlement by more than 70 percent.

Monitoring data show that over the past 20 years, 96 percent of subgrade settlement on the permafrost sections has been kept within 20 millimeters, way below the 50-mm design limit. While permafrost railways worldwide often face speed restrictions, the Qinghai-Xizang Railway operates steadily at 100 km/h, setting a global benchmark as the highest speed for any permafrost high-altitude train service in the world.

A Strong Country in Sci-tech Construction Enters Fast Lane

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In integrated circuits, a complete industrial chain covering design, manufacturing, packaging and testing, equipment, and materials has taken shape. Domestically developed ultra-wide band photonic chips are providing foundational support for 6G space-air-ground integrated communications. A 35.6-tesla full-superconducting magnet has set a new world record for steady-state magnetic fields, offering technical support for materials science, life sciences, and nuclear fusion research.

In AI, several Chinese large language models have surpassed 95 percent

accuracy, matching or approaching international leaders. Humanoid robots have moved beyond prototypes into deployment in automotive manufacturing and power grid inspections. In invasive brain-computer interfaces, China has become the second country after the U.S. to enter clinical trial.

Each breakthrough strengthens a link in the industrial chain, and these cumulative advances are coalescing into a tangible driver of new quality productive forces.

Institutional reforms

Coordination between science and technology policies and fiscal, tax, and

financial policies has become more efficient. In 2025, tax reductions, fee cuts, and rebates supporting innovation and manufacturing exceeded 2.8 trillion RMB, while R&D super-deduction policies were expanded and refined.

The talent evaluation system has shifted away from sole focus on papers, titles and awards, toward criteria based on innovation value, capability, and contribution. Researchers have been given greater autonomy in sharing proceeds from the commercialization of their outcomes. Mechanisms such as "open competition for key research projects" and "racing" systems have been adopted to