中国标准化（英文版）
CHINA STANDARDIZATION
SEP./OCT. VOLUME 123
BIMONTHLY
2023 NO.5
ISSN 1672-5700/CN 11-5133/T

Spotlight

Great achievements in China's green development

中国绿色发展取得重大成就

Exclusive Interview

Meng Qingqiang,
Chief Engineer of State Grid Corporation of China:
The path to innovative development of standards

国家电网有限公司总工程师孟庆强：
国家电网标准创新发展之路

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广东省标准化研究院院长张定康：
持续推进湾区标准研究 为高水平开放提供强力支撑

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Leading Standards

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Operating Body for the Enterprise Standard Forerunner System
China National Institute of Standardization

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CHINA
STANDARDIZATION

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Address
Building No.51 Tiantong Zhongyuan,
Changping District, Beijing, China 102218
Website
www.cspress.com.cn

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Subscription & Advertisement
Tel: +86 10 56597351

Printing
Beijing Bohaisheng Printing Co., Ltd.
Legal Adviser
Beijing Yue Cheng Law Firm

Administrated by
State Administration for Market Regulation (SAMR)

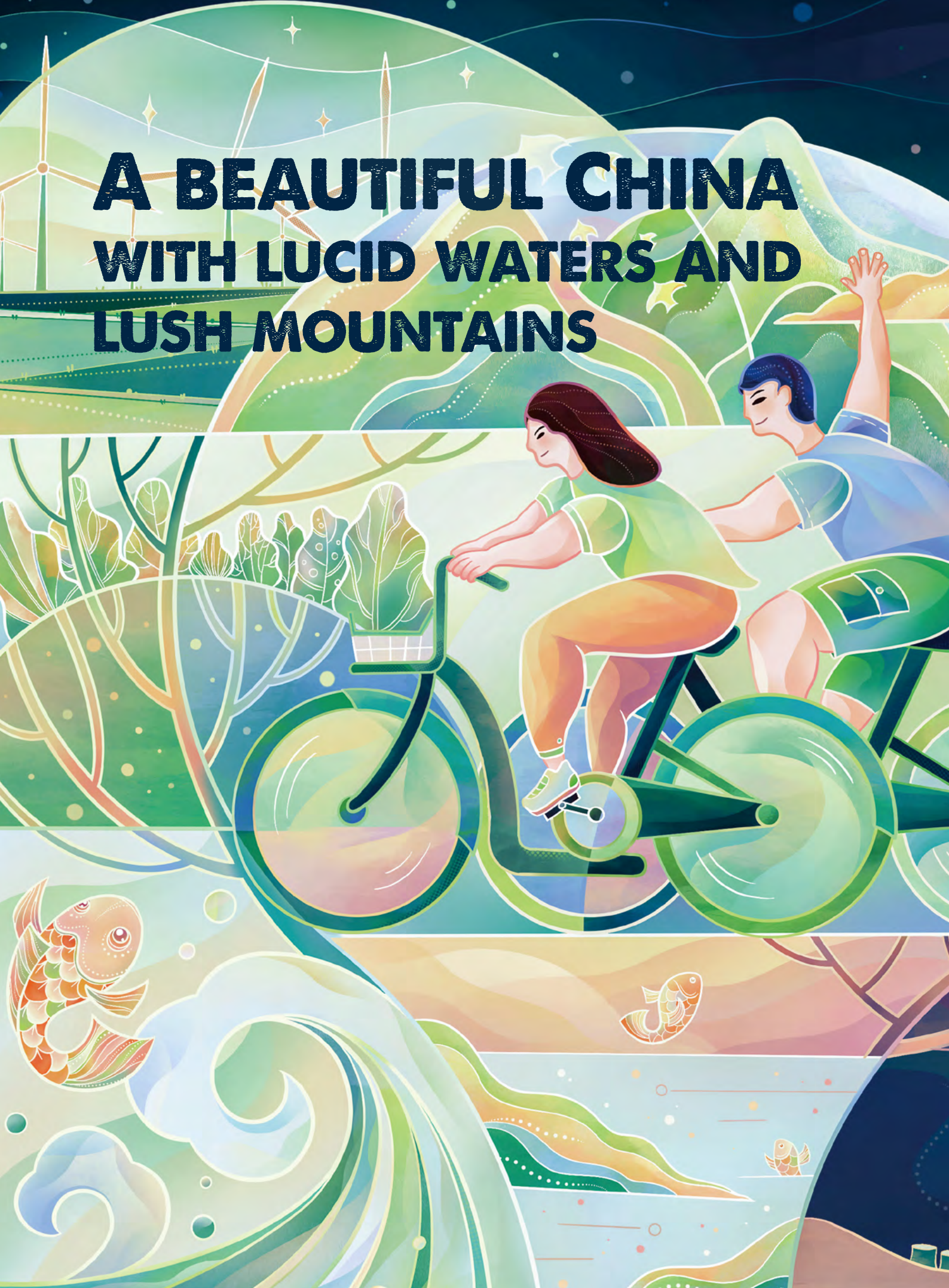
Hosted by
China National Institute of Standardization (CNIS)
China Association for Standardization (CAS)

Published by
China Standardization Press Co., Ltd. (CSP)

Serial Number:
CN 11-5133/T ISSN 1672-5700
General Distributor:
Beijing Bureau of the Distribution of Newspapers and Magazines
Subscription:
Post offices across the nation
Postal Subscription Code: 80-136
Overseas Distributor: China International Book Trading Corporation
Distribution Number: BM5708
Publishing date: September 10, 2023
Advertisement Operation License:
Advertisement Registration No. 20190002,
Market Regulation Bureau of Changping District, Beijing, China

Price
Domestic: RMB 50.00
International: USD 30.00

For more information


A BEAUTIFUL CHINA
WITH LUCID WATERS AND
LUSH MOUNTAINS

Firmly upholding the belief that lucid waters and lush mountains are invaluable assets, proposed by Chinese President Xi Jinping, China has prioritized eco-environmental protection and green development, making great strides in building a beautiful China.

The September/October issue introduces the white paper titled “China’s Green Development in the New Era” released earlier this year, which presents a full picture of China’s ideas, actions, and achievements in green development in the new era, and shares its experience with the whole world.

Besides laws and regulations put in place, standardization plays an increasingly important role in promoting green development. So far, more than 3,000 standards on green development for key areas have been developed and revised, which are key to the pursuit of the harmonious development of humanity and nature.

In the EXCLUSIVE INTERVIEW column, Meng Qingqiang, Chief Engineer of State Grid Corporation of China, shared the company’s exploration in the standardization area, and summarized its experience in the innovative development of standards, providing valuable reference for the development of standardization undertaking in China.

Zhang Dingkang, President of Guangdong Institute of Standardization, explains the institute’s top priorities, and how it promotes the technological innovation of standards and the economic and social development.

In the STANDARDS STORY column, we bring you the story of Zhang Hui, a standardization veteran working for at least two decades in the area of aerospace logistics and supply chain management, and you can find out what an important role that standardization has played in his work.

The STANDARDS PRACTICE column showcases how China Association for Engineering Construction Standardization has made through its 40 years’ development to become a leader in the engineering construction standardization in China with international influence.

With concerted efforts, China will gather the huge strength of green development, making “green” a defining feature of a beautiful China.

THE EDITORIAL COMMITTEE
OF CHINA STANDARDIZATION PRESS

WELCOME YOUR ARTICLE AND CONTRIBUTION!

To enrich the contents of *China Standardization*, display the best practices and research results of standardization, as well as provide the opportunities for global experts to express views, we would like to receive your articles for our magazine!

Please read the following rules for the articles:

1. The themes of articles should be related to standardization, standards or quality;
2. The categories of articles can be:
   1) the best practice of standardization, the case of standards development or application, expert views or analysis, etc.;
   2) academic papers on standardization or standards;
3. Articles should be written in English: the article of category one within 2,500 words, academic paper within 2,800 words;
4. The elements of an article should include: title, abstract and keywords in both Chinese and English, Chinese and English names of authors, main content, references, brief introduction to the first author (in three or four sentences);
5. Authors should provide the real names, address, email and telephone number. Authors may request for not publishing their real names;
6. The Editorial Board is with full discretion in deciding on publishing an article or not;
7. The Editorial Board reserves the right of editing an article.

Created in 2004, *China Standardization* is a well-designed bimonthly in English under the administration of State Administration for Market Regulation (SAMR) and Standardization Administration of China (SAC). As one of the five official publications by China Standardization Press, the magazine is jointly sponsored by China National Institute of Standardization (CNIS) and China Association for Standardization (CAS). So far, it is the exclusive English magazine in the standardization field, enjoying a global readership and connection with international/regional organizations for standardization and foreign standardization institutes.

For any questions, please contact:
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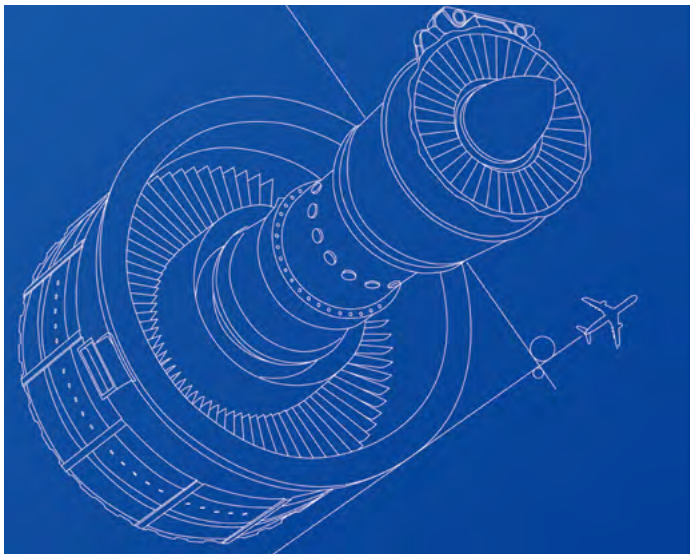
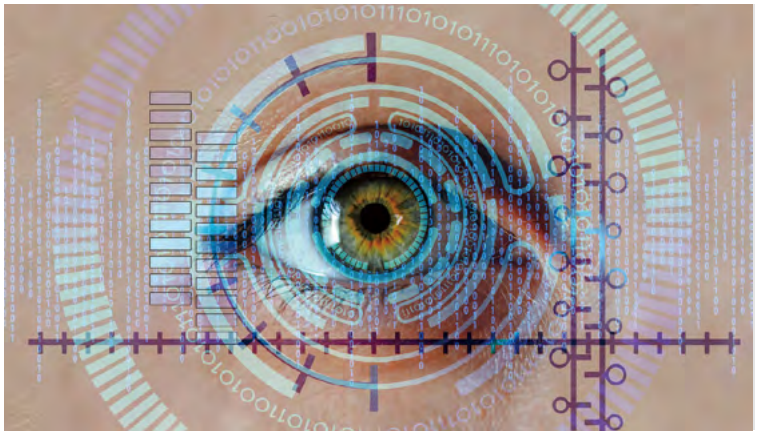




HEADLINE |

Implementation plan on leading new industries with standardization released

New industries are innovative, technology-intensive and promising emerging industries spurred by development and application of new technologies. New industries are related to national economic and social development, as well as the optimization and upgrading of industrial structure. Also, standardization plays a fundamental and leading role in promoting the development of new industries.

Therefore, the Implementation Plan of Leading New Industries with Standardization (2023-2035) was jointly published by the Ministry of Industry and Information Technology (MIIT), Ministry of Science and Technology, National Energy Administration and Standardization Administration of China (SAC) on August 22.

The implementation plan aims to improve the standards system for emerging industries and lead the high-quality development of new industries, and puts forward the three-step goal to realize phased targets in 2025, 2030 and 2035 respectively, which takes into account the medium- and long-term development of new industry standardization.

By 2025, the standards system supporting the development of emerging industries will be gradually perfected, and the standards leading the future innovation and development of industries will be developed, including over 2,000 national standards and sectoral standards. The implementation plan sets the targets of participating in the development of more than 300 international standards and introducing over 90% international standards in key areas, to support and lead the international development of new industries.

By 2030, the standards system for meeting the needs of high-quality development of new industries will be continuously improved, and the standardization working system will become more sound. By 2035, the open and integrated standardization working system for new industries will be fully established, guided by the government, with enterprises serving as the main body.

To guarantee the implementation, methods in five aspects are proposed, including strengthening organization and leadership, increasing resource input, dynamically assessing the implementation, cultivating high-end talents, and focusing on promotion and incentive.

The 5th China Quality Conference held in Chengdu

Themed “quality evolution and cooperation in economic recovery”, the 5th China Quality Conference was held on September 1-3 in Chengdu, Sichuan province.

Hosted by State Administration for Market Regulation (SAMR), People’s Government of Sichuan Province and People’s Government of Chengdu City, the biennial conference is a platform on international exchange and cooperation of quality.

The conference was attended by more than 800 representatives from 40 countries and regions, 7 international and regional organizations, as well as related departments, enterprises, research institutes, universities and technical institutions. Through in-depth communication, participants shared experience in quality governance in different countries, to promote advanced quality management methods and innovative achievements, facilitate the interaction of quality infrastructure, and boost high-quality development.

Noting that the global economy is still in a difficult recovery facing various challenges, countries should joint hands in reaching higher-level quality transformation and cooperation, fueling the global economic recovery, prosperity and sustainable development. Chengdu Quality Initiative, released at the event, puts forward the following suggestions:

First, contributing to economic and social development with quality transformation. Second, improving the quality of people’s lives through quality upgrading. Third, promoting the constant innovation of quality technology, management and system. Fourth, building higher-level quality infrastructure. Fifth, serving the sustainable development of quality in small and medium-sized enterprises. Sixth, promoting global participation and shared benefits.

During the event, eight sub-forums and an exhibition of China’s quality management and innovation achievements were held, which comprehensively demonstrated China’s quality work.

The 4th Smart Home Industry Development Forum held in Shenzhen

Jointly hosted by China Electronics Standardization Institute (CESI) and Shenzhen CESI Information Technology Co., Ltd., the 4th Smart Home Industry Development Forum was held in Shenzhen, Guangdong province.

Themed "Integration: the reality and future of smart homes", the forum was attended by Zhao Xinhua, President of CESI, Li Ting, Director of Consumption Electronics Division, Electronic Information Department of MIIT, leaders from Industry and Information Technology Bureau of Shenzhen and Shenzhen Communications Administration, as well as approximately 100 experts from home appliance enterprises, operators, AI companies, research institutions and universities.

According to Zhao Xinhua, the forum offers a platform for stakeholders to discuss the future development of smart homes. Focusing on the topics such as the construction of standards system for smart homes, smart home industry ecological pattern, intelligent evaluation technology and tools, and demonstration and application of smart home solutions, the attendees exchanged their ideas, effectively promoting the innovation and development of smart home industry.

Li Ting pointed out the measures for the high-quality development of smart home industry, such as promoting breakthroughs in key common technologies, enhancing integration and communication for an open environment, and regulating the industry for healthy development.

The launching ceremony of Shenzhen's pioneer digital home "3T" pilots was held during the event, which is designed to create a Shenzhen model for China's modernization construction in the field of smart homes.

The forum facilitates upstream and downstream enterprises to better understand governmental policies and plans, and offers an opportunity to carry out business cooperation.

SAC/TC 591/WG 1 set up on WRC 2023

National standardization working group on intellectualization and information safety of robots (SAC/TC 591/WG 1) was officially set up during the Robot Standardization and Core Technology Sub-forum on August 18, which is a part of the World Robot Conference (WRC) 2023, the largest international conference in global robotic industry held for eight consecutive years, attracting enterprises to display their latest scientific and technological achievements.

The sub-forum was jointly hosted by People's Government of Beijing Municipality, MIIT, and China Association for Science and Technology (CAST), and organized by the Beijing Research Institute of Automation for Machinery Industry Co., Ltd. and National Engineering Research Center for Manufacturing Automation.

Wang Weiming, Director of the First Equipment Industry Division of MIIT, and Su Guobin, Deputy Director of Beijing Municipal Bureau of Economy and Information Technology, inaugurated the working group.

The working group will work on the development and revision of national standards on common intelligent technologies in key fields, industrial robot intellectualization, service robot intellectualization, intelligent application of subdivided scenarios or industries, as well as robot information security technology and other application of subdivided scenarios or industries.

Hainan releases standards system on rural revitalization

In order to exert the fundamental, supporting and leading role of standardization in promoting the rural governance system and social development in Hainan province, and facilitate rural revitalization and high-quality development, the standards system for rural revitalization of Hainan province was released by Hainan Administration for Market Regulation, Department of Agriculture and Rural Affairs of Hainan Province, and Bureau of Rural Revitalization of Hainan Province.

To establish the rural revitalization standards system in Hainan is an important technical measure to continuously boost the construction of rural revitalization. Therefore, leading with the revitalization of industry, talent, culture, ecology and organization, a complete framework of the standards system has been built, including a total of 6,478 standards at the national, sectoral and local levels, which provides standardization guidance and requirements for various matters related to rural revitalization.

2023 National Textile and Clothing Standards Innovation Conference held

The 2023 National Textile and Clothing Standards Innovation Conference convened in Tai'an city, Shandong province on August 18-20, where national experts in this field gathered to discuss the innovative development of the standards system for China's textile and clothing.

Themed "leading with green development and standards", the conference offers a platform for attendees to conduct in-depth discussions and exchanges on topics such as the high standards for high quality, construction of standards system under the goals of carbon peak and neutrality, green manufacturing and development routes of standards on carbon peak and neutrality of textile industry, etc.

Also, six parallel sessions of the conference were held, focusing on the standardization of carbon peak and neutrality in textile industry, metaverse standardization of textile industry, green product certification, association standards review and proposal of China Textile Engineering Society, and review of Shandong's association standards.

Association standard on education services for the elderly published

Elderly education is an important measure for China to actively deal with the aging population, improve the life quality of the elderly, meet their diversified learning demands, realize the modernization of education, and build a learning society, which is highlighted by the State Council for many times.

The association standard T/CAS 754-2023, *Specification of education services for the elderly in communities*, has been published recently, which is jointly developed by 8 organizations, such as Zhejiang Provincial Department of Education, Zhejiang Open University and China Jiliang University.

The standard is the latest practical result of Zhejiang province's promotion of "the pioneer of common prosperity with Chinese characteristics and provincial modernization". As an important theoretical result of the Zhejiang Education Alliance for the Elderly, it takes the first step in the standardization of education services for the elderly in communities, filling the gap of domestic standards in related fields, and serving as an example to carry out elderly education services in communities across the country.

Zhejiang Open University and China Jiliang University have worked together to conduct research on the status quo, existing problems and service contents that need to be standardized in education for the elderly in many cities across the country.

On the basis of summarizing the work of Zhejiang province, the drafting group learned from the successful experience of other provinces and cities, and took nearly 10 months to perfect the draft.

The standard specifies seven aspects of education for the elderly in communities, including the overall requirements, service providers, service management, service content, service types, service processes, evaluation and improvement. It provides a replicable education service model for the elderly, and further promotes the high-quality development of elderly education in China.

HIGHLIGHTS |

Chinese delegation attends the 21st Northeast Asia Standards Cooperation Forum

Led by Wei Hong, Deputy Director-General of Standards Technical Management Department, State Administration for Market Regulation (SAMR), the Chinese delegation attended the 21st Northeast Asia Standards Cooperation Forum held during July 24-26 in Tokyo of Japan.

All participants summarized the cooperation achievements of the forum, shared the standardization development status in China, Japan and South Korea, as well as listened to the report on the latest progress of existing cooperation projects in the three countries. They also discussed the proposals for 21 new cooperation projects, and reached a consensus on further strengthening the standardization cooperation in professional areas.

Meetings of the China-Japan-South Korea standards cooperation standing committee and standards cooperation study group, as well as China-Japan and China-South Korea bilateral meetings on standardization cooperation were held to carry out standardization cooperation in the areas such as regional integrated energy system, quantum information technology, sharing economy, emergency food, and aerospace materials, and make in-depth discussions on the cooperation of specific international standards projects under the framework of ISO and IEC.

The Chinese delegation included 41 representatives from SAMR, China Association for Standardization, Jilin Administration for Market Regulation, and relevant research institutes and enterprises.

The forum is a standardization cooperation framework among China, Japan and South Korea. Since its inauguration in 2002, the forum has been annually held to provide opportunities to stakeholders of international standardization in the three countries for enhancing standardization cooperation in specific areas.

Chinese teams stand out in the 18th International Standards Olympiad

The 18th International Standards Olympiad was held on August 21-23 in South Korea, which attracted 40 teams made up by 120 middle and high school students from China, Peru, Russia, Kazakhstan, South Korea, Rwanda, Japan, Singapore and Indonesia.

On behalf of China, three teams from the middle school and the high school of Hangzhou Foreign Languages School, and the Beijing 101 Middle School, won the Gold Award, Silver Award and Special Award respectively.

The tasks of the Olympiad are to develop international standard document and prepare for argument in one day, with the topics of "safety requirements for electric vehicles" and "performance evaluation method of facial recognition systems".

It not only evaluates the participants' standardization knowledge from a theoretical perspective, but also integrates creativity, scientific knowledge, and technology, creating an opportunity for them to explore the world of standardization and solve problems with standardization.

Since 2006, the event has been annually hosted by Korean Agency for Technology and Standards (KATS), and organized by Korean Standards Association (KSA), in order to promote the next generation's awareness on the importance of standardization, and enhance their scientific creativity and communication by offering an opportunity to explore new methods of standardization.

Directed by SAMR (SAC), China Association for Standardization has organized Chinese teams to attend the Olympiad since 2018.

HIGHLIGHTS |

Blue paper on BRI environmental policies, regulations and standards released

The Belt and Road Initiative (BRI), proposed by China, is an important platform for regional cooperation, serving the international economic and trade exchanges.

The BRI Green Innovation Conference 2023 was held on August 20 in Shenzhen, Guangdong province. Themed "high-quality development promoting green construction of BRI", the conference was held by Foreign Environmental Cooperation Center of Ministry of Ecology and Environment, BRI International Green Development Coalition, Shenzhen Municipal Ecological Environment Bureau, and Chinese Society for Environmental Sciences, and hosted by the Belt and Road Environmental Technology Exchange and Transfer Center (Shenzhen).

The blue paper on BRI environmental policies, regulations and standards was released during the conference, covering over 110 relevant policies, regulations and standards, as well as approximately 50 related investment cases.

Focusing on investment and cooperation in the field of renewable energy, especially hydroelectricity, wind power and solar energy, the blue paper takes Nigeria, Kenya, Ethiopia, Brazil and the United Arab Emirates as examples to carry out research on their all-round situations and prospects of cooperation on renewable energy.

Through sorting out typical cases and analyzing various aspects, the blue paper finds out the distinctive advantages of the five countries that are suitable for international cooperation on different types of renewable energy. For example, solar photovoltaic power generation projects are suitable in Nigeria, Ethiopia, Brazil and the United Arab Emirates. However, hydroelectricity projects can only be conducted in Brazil among the five countries.

ISO standard on natural gas released

As a clean and efficient underground energy, natural gas energizes industries and facilitates people's daily life. Therefore, standards on shale gas mining are important for production safety and energy supply.

ISO 7055:2023, *Natural gas—Upstream area—Determination of drag reduction in laboratory for slick water*, was published by ISO/TC 193/SC 3 on upstream area in August. Working with China National Petroleum Corporation, China Petrochemical Corporation, China National Offshore Oil Corporation and other energy enterprises, the Shale Gas Standardization Technical Committee (NEA/TC 26) has contributed to the development of ISO 7055:2023 with leading efforts, and participated in the development of international standards on natural gas.

The standard specifies the test method of resistance reduction performance of slick water and resistance reduction agents, which are the key materials for shale gas reservoir reconstruction. It helps increase the accuracy of indoor resistance reduction performance test to more than 90%, and realizes 90% cost reduction of slick water, which effectively supports the efficient and stable operation of shale gas production. By unifying data and enhancing mutual recognition in international cooperation and trade, ISO 7055:2023 promotes the high-quality development of the shale gas industry.

AVS3 coding added to ETSI standards on video

AVS3 is the latest member of the family of video coding standards developed by Peng Cheng Laboratory, Peking University, as well as relevant enterprises and institutions.

Capable of encoding video with approximately 40% bitrate savings for the same subjective quality compared to HEVC, AVS3 has been included in the recently published ETSI TS 101 154 V2.8.1, *Digital video broadcasting—Specification for the use of video and audio coding in broadcasting applications*, which is another success after AVS3 codex was added to DVB's media delivery toolbox.

Peng Cheng Laboratory will continue to give full play to its technological advantages, improve its innovation ability, increase investment in standards development, and promote the deep integration of international standards and industries, contributing to the sustainable development of the global digital industry.

The path to innovative development of standards

Interview with Meng Qingqiang, Chief Engineer of State Grid Corporation of China

国家电网标准创新发展之路

访国家电网有限公司总工程师 孟庆强

Recently, State Grid Corporation of China won the Organization Award of China Standards Innovation and Contribution Award, the top national award on standardization. In an interview with *China Standardization*, Meng Qingqiang, Chief Engineer of State Grid, shared the company's exploration in standardization area, and summarized its experience in the innovative development of standards, providing valuable reference for the development of standardization undertaking in China.

***China Standardization*: Can you briefly introduce the mechanism construction and operation of standardization work in State Grid?**

Meng Qingqiang: Taking investment, construction and operation of power grid as its core business, State Grid is a super-large state-owned enterprise crucial to China's energy security and economic lifeline. It operates the power system with the world's most sophisticated power grid structure, strongest resource allocation capability, hardest operation control and largest scale of renewable energy grid connection.

State Grid has always attached great importance to standardization. In the past two decades, it has gradually established its own technical standards management framework, and led the construction of the first national technical standards innovation platform in the energy field—the National Technical Standards Innovation Base (Smart Grid). Meanwhile, it has actively held the secretariats of 66 standardization technical committees at national, sectoral and association levels, accounting for over 60% of all committees on electric power. It has successively held the secretariats of eight IEC technical committees and subcommittees with one expert assuming the chair.

To ensure the framework's effective operation, State Grid has established relevant supporting working mechanism, published a series of management documents, and set up the institutional system for technical standards management with its own characteristics.

Taking the Outline of Technical Standards Development in State Grid as the strategic guidance, State Grid has established supporting working mechanism, implemented the action plans on quality and standardization, innovation base construction, standardization research, international standardization and other aspects, and put in place the guidelines on interaction of scientific research standards, cultivation of association standards, talent team construction, and digital development of standards, which is supported by the core management institutions on technical standards, implementation supervision and evaluation, experiment and verification, as well as standardization working groups.

Reasonable organizational structure and complete institutional system serve as the pillars for technical standards management in State Grid, effectively supporting the stable operation of power grid and the high-quality enterprise development. Over the past 20 years, advanced transmission technologies in China, represented by ultra high voltage (UHV) transmission, have realized leapfrog development in the international arena.

State Grid won the Organization Award of the China Standards Innovation and Contribution Award 2022. How is innovation presented in the company's standardization work over the past years?

The award indicates that State Grid has effectively implemented its strategic goal of building a world-leading energy internet enterprise with Chinese characteristics. Its innovation in standardization work is showed in the following aspects:

First, establishing new development paradigm with strategic guidance. State Grid has actively adapted to the new development paradigm, implemented the national strategic deployments on scientific and technological innovation and standardization, and carried out the standardization top-level design, taking the lead in integrating standardization in the enterprise strategy. In 2022, it released the Outline of Technical Standards Development in State Grid and the Special Action Plan on Implementing the Outline of Technical Standards Development in State Grid and Supporting the Establishment of New Power System (2022-2025). These documents provide the basic guidance for its standardization work in the 14th Five-Year Plan period (2021-2025) and beyond, and facilitate the integration of standardization work organically into the big picture of national standardization development.

Second, systematically cultivating and developing new driving forces. State Grid has fully integrated standards into the development of power grid and the company in all respects. A structured organizational system and an international compatible standards system that is advanced and reasonable with optimal structure have taken form to drive the integration of interdisciplinary coordinated management, integration of scientific research, standards and industry, as well as the integration of domestic and international standards. Also, the company has established the systems for verification, supervision and evaluation of technical standards to ensure the effective implementation of the enterprise standardization strategy. Many renowned experts believe that there is an incredible integration of standards innovation and enterprise management in State Grid.

Third, creating new development advantages with innovation elements. To boost self-reliance and strength in science and technology, we need the right direction of breakthroughs. State Grid has constantly driven the industrial technical progress together with related upstream and downstream enterprises, and cooperated with renowned universities, enterprises and research institutes to realize resource integration and promote the coordinated innovation of standardization. And it has also actively pushed forward the strategic cooperation with national technical standards innovation bases in the areas such as smart power grid and intelligent manufacturing fundamentals, to expedite the development of industrial chain, promote optimal industrial clusters, and serve the implementation of national key industrial policies with standardization.

Fourth, gathering new development strengths with high-level opening up. State Grid has continued to improve the world-class technical standards system, and promoted the internationalization of standards by means of "bringing in" and "going global". The company has driven the "going global" of the full industrial chain including technologies, equipment, standards and services, and rapidly promoted the transformation of independent innovation outcomes and Chinese standards into international standards. In the meantime, by "bringing in" advanced international experience, it has driven the compatible development of national and international standards systems, and provided valuable experience for standardization work in large-scale enterprises and national standardization undertaking.

Can you explain the role of State Grid in the overall development of the country?

State Grid has always focused on national top priorities to earnestly implement national strategic deployments on energy and standardization, and make breakthroughs in key core technologies and research on major standardization issues in the area of energy and power.

First, driving the overall technical improvement of electronic equipment. State Grid has always adhered to innovation-driven development, independently developed the world's most advanced UHV alternating current (AC) and direct current (DC) transmission technologies, and built strong and smart grid with UHV lines as the mainstream. It has the longest transmission distance, highest trans-provincial and trans-regional transmission capacity and largest grid-connected installed capacity in the world. The company has realized the effective transformation of advanced technologies and engineering experience into technical standards, and driven the comprehensive technical upgrading of electronic equipment with high-quality standards. It has also promoted the development and production of electronic equipment for all voltage levels, and basically realized the domestic manufacture of major equipment and key facilities of power grid.

Second, facilitating the "going global" of electronic equipment. State Grid has actively served the Belt and Road Initiative, and achieved the overseas application of over 500 Chinese standards. A batch of power transmission and transformation projects has been established in Africa, South America and some countries in the Belt and Road region, driving the export of electronic equipment to more than 100 countries and regions. State Grid has independently developed and manufactured 5 million smart meters in China, and delivered them to Saudi Arabia for the Smart Metering Project, the world's largest project to install smart meters at a time, which is an excellent example of the "going global" of electronic technologies, equipment, standards, and services.

Third, ensuring the safe and stable operation of large power grid. Technical standards play an important supporting and leading role in the safe and stable operation of power systems, green and low-carbon transformation of energy, and coordinated development of all businesses. State Grid has built a complete technical standards implementation supervision and evaluation system, strengthened the "hard constraints" of technical standards on business, and enhanced the technical application control. It has achieved the consistent implementation of all technical requirements, and ensured the safe and stable operation of large power grid with high standards and strict requirements.

Fourth, providing strong energy support for high-quality national economic and social development. State Grid has made breakthroughs in a series of leading international electronic technologies, taken technical standards as the effective carrier of scientific and technological achievements, and promoted the coordinated development of technologies, standards and industries with outstanding economic and social benefits. The company will implement the action plan on scientific and technological breakthroughs in new power system, and carried out standardization strategic layout according to major technical requirements. It will develop important standards in the areas such as security and stability control of power grid, virtual power plant, renewable energy grid connection, and power storage, comprehensively improve the independent innovation capability of China, and contribute to the construction of new power system and realization of carbon peak and neutrality goals with high standards.

Can you share some typical projects or cases in the standardization work of State Grid?

With the mission to "power your beautiful life, empower our beautiful China", State Grid has made technical breakthroughs in the areas such as UHV power transmission, renewable energy grid connection, power grid safety, and smart meter, and established a complete technical standards system.

Standards facilitate the historical leap of UHV technology. UHV power transmission is a major original technological innovation with outstanding advantages, which can bring huge social and economic benefits. However, technology-intensive projects require relevant standards system to provide specification and guidance. To this end, State Grid has made breakthroughs in more than 100 technological projects, established the world's first technical standards system for UHV technology, and contributed to the development of national standards and their conversion into international standards, providing reference for the construction and operation of UHV projects at home and abroad. By the end of 2022, the company has established 17 UHV AC projects and 16 UHV DC projects and put them into operation. It has proposed the establishment of IEC/TC 115 on HVDC transmission for DC voltages above 100 kV, with its secretariat held in China, achieving the groundbreaking success in the country's international standardization work. It has also promoted the voltage of UHV AC to become the international standard voltage, and a Chinese expert has assumed the chair of IEC/TC 122 on UHV AC transmission systems.

Standards promote the large-scale development of renewable energy. The standards system on renewable energy grid connection is the basis of supporting the large-scale and friendly connection of renewable energy into power grid to realize interconnection and ensure the transmission and consumption of renewable energy. Early in 2005, State Grid initiated the research on the standards system on renewable energy grid connection tailored to the characteristics of China's power system. It further invested in the construction of National Energy Large-scale Wind Power Connection System R&D (Experiment) Center and National Energy Solar Energy Generation R&D (Experiment) Center with the world's highest comprehensive technical level in wind power and photovoltaic power generation and strongest capacity of inspection and testing. The company has constructed the technical standards system on renewable energy grid connection, which guides the reliable connection and stable operation of large-scale renewable energy in China. It has independently established the national demonstration project on wind and photovoltaic power storage and transmission, contributing to 100% of green power supply in all avenues during the Olympic Winter Games Beijing 2022.

Standards guarantee the safe and stable operation of power grid. Three fundamental technical standards, released in 1981, have brought remarkable achievements. However, significant changes of power grid landscape and power source structure have raised new challenges. In 2017, State Grid led the revision of GB 38755-2019, *Code on security and stability for power system*, which was later released in 2019 as the only mandatory national standard to guide the planning, design, construction, operation, scientific research and management of power system in an all-round way. The standard has been widely applied to guide the power plan in 2021-2025, innovation and upgrading of equipment manufacturers,

performance improvement of power generation enterprises, as well as operation mode verification in power grid enterprises. The company has also led the development and revision of another 114 supporting national standards and sectoral standards. The improved standards system will serve as strong power guarantee to support the high-quality economic and social development in China.

Standards support the large-scale promotion and application of smart meters. Since the beginning of the 21st century, smart meter emerged in the context of the rapid development of communication technology and the Internet of Things. The large-scale application of smart meters is inseparable from the strong support of standardization. Since 2009, State Grid has carried out the development of a series of standards. After the implementation of new standards, the reduction of the types of electric meters and terminals for electricity consumption information collection in China has facilitated the unification of smart meter standards, and helped the national technical requirements of electric energy calculation in line with international practice. So far, the smart meters manufactured based on relevant standards system in China have been exported to many countries such as Saudi Arabia, Egypt, Bangladesh and Brazil, making Chinese enterprises the main suppliers of the international market. The technical requirements of smart meters on electricity anti-stealing and anti-magnetic field have also been absorbed in related international standards.

The award is a recognition of the past work of State Grid. Looking into the future, what is the plan for its standardization work?

To adapt to new situations, respond to new changes and meet new demands, State Grid needs to further enhance the layout of technical standards development and do well in the top-level design. In 2022, it developed the Outline of Technical Standards Development in State Grid to make arrangement for its standardization work for short and long terms. Its overall development target can be summarized as enhancing the strategic leading role of technical standards, deepening the internal reform and innovation and the level of opening up, and restructuring the standards supply, system structure and quality infrastructure.

By 2025, a new technical standards system will be basically established with the remarkable role of energy internet, which covers the main areas of new power system including some areas at advanced international level, to help achieve the phased strategic goal of "basically building a world-leading energy internet enterprise with Chinese characteristics".

By 2035, the international compatible technical standards system with optimal structure, advancement, and reasonableness will be further completed to make key technical areas of energy and power at advanced international level, and vigorously support the strategic goal of "building a world-leading energy internet enterprise with Chinese characteristics in all respects". The company will play a bigger role in the open and integrated national standardization work landscape driven by the market and led by the government, which takes enterprises as main entities and involves the social participation.

State Grid has defined the strategic path of strengthening standards in the safe and green

development and digital transformation of power grid, reinforcing the layout of standards internationalization development, and accelerating the construction of standards-based quality infrastructure. It has also made the layout for strengthening foundation, including promoting the interactive development of scientific research and technical standards, fully improving the implementation of technical standards, and constantly consolidating the basis of technical standards development.

With forward-looking plans and subsequent actions, State Grid has taken standardization work as a key task for driving high-quality development, and accelerated the construction of new technical standards system, striving to make more contribution to the development of national standardization undertaking.

As the helmsman of standardization work in State Grid, can you summarize the standardization work process in the company and give your suggestions for the current standardization work in China?

I simply put the development process of State Grid as: with innovative development as the principal line and supported by standardization, State Grid pursues a higher level of development and management. As for standardization work, the company promotes its gradual integration into national standardization development.

With the remarkable effect of national standardization reform in recent years, such as refreshing government-led standards and vigorous market-oriented standards, an open and integrated standardization work landscape has become crucial guarantee of high-quality economic and social development. And high standards are required to support the new journey towards self-reliance and strength in science and technology. State Grid has released the guidelines on promoting the interactive development of scientific research and technical standards, and carried out two batches of relevant pilot work with some achievements. It is expected that there will be more support at the national level in terms of mechanism and system design and methods, so as to fully exert the role of large-scale state-owned enterprises in scientific and technological innovation, and further stimulate the vitality of innovation and creation.

Under the guidance of SAMR and SAC, State Grid will improve the construction and management of the National Technical Standards Innovation Base (Smart Grid), promote the innovation of standardization management, system and services, and help increase driving forces, exploit potentialities and stimulate vitality with standardization. It will also provide high-standard support for facilitating the effective connection of scientific and technological chain, standards chain and industrial chain of new power system, driving the transformation and upgrading of energy and power in China, and contributing to the effective quality and efficiency improvement of international standardization.

编译/靳吉丽

(Edited and translated by Jin Jili based on the article in Chinese)

Promoting the research on GBA standards to support high-level opening up

Interview with Zhang Dingkang, President of Guangdong Institute of Standardization

持续推进湾区标准研究 为高水平开放提供强力支撑

访广东省标准化研究院院长 张定康

Stepping further into the 14th Five-Year Plan period (2021-2025), China is thoroughly implementing the *National Standardization Development Outline*. In response to the national policy, Zhang Dingkang, President of Guangdong Institute of Standardization, explains what are the priorities of the institute, and how it promotes the technological innovation of standards and the economic and social development.

***China Standardization*: How do you understand the interactive development of standardization and technological innovation proposed by the *National Standardization Development Outline*? What effect will it have on China's technological development?**

Zhang Dingkang: The Outline delineates requirements in three aspects to promote the interactive development of standardization and technological innovation.

First, enhancing standards research in key technological fields. Technological innovation is a vital driving force to realize the great rejuvenation of the Chinese nation and address the complex changes at home and abroad. And standards, the common language worldwide, is an important carrier of scientific and technological innovation and basis of showcasing the technological progresses by specific technical requirements and indicators. Chinese President Xi Jinping called for in-depth research on advanced technology, economy, vital national needs and people's health, and highlighted the responsibility of scientists and technologists on the symposium of scientists held in 2020.

With the largest scale of real economy and manufacturing in China, Guangdong province has obvious advantages of industry and talent in the fields exemplified in the Outline. Following the requirements of President Xi Jinping and the deployments of People's Government of Guangdong Province, the Guangdong Institute of Standardization (GDIS) focuses on high-end artificial intelligence (AI) and industries of the future including metaverse and 6G, and carries out key standards research. Taking Guangdong-Hong Kong-Macao Greater Bay Area (GBA) standards, association standards and enterprise standards as an important step, GDIS gradually expands its research on professional fields to better implement the Outline, support Guangdong's "leading with manufacturing" policy, and make more progress.

Second, utilizing technological innovation to improve the level of standards. GDIS has established a long-term effective communication scheme with the Department of Industry and Information Technology of Guangdong Province, Department of Science and Technology of Guangdong Province, and other departments for industry and technology. With joint research, a batch of key specific projects has been launched, integrating standardization with AI, semiconductor materials, smart grid, etc., which promotes technological innovation and standardization. Also, standards have been included in the policies of relevant departments to evaluate technological projects and professionals, which serves as a method to explore the interaction of standardization and technological innovation.

Administrations for key project, industry and standardization can coordinate technological innovation and standardization by establishing the linkage mechanism and exerting joint efforts. To keep a step ahead, an overall deployment has been implemented to clarify main tasks, and simultaneously carry out standards development and technological innovation in such fields as common basis, industrial generic technology, emerging industry, and fusion technology. Through integration, the closed-loop administration can promote technological innovation and standardization in the long term.

Third, improving the mechanism to include latest technological achievements in standards. In the past ten years, GDIS has achieved fruitful results in the areas such as AI, high-end equipment manufacturing, and semiconductor materials. Undertaking projects like National High-tech R&D Program (863 Program) in relevant fields, and provincial major R&D projects, GDIS has put forward the operation mode of GBA standards, established the National Technical Standard Innovation Base of Southern China, and explored some mechanisms and methods for the interactive development of technological innovation and standardization.

For example, GDIS has carried out research and exploration on the planning of standards system for Guangdong's strategic emerging industries such as high-end equipment, semiconductor materials, and AI. By establishing a mechanism for jointly releasing plans and policies with relevant administrative departments, GDIS has integrated the procedures of standards development with technological innovation and industrial development, which includes latest technological achievements in standards development.

From where I stand, these efforts still lag far behind the requirements of the central and Guangdong governments, failing to adapt to the industrial structure of Guangdong and implement the specific measures in the Outline. In such a beneficial environment for standardization, GDIS will strive to develop mechanisms, policies and regulations to transform technological achievements into standards, make good use of intellectual properties of standardization, and enhance the integration of intellectual properties, technological achievements and standardization. It will strengthen the cultivation and exchanges of technological and standardization talents, organically combine the construction of standard essential patents, standards and the patent pool in critical fields of key industries, create core competitive capability, and explore the mechanism, method and route of standardization work with Chinese characteristics, which provides a solid foundation and a better policy and regulatory environment for the leadership of manufacturing in Guangdong.

How will GDIS carry out research projects in 2023? Any specific targets, plans and contents?

2023 is a crucial year to implement the guiding principles of the 20th CPC National Congress, scientific and technological plans in the 14th Five-Year Plan period, and the Outline. Therefore, the Guangdong provincial government held the Provincial High-quality Development Conference right after the Spring Festival holidays.

In GDIS, the key research projects in 2023 will focus on tasks such as the high-level opening up, promoting industrial optimization and upgrading, building a solid foundation for standards for green production, etc., and echo major policies of the province. We have already done some preliminary work in following three aspects.

First, GDIS continues to study GBA standards, to serve the "Double Tens" strategic industry clusters and "leading with manufacturing" policy of Guangdong. President Xi Jinping highlighted that we should "promote high-level opening up, steadily expand institutional opening up with regard to rules, regulations, management, and standards". Also, the Outline puts forward requirements of "promoting the standardization level of industries" and "pursuing the opening up of standardization", which are related to manufacturing in Guangdong.

Supported by People's Government of Guangdong Province and Tian Shihong, Vice Minister of SAMR and Administrator of SAC, GDIS proposed to develop GBA standards in late 2018 and later established the GBA Standardization Research Center. GDIS has strived to support Guangdong products and Chinese standards to go global, enhance the level of opening up, carry out research on GBA standards, and deepen cooperation. We have established the mechanism for better cooperation with governments of the special administrative regions, and launched some effective standardization research in cooperation zones of Qianhai, Hengqin, and Nansha in Guangdong province.

The Guangdong government has delineated "Double Tens" strategic industry clusters, including electronic information, intelligent home appliance, smart robot, block chain and quantum information, etc. Echoing provincial policies, GDIS will focus on key technologies of its advantageous fields, such as AI and high-end manufacturing, and carry out 3 to 5 GBA standardization research projects. Also, more GBA projects will be established for Guangdong's high-quality development through a government-industry-academia-research cooperation mechanism.

Second, GDIS will deepen research on all-round theoretical system of standardization to support the project for high-quality development of counties, towns and villages. According to the requirements of the Outline, SAC and provincial government, GDIS has conducted classified research for different tasks of counties, towns and villages, focusing on high-quality development. An all-round standardization system at three levels will be established to provide theoretical support for the in-depth standardization development and high-quality development.

Third, GDIS will carry out standardization research on "ecological construction for a green and beautiful Guangdong". The Outline highlights the targets of standards for green construction, green community and village construction, and Guangdong has determined the goal of realizing the ecological construction for a green and beautiful Guangdong by the end of the 14th Five-Year Plan period. It is an important research task to develop the standards for construction and evaluation of green and beautiful villages, towns and counties, which will be included in local standards by 2024 to share replicable experience with other regions.

What is the top research project of 2023? Why is it so important?

The top task is the special project for supporting the research on real economy development with GBA standards. This is not only a specific action to implement the Outline to promote high-level opening up, but also echo Guangdong's deployment of "real economy-centered approach, and leading with manufacturing", which is part of the development of GBA standards to support the construction of the real economy.

The construction of GBA is a major national strategy. GDIS has actively promoted standardization work to align with the construction and development of GBA, and steadily promoted the construction of the GBA Standardization Research Center with the support of SAMR and the provincial government.

GDIS has proposed the management model of GBA standards list for universal implementation. The Center has become the only authority for the confirmation of the GBA standards list, which has released 110 GBA standards in 25 areas, including food, Cantonese cuisine, traditional Chinese medicine, transportation and elderly care, to serve the high-quality development of GBA.

With the goal of "one GBA, one standard, universal implementation", we will continue to promote integration and connectivity among various industries in GBA, boost the new-type industrial development, and establish an opening-up institutional environment for Chinese modernization.

How will you arrange partner institutions, experts, promotion plans and phased research objectives for the project?

GDIS will make full use of current research achievements and resources, cooperate with associations and enterprises in GBA, and exchange with CNIS, AVIC China Aero-Polytechnology Establishment, SAMR National Center of Standards Evaluation, and other national institutions of standardization. The project will be promoted in the following four aspects:

Promoting the top-level design for construction of standardization system and mechanism. Joint efforts will be put into new technologies, new industries and new business forms, and the development of quality infrastructure such as standards, metrology, testing and certification in GBA will be strengthened for a public service platform for GBA standards.

Establishing the brand mechanism of GBA standards. GDIS will expand the application scope of GBA standards by promoting relevant cases, organize enterprises and associations to actively participate in training programs, and enhance the international influence of GBA standards, which will help China align with the international market.

Carrying out research on methods for GBA standards to support the development of real economy. Focusing on key industries, the annual standards plan list and guidelines will be clarified, and the goal of "one GBA, one standard, universal implementation" will be achieved.

Cultivating international standardization talents with International Standardization Talent Training Base (Guangzhou). GDIS will continue to hold relevant training, carry out research on international standardization work, and establish a mechanism for talent cultivation, which will guarantee the high-quality development of manufacturing.

What economic and social benefits and important local and national impacts will the project bring? On this basis, will any research work be carried out?

The project closely aligns with the requirements on regional construction of standardization in the Outline of the GBA Development Plan, effectively promoting the free flow of economic factors and co-recognition of regulations among the three regions, which caters to the connectivity for better development in GBA.

Also, the research project can give full play to the brand effect of GBA standards, and deepen regional integration, offering channels and platforms for the development of industries, technologies and services.

In short, we standardizers should follow the development trends at home and abroad, focus on core regional tasks and technological innovation tasks, and contribute to the development of the times by standardization means.

编译/方洛凡；采写/张佩玉

(Edited and translated by Fang Luofan based on the Chinese article by Zhang Peiyu)

Great achievements in China's green development

中国绿色发展取得重大成就

By Jin Jili
文/靳吉丽

From new energy vehicles in Germany, wind power projects in Kazakhstan, solar street lamps in Egypt, to low-carbon demonstration areas in Laos, the "seeds of green development" sowed by China and other countries have taken root and sprouted in many countries across the globe.

As the world's largest developing country, China has actively promoted the comprehensive green transformation of economic and social development based on harmony between humanity and nature. With arduous efforts on green development, China has contributed its wisdom and strength to building a clean, beautiful and prosperous world of sustainable development.

Earlier this year, a white paper titled "China's Green Development in the New Era" was released by the State Council Information Office to present a full picture of China's ideas, actions, and achievements in green development in the new era, and share its experience with the whole world.

Green development matters

According to the white paper, green development is development that follows the laws of nature to promote harmonious coexistence between humanity and nature, development that obtains the maximum social and economic benefits at minimum cost in resources and environment impact, and sustainable and high-quality development that protects the eco-environment.

It has become the goal of all countries including China. After the launch of reform and opening up, conserving resources and protecting the environment has been taken as a fundamental national policy in China. Since the 18th CPC National Congress in 2012, China has firmly upheld the belief that lucid waters and lush mountains are invaluable assets, which was proposed by Chinese President Xi Jinping. It has prioritized eco-environmental protection and green development, and made great strides in building a beautiful China.

With a people-centered development philosophy, China has made great efforts to help people feel happier, more satisfied, and more secure in a beautiful environment. It has applied sustainable development, systems thinking and a coordinated approach to the whole process of economic development and eco-environmental protection.

By working together with global partners, China has actively participated in global environmental governance, and advanced the green transition with goals of carbon peak and neutrality as the lead, playing a more active role in bilateral and multilateral cooperation on green development.

Outstanding achievements

China has witnessed outstanding achievements in green development in the aspects of green territorial configuration, industrial structure, green production, and eco-friendly living.

· A basic green territorial configuration is in place

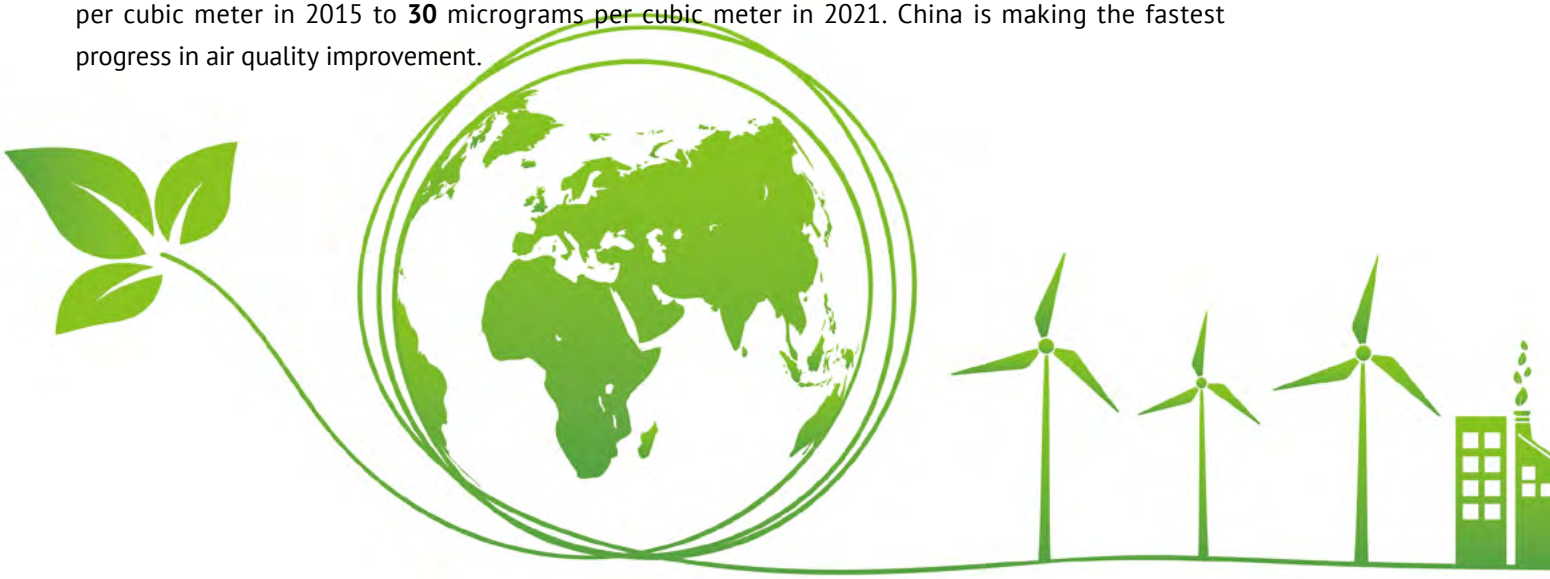
Development and protection of territorial space in China are optimized by integrating different plans into a single master plan for territorial space development, optimizing the use of territorial space, and strengthening the management of key ecosystem service zones. A comprehensive system integrating plan approval, implementation supervision, regulations, policies and technical standards is taking shape.

Eco-environmental conservation and restoration are strengthened by setting up a new type of protected area (PA) system and scientific eco-environmental conservation red lines (ECRLs), and carrying out major projects for the conservation and protection of key national ecosystems.

As of the end of 2021, nearly **10,000** PAs of various types and levels had been established, bringing under effective protection **90** percent of its natural terrestrial ecosystem types and **74** percent of key state-protected wildlife species. More than **30** percent of China's land area—including integrated and optimized PAs—is now under the protection of ECRLs. Since 2000, China has led the world in greening the planet, contributing around **one fourth** of the newly added green areas in the world.

Green development of key regions is promoted. For instance, through the strategy for the coordinated development of the Beijing-Tianjin-Hebei region, in 2021, in 13 cities in the region, **74** percent of days had good air quality, an increase of **32** percentage points compared with 2013. Beijing has set an example in air quality control for the world.

A beautiful home with a pleasant living environment is built. China integrates the philosophy of green development into urban and rural construction with priority given to environmental pollution control. The average $PM_{2.5}$ density of cities at prefecture level and above dropped from **46** micrograms per cubic meter in 2015 to **30** micrograms per cubic meter in 2021. China is making the fastest progress in air quality improvement.



· Adjusting and improving the industrial structure

Strategic emerging industries are vigorously developed by means of the innovation-driven development strategy and more investment in scientific and technological innovation.

As green industries continue to grow, China leads the world in the manufacture of clean energy generation facilities for wind and photovoltaic power, and produces more than **70** percent of the global total of polysilicon, wafers, cells and modules. Technologies in the fields of energy and water conservation equipment, pollution control, and environmental monitoring meet the highest international standards. In 2021, the output value of China's energy conservation and environmental protection industries exceeded **8 trillion** yuan.

Resource-based industries are developed through easing overcapacity and closing down outdated production facilities as well as stopping the blind development of energy-intensive projects with high emissions and outdated production techniques.

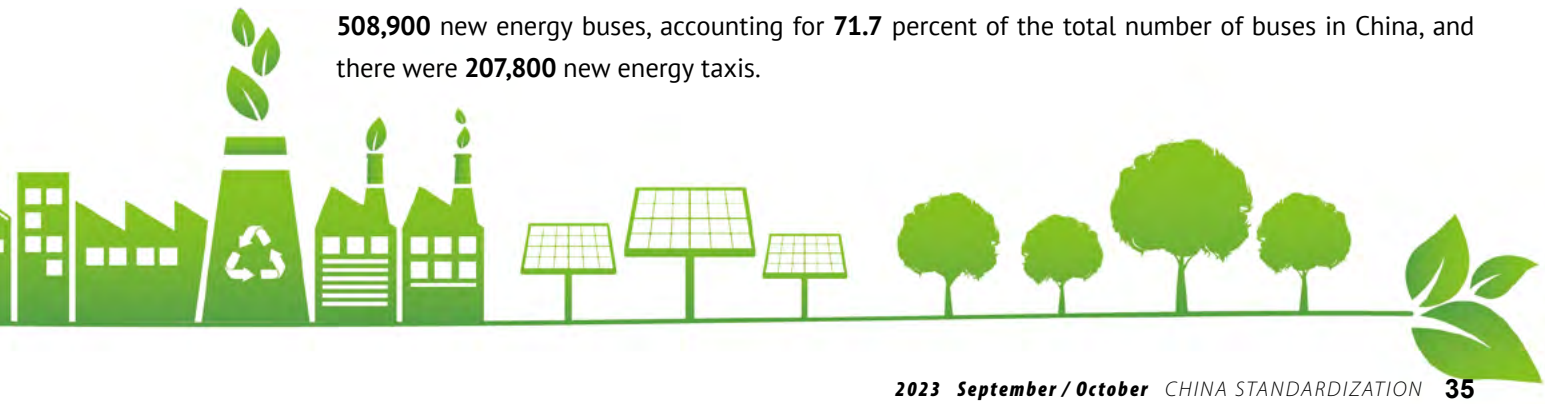
During the 13th Five-Year Plan period (2016-2020), China has removed more than **150 million** tons of excess steel production capacity and **300 million** tons of excess cement production capacity. And it has raised the entry threshold for some key industries in terms of land use, environmental protection, energy and water conservation, technology, and safety.

· Extensive application of green production methods

Green transformation of traditional industries is promoted. China has integrated the concept of green development into the entire life cycles of industry, agriculture and the service sector, and encouraged innovations in technologies, models and standards. By the end of 2021, China hosted a total of **2,783** green factories, **223** green industrial parks, **296** green supply chain management enterprises. The manufacturing sector has been significantly upgraded for green production.

Green and low-carbon energy is promoted. The proportion of clean energy sources in total energy consumption increased from **14.5** percent in 2012 to **25.5** percent by the end of 2021, and the proportion of coal decreased from **68.5** percent to **56** percent over the same period. The installed capacity of renewable energy was more than **one billion** kilowatts, accounting for **44.8** percent of China's overall installed capacity.

A green transport network is built. By the end of 2021, the number of China's registered new energy vehicles had reached **7.84 million**, accounting for about **half** of the global figure. There were **508,900** new energy buses, accounting for **71.7** percent of the total number of buses in China, and there were **207,800** new energy taxis.



Economical and intensive use of resources is promoted. Taking energy as an example, China has vigorously promoted technical, managerial, and structural energy conservation, to constantly improve the efficiency of energy use. Since 2012, China's average annual economic growth of **6.6** percent has been supported by an average annual growth of **3** percent in energy consumption, and the energy consumption per **10,000** yuan of GDP in 2021 was **26.4** percent lower than that in 2012.

· Eco-friendly living becomes the prevailing ethos

China has actively raised public awareness to conserve resources and protect the eco-environment, and advocated the practice of a simpler, greener and low-carbon lifestyle, creating a conducive social atmosphere for jointly promoting green development.

Progress towards raising conservation awareness is continued. Publicity activities, such as the National Energy-Saving Publicity Week, are organized on a regular basis to encourage the whole society to engage in green development activities.

Initiatives for eco-friendly lifestyles are widespread. China has launched initiatives to popularize eco-friendly habits in all areas. The Law of the People's Republic of China on Food Waste has been enacted and initiatives launched to promote food saving and curb food waste.

The market of green products is growing. The sales of new energy vehicles have rapidly risen from **13,000** in 2012 to **3.52 million** in 2021. For the seven years since 2015, China has ranked **first** in the world in the production and sales of new energy vehicles. There is a richer variety of green products and a growing number of people purchasing green products.

Essential institutions and mechanisms

Through the rule of law, supervision and management, and market-based mechanisms, China has stepped up efforts to create an eco-environmental conservation system, and continued to improve government performance in promoting green development.

With eco-environmental improvement and conservation written into the Chinese Constitution and relevant laws promulgated and revised, a legal system for eco-environmental conservation has taken shape. Also, more than **3,000** standards on green development for key areas have been developed and revised.

China has improved the performance evaluation system for green development, and taken strict measures to ensure that enterprises fulfill their principal responsibilities and that the government performs the duty of supervision. GDP growth is no longer the sole criterion for the assessment of the development of regions or the performance of officials.

So far, more than **50** preferential policies have been adopted to cut taxes and fees. A multi-level market and a portfolio of green financial products have been developed to boost green finance. At the end of 2021, China's green loan balance in RMB and foreign currencies stood at **15.9 trillion** yuan, and its outstanding green bonds at **1.1 trillion** yuan, both ranking among the largest in the world.

Making “green” the color of high-quality development

The idea of “lucid waters and lush mountains are invaluable assets” has provided a scientific basis and practical way of advancing the establishment of socialist modernization, and realizing high-quality economic development and high-level eco-environmental conservation in China. As of now, China’s economy has transformed from high-speed growth phase to high-quality development phase, in which eco-environment plays an increasingly important supporting role.

Lucid waters and lush mountains in China have brought about eco-environmental benefits as well as social benefits and financial returns. Practices prove that economic development and eco-environmental conservation can achieve win-win results.

Prioritizing eco-environmental conservation and green development is an inevitable requirement for China to keep a foothold in the new development stage, implement the new development philosophy, and establish the new development pattern. With eco-environment as the most inclusive well-being of humanity, China has steadily promoted green development to drive the high-quality economic development and high-level eco-environmental conservation in a coordinated way.

Everyone is the contributor and beneficiary of eco-environment conservation. Therefore, we should actively participate in establishing and improving the multi-governance system, and gather the huge strength of green development, making “green” the color of high-quality development.

(Facts and figures are from the China’s Green Development in the New Era)

Standardization contributes to green development

标准化助力绿色发展

By Jin Jili
文/靳吉丽

August 15 marked China's first National Ecology Day, the primary activity of which was held in Huzhou city of southeast China's Zhejiang province with the theme of "Lucid waters and lush mountains are invaluable assets". The theme is a core idea of Chinese President Xi Jinping's thought on ecological civilization, which was first proposed during an inspection tour of Yucun, a village in Anji county of Huzhou on the same day 18 years ago.

The National Ecology Day, established at the third session of the Standing Committee of the 14th National People's Congress on June 28, is designed to enhance the public's ecological awareness and contribute to China's participation in global environment and climate governance, as part of the country's efforts to pursue harmony between humanity and nature.

Efforts should be made to maintain the strategic resolve to advance ecological progress on the new journey of building China into a modern socialist country in all respects, urging efforts to enhance environmental protection while promoting high-quality development, according to the instructions made by Xi Jinping for the event.

So far, Yucun village has successfully turned to green development, typically ecological tourism, which provides a vivid example of a wide range of eco-environmental changes across the whole nation. Besides laws and administrative regulations in place, standardization plays a crucial role in contributing to eco-environmental protection and green development in China.

Role of standardization

Standardization and green development are the new strategies of national governance in China since the beginning of the 21st century. Green development is the inevitable requirement for high-quality economic and social development. However, it is a well-known fact that quality is determined by standards, and there is no high quality without high standards. As a result, standardization plays a fundamental and strategic role in driving the green development of economy and society.

It is worth noting that green development occupies an important section in the *National Standardization Development Outline*, which serves as the first guiding document for standardization work in China released by the CPC Central Committee and the State Council in 2021. It fully demonstrates the strategic position of standardization in promoting the green development of China.

According to the Outline, the standardization of green development will be improved by enhancing the standards development and revision in the areas including carbon peak and neutrality, construction and protection of ecosystems, economical and intensive utilization of natural resources, green production as well as green consumption.

When entering the new development phase, economic and social development relies more on innovation, and likewise green development also requires innovation. While standards serve as a bridge for boosting the application of innovation achievements in standards, innovation provides the momentum of improving the level of standards. The interaction between standards and innovation achievements can lead the growth of new business forms and new development modes. Therefore, standardization plays a crucial role in facilitating green development.

Green standards are everywhere

More than 3,000 standards on green development in key areas have been developed and revised in China, according to statistics in the white paper China's Green Development in the New Era published in January. As of now, we can see green standards everywhere, which are key to the pursuit of the harmonious development of humanity and nature.

In terms of green agriculture, several standards were released by SAMR and SAC in August. GB/T 42958-2023, *Guideline for preparing use introduction of fertilizer product*, helps crack down on the exaggerated and deceptive labels of fertilizer products in market. And GB/T 42954-2023, *Determination of plant growth regulators in fertilizers—Gas chromatography-mass spectrometry*, provides technical support to fight against the illegal addition of plant growth regulators in fertilizers. These standards can promote the quality and safety of agricultural products and safeguard the legitimate interests of farmers.

As for green and sustainable development, three national standards released in June, such as GB/T 38470-2023, *Recycling material for copper alloy*, clearly define the boundary of waste and recycling materials. They are conducive to improving the quality and stability of recycling copper, copper alloy and cast aluminum alloy, contributing to the goals of carbon peak and neutrality.

In the area of green transport, the revised standards system (2022 version) covers 242 national and sectoral standards, which include 11 basic and common standards, 101 standards for energy conservation and carbon reduction, 78 standards on pollution prevention and treatment, 35 standards for eco-environment protection and restoration, and 17 standards on economical and intensive utilization of resources. The standards system will accelerate the formation of green and low-carbon transport modes and provide strong support for boosting China's strength in transport.

Also, positive progress has been made in the standards on green finance. Three sectoral standards including JR/T 0227—2021, *Guidelines for financial institutions environmental information disclosure*, JR/T 0228—2021, *Environment equity financing tool*, and JR/T 0244—2022, *Carbon financial products*, have filled the gap, providing guidance for the normative development of financial market. The association standard T/ZJFS 008—2022, *Specification for micro and small enterprise greenness assessment*, the first of its kind, will bring new ideas to green inclusive finance and serve the sustainable development of micro and small enterprises.

Expectations for a better future

Early in 2016, President Xi Jinping indicated in the congratulatory letter to the 39th ISO General Assembly that China would actively implement the strategy of standardization, and promote innovative, coordinated, green, open and sharing development with the support of standards. This has laid a foundation for standardization to exert its role in supporting the all-round development of China.

Looking ahead into the future, China will keep to the path of green development, continue to build a high-quality ecological environment to realize development with a higher level of quality, efficiency, equity, sustainability and security.

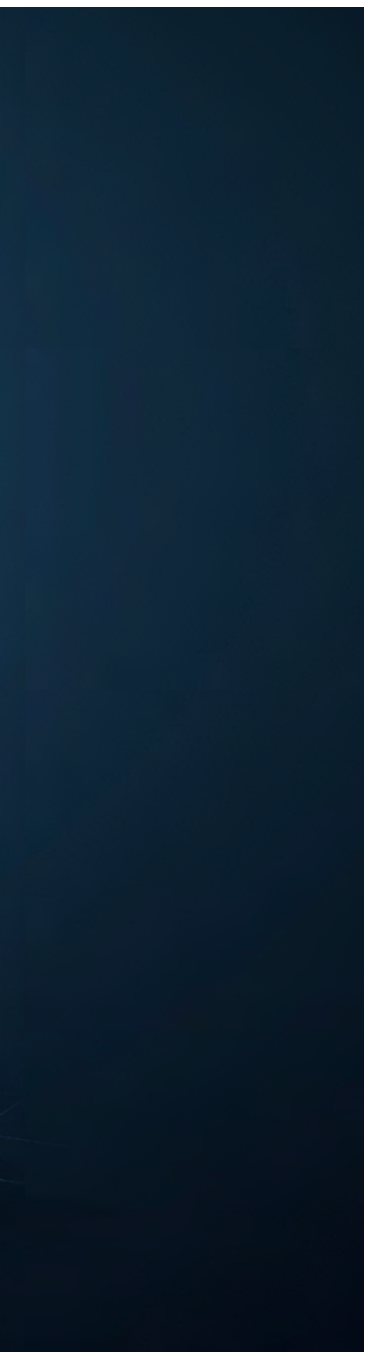
It is expected that the achievements of green development can be better consolidated through standardization, practically pushing forward the new progress of ecological civilization and expediting the efforts to build a beautiful China in all respects.

As the white paper on green development pointed out, China will play a more active part in bilateral and multilateral cooperation on green development, promote a fair and equitable system of global environmental governance, and contribute its wisdom and strength to global sustainable development.

Making good use of standardization in China's space program

张辉：善用标准化思维的航天人

Zhang Hui, a 20-year veteran in the field of aerospace logistics and supply management, serves as Head of the Standardization Technical Committee of Material Department, the Third Research Academy of China Aerospace Science and Industry Corporation Limited (CASIC). In his career, Zhang has drafted a great number of standards, published more than 40 papers on national journals, and won awards for his achievements in national defense industry and space enterprise management innovation for many times. Here, a story of him may tell us what an important role that standardization has played in his decades of work.



Enlightenment from Russian standardization

Back in 1992, Zhang Hui took the Beijing-Mosco International Express in his trip to Russia for study. He witnessed the tedious switch of train wheels at the border railway station, for the different track gauges in the two countries. China applied the international standard gauge with a width of 1,435 mm, while Russia adopted its own standard gauge of 1,520 mm.

"It was the first time for me to go abroad and the trip was thought-provoking. The trouble caused by incompatible standards impressed me, and helped me realize the role of standards." said Zhang, "I was fascinated and embarked on the standardization career."

In Russia, the great effort on promoting standardization and capability of massive production in a planned way enabled its strong military industry, which made a deep impression on Zhang. However, the rigid application of standards also brought drawbacks. At that time, the bus tickets were still sold at a fixed price for different routes and distances based on rules set a decade ago. The romantic movie *The Irony of Fate, or Enjoy Your Bath!* showcased the weakness of the simple duplication of the same standards in different cities, even the name of blocks and the style of buildings.

Upon taking courses on standards, such as Mechanical Drawing, Standardization and Interchangeability, and Clearance and Fit, Zhang started to understand standards and their scientificity, which has a life-long impact on him.

From study to practice

After graduation, Zhang began to work on the manufacturing of aerospace engine. Due to the different standards in China and Russia, Zhang seized every opportunity to ask questions and learn from senior fellow staff about standards, and referred to standards in the library once he had time off. Through arduous efforts, he combined what he learned with actual work, and rapidly grasped the work related to national standards on aerospace.

In the manufacturing of aerospace engine, Zhang optimized the location of holes on a supporting bar of a certain aerospace engine, which highly increased the precision and efficiency. Therefore, he was given the first prize of an award in CASIC.

Zhang put forth the "higher standard first" principle to streamline the materials for aerospace engine, so as to reduce the types of materials with similar functions. In terms of using standards, he proposed the preferential use of national or military standards rather than industrial or enterprise standards for the same type of materials; uniformly replacing the materials of different grades with higher-standard ones without effect of functions; unifying the sizes of materials and leaving proper machining allowance for further processing. Upon such integration and optimization, the types of materials for certain engine were reduced by 33.

In 2005, with standardization idea in his mind, Zhang compiled a book *Reference Manual on Component Replacement*, which compared the performance, application conditions, quality, interface, and appearance of components produced by manufacturers at home and abroad, providing references for design, selection and substitution of aerospace products. "We need to plan for the future and enhance the capability of independent design, development and control," Zhang emphasized in his book.

He gained a profound understanding of the leading role of standards in technological progress when participating in the development of GB/T 25713 and GB/T 25712 on machinery vibrating stress relief. "Companies with higher technological capability ask for higher standards, and likewise developed countries prefer higher technical indicators, especially in the fields of aerospace, and 5G," Zhang said.

Standardization of aerospace logistics and supply chain

In 2003, the Third Research Academy of CASIC implemented centralized procurement, when clients required quality certification as the qualification for procurement. Under such circumstances, Zhang Hui was transferred to the Material and Equipment Department and took charge of quality and technology management, which gave him an opportunity to further move towards standardization.

· **Developing standards systems.** According to Zhang Hui, a company's management system building demonstrates its management capability, which is also a critical part of enterprise standardization. In order to meet customers' demands, Zhang and his colleagues regulated their logistic business by following quality management standards, and passed quality management system certification at the end of 2003, enabling the Academy to become the first logistic organization certified by GJB 9001A certification in China. Four years later, the implementation of GJB 6000, *Rules for drafting standards*, brought them the Beijing Science and Technology Innovation Achievement Award and the third prize of Innovation Achievement Award on Modern Aerospace Enterprise Management.

Zhang and his colleagues carried out the integration of working standards in many other fields, such as occupational health and safety management, environment management, production safety, transportation of hazardous products, and 6S management.

Diligence and hard work always pay back. With Zhang and his colleagues' efforts, the company has received zero non-compliance items for 10 consecutive years according to GB/T 28001 and GB/T 24001 certification and supervision audit. The long-term mechanism for safety management integrating various management systems in the Material Department won the third prize of the management innovation achievement award on national defense enterprises.

After assuming the Head of the Standardization Technical Committee in 2018, Zhang Hui promoted the implementation of standards system in daily work, established the enterprise standards system in a short time based on GB/T 13016-2018 and GB/T 13017-2018, and set the mid- and long-term standardization work. Also, he and his team undertook the subject research and construction work in related fields, such as safety production standards system in the Academy, standards system on supply chain of CASIC, supply chain safety system for large-scale manufacturers, and standards system on equipment and asset cataloging.

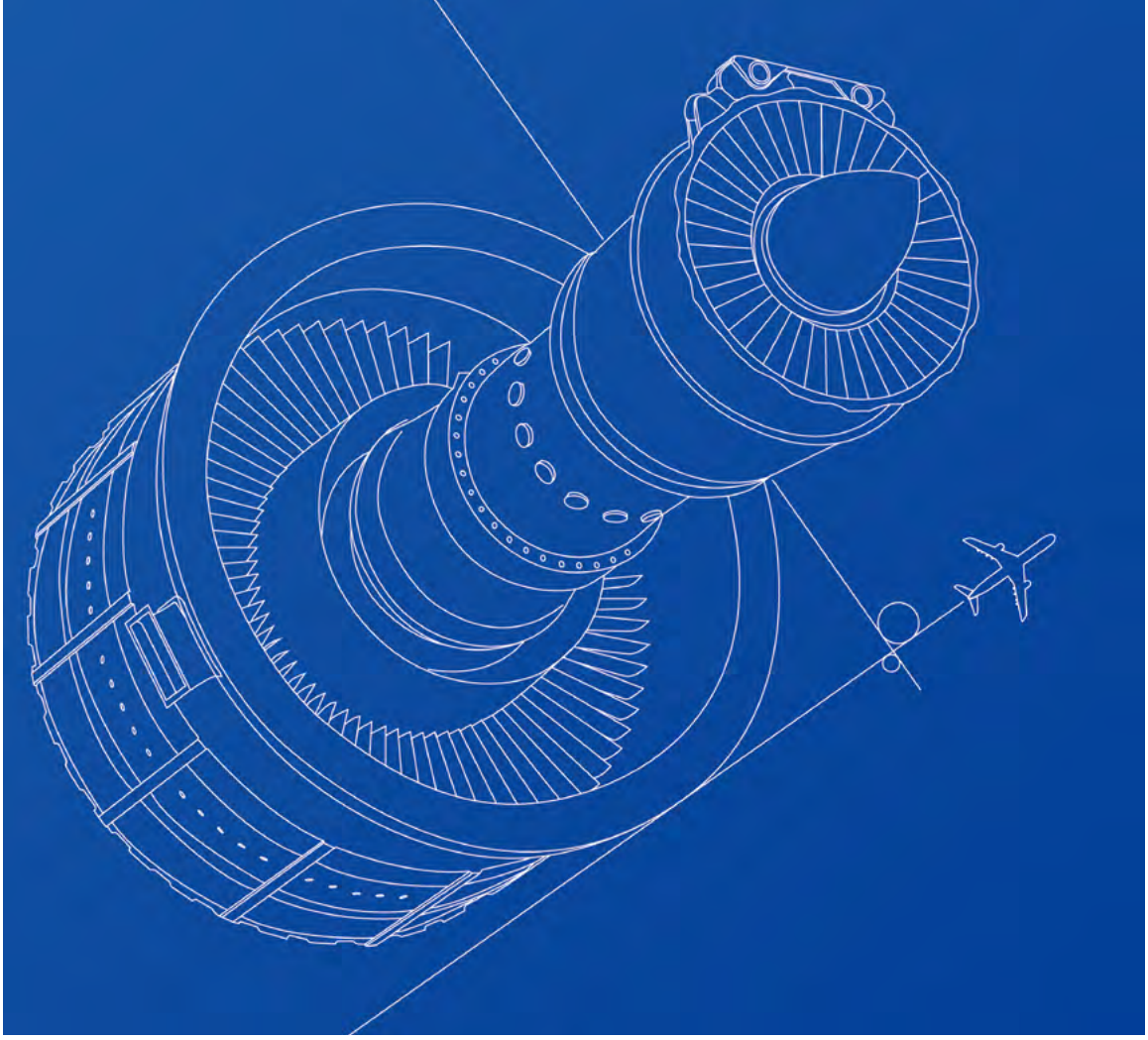
· **Developing standards on hazardous operation and basic coding.** There were only a few standards related to logistics and supply chain and less standards on operability, and there were even less standards suitable for the hazardous operation of aerospace logistics. Digging into the research on such standards, Zhang and his team worked at the forefront to verify the scientificity and operability of standards, and led the development of more than 10 standards with high dangerous level and much management difficulty, covering rail and road transportation, hazardous chemical storage, and explosive handling. These standards effectively guide the normative and safe operation of enterprises.

Zhang proposed the article coding rules to be compatible to GB/T 7635 on national central product classification and code, and led the development of a series of standards. In 2008, as the Head of Material Coding Center, Zhang led a data governance program in the field of logistic and supply chain, to replace the data in the information systems of a dozen institutions without any error, which included more than 130,000 item codes, over 3,500 supplier codes, and more than 20 ERP procedures.

In more than a decade, Zhang developed standards on QR code coding and application, and participated in the research and development of GB/T 33993-2017, *Two-dimensional code for commodity*, as well as standards on information identifier, equipment and asset catalog, meta data in cross-network information interaction, etc. He also promoted the application of autonomous and controllable two-dimensional code, RFID, big data technologies in aerospace logistic and supply chain. The supply chain information system of the Material Department won the second prize of Management Innovation Achievement Award of National Defense Enterprises.

· **Aligning with international standards.** With the rapid development of domestic space industry, Zhang took world-leading standards as benchmark and set up dedicate programs to improve supply chain quality management, organized the translation of advanced standards such as AS 9120 and AS 9121, as well as the supply chain operations reference (SCOR) model, and integrated them with the quality management system. It is important to learn from the best practices and take precautions to avoid potential risks.

The COVID-19 pandemic and unstable international conditions took a toll on the global supply chain in recent years. Zhang and his team investigated more than 20 companies on the supply chain and set a framework of standards for aerospace supply chain safety by proposing the theory of risk identification based on business procedures, covering the risks of product, finance, personnel and environment. These methods are summarized in the guideline on identifying spaceflight supply chain risks. The guideline and relevant standards provide solid theoretical and practical support for the safety and risk management of aerospace supply chain.



Insights on the standardization cause

The state is paying more attention on standardization work. Although China's standards are taking the lead in many fields, including satellite navigation and 5G technologies, there are still lots of work to do in the field of logistic and supply chain. Zhang Hui points out that all Chinese standardizers should keep working on the fundamental and practical tasks with a down-to-earth attitude and facilitate the standardization and modernization of China.

The key is highlighting operability and practicality, because it is pointless for enterprises to simply apply national or industrial standards. Standardizers have to figure out practical and useful methods to apply the national standards based on conditions of their enterprises. They need to reform and adapt to the advancement of technologies in an active manner.

Standardizers should also evolve with the time. It also means standardizers need to be life-long learners. Only those who understand technical and practical challenges thoroughly can develop valuable standards that are trusted and welcomed.

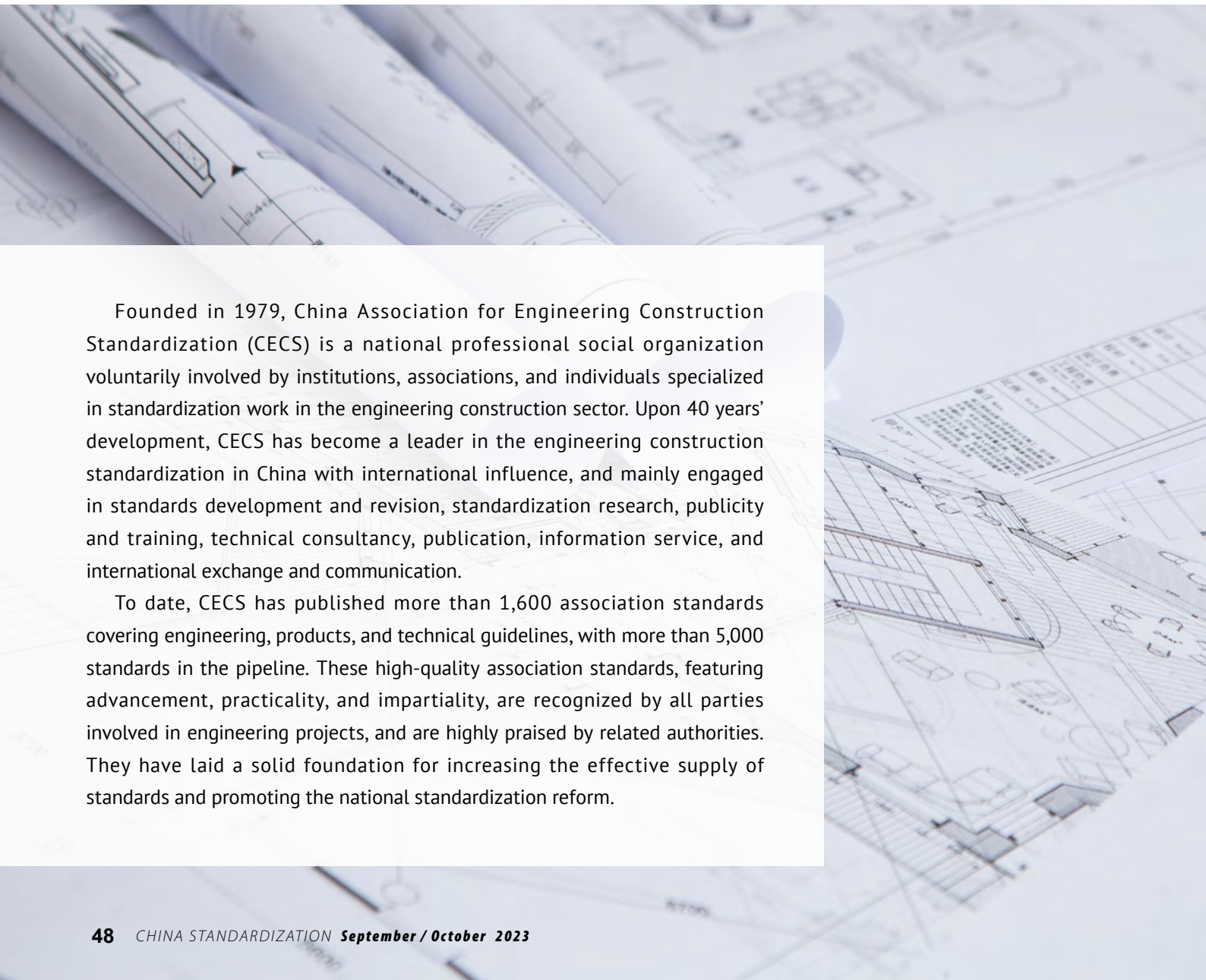
The last point, emphasized by Zhang, is to be a keen observer. Observing the application of standards and activities in daily operation, summarizing good conducts into new standards, revising or updating standards based on problems, and then keeping observing—this cycle will bring more effective achievements in the standardization sector.

编译/刘宏博

(Edited and translated by Liu Hongbo based on the article in Chinese)

Association standards development in CECS

中国工程建设标准化协会团体标准化实践



Founded in 1979, China Association for Engineering Construction Standardization (CECS) is a national professional social organization voluntarily involved by institutions, associations, and individuals specialized in standardization work in the engineering construction sector. Upon 40 years' development, CECS has become a leader in the engineering construction standardization in China with international influence, and mainly engaged in standards development and revision, standardization research, publicity and training, technical consultancy, publication, information service, and international exchange and communication.

To date, CECS has published more than 1,600 association standards covering engineering, products, and technical guidelines, with more than 5,000 standards in the pipeline. These high-quality association standards, featuring advancement, practicality, and impartiality, are recognized by all parties involved in engineering projects, and are highly praised by related authorities. They have laid a solid foundation for increasing the effective supply of standards and promoting the national standardization reform.

Standardization mechanism

CECS has made exploration and innovation in the operation mode, working mechanism and management system of standardization work. It has also set up a group of standardization technical bodies with great influence in the engineering construction sector, and built a stable team of professionals in standardization.

CECS has established the Technical Standards Department, subordinated to the CECS Secretariat, to organize and manage standardization work, and set up more than 90 technical committees/subcommittees and working committees in key and emerging sectors as affiliates. CECS keep close ties with renowned standardization organizations and experts at home and aboard. This mechanism ensures its professionality and authority.

These affiliates have been contributing great efforts to the development of government-led standards, association standards and national standards system for engineering construction. According to incomplete statistics, the affiliates have led or participated in the development of more than 600 national standards, 2,000 sectoral standards, and 300 local standards.

Back in 2000, the association issued the Administrative Measures of CECS Association Standards, and revised it for four times to include new ideas, breakthroughs and practices in the management and operation mechanism of standards and scientific and fair standards development. It has also built a platform for association standards management, realizing the comprehensive management of full life cycle of standards. The platform offers services on standards development, management, and implementation. It has operated more than 5,000 projects and ensured the quality and efficiency of CECS standards.

CECS has set up the Standards Science and Technology Innovation Award, the sole award for standardization in the engineering construction field in China to encourage more standardizers to promote the development of engineering construction standardization. Since its establishment, the award has played an important role in mobilizing standardizers and organizations to drive the technological progress in the engineering construction field and facilitate the high-quality development of the industry. To date, awards have been granted to 249 outstanding projects, 135 individuals including experts from the Chinese Academy of Engineering and 40 organizations.

Remarkable achievements

Taking three stories as an example, CECS' achievements can be presented in many fronts.

· Promoting cross-border exchange and communication

Under the backdrop of globalization, "going global" is the ultimate goal and essential direction of Chinese standardization in engineering construction. CECS has set a target of "having a foothold in the industry, serving enterprises, and being geared to international market", carried out extensive bilateral and multilateral cooperation, and participated in international standardization activities. It has signed strategic cooperation agreements with a great number of key standardization bodies, including International Code Council (ICC) in the United States, Canadian Standards Association (CSA), and Associação Brasileira de Normas Técnicas (ABNT). These efforts help CECS to go out of the border and play a role on the international stage.

In 2020, when the COVID-19 pandemic broke out, T/CECS 661-2020, *The Design standard of infectious disease emergency medical facilities for novel coronavirus (2019-nCoV) infected pneumonia*, was published. On this basis, ISO IWA 38:2021, *Requirements and recommendations for the construction of emergency medical facilities*, was promulgated on the ISO website on December 20, 2021 after three dedicated international seminars, providing a strong technical support for the rapid construction of various emergency medical facilities in all countries.

Another example is T/CECS 930-2021, *Technical specification for rock compound modified asphalt pavement*. The standard, with both Chinese and English versions released at the same time, came from the standard globalization pilot project led by CECS and Housing and Urban-Rural Development Bureau of Guangxi and became a new path for cross-border promotion and localization of Chinese standards in other countries and regions. The standard is the first association standard in China that is co-formulated by both domestic and foreign experts. The foreign experts are mainly from University of Transport and Communications in Hanoi of Vietnam, Vietnam Shenglong VR Technical Investment & Development Co., Ltd., and Habib University in Pakistan. It has laid a key foundation for the information exchange and mutual recognition of standards in both China and Vietnam.

In the future, CECS will continue to keep a close tie with international standardization organizations such as ISO and IEC, and give full play to its strengths in super high-rise buildings, railway transportation, and large-scale bridges while developing or translating core association standards compatible with international practices.

· Gathering experience in standards development

A practical and applicable management mode is essential for the on-going tasks and future development of standardization in China. CECS has integrated international practices with the contexts in China's standardization work, explored and formulated a series of CECS standards full of practicality, novelty and foresight. This endeavor underpins the subsequent reform and development of standardization.

In 2020, CECS released the plans for 729 standards projects. In 2021, the number increased to 895, and further reached 1,103 in 2022. More than 829 standards projects were submitted for approval in the first half of 2023. To date, CECS has released 1,668 standards, covering engineering standards, product standards, and technical guidelines. In order to further consolidate the achievements in standards development, CECS has mobilized related experts, including academicians Xu Jian and Yue Qingrui and other renowned experts, to carry out three years' in-depth research starting from 2019, summarize hand-on experiences based on the features of engineering construction association standards, and eventually released T/CECS 1000-2021, *Guideline for drafting of engineering construction standard* at the end of 2021. The standard provides a strong backup for the future development of standards in this field.

· Driving standards application

CECS standards application has created a lot of stories that have inspired and encouraged standardizers and practitioners in the field. Many of them have brought profound and long-lasting effect to the development of certain materials, technologies, even the entire engineering construction industry.

CECS 102:2002, *Technical specification for steel structure of light-weight buildings with gabled frames*, was drafted with the leading effort of Yu Yinquan, an expert of engineering design. Taking reference from advanced experience aboard, the standard has significantly promoted the fast growth of light-weight buildings with gabled frames in China. In the following four years after its release, the number of steel structure buildings of light-weight frame increased for six times, making light-weight frame one of the most popular steel structures in China. Reprinted for 14 times, the standard was approved and promulgated as national standard GB 51022-2015 in December 2015.

CECS 146:2003, *Technical specification for strengthening concrete structures with carbon fiber reinforced polymer laminate*, drafted with the leading effort of Academician Yue Qingrui, is the first standard on applied technology in civil engineering of fiber reinforced polymer (FRP). It provides

important guidance for the popularization of carbon fiber reinforcing technology in China. The standard has been reprinted for 8 times since its publication and sold for more than 80,000 copies. On this basis, two national standards GB 50608-2010, *Technical code for infrastructure application of FRP composites*, and GB 50367-2013, *Code for design of strengthening concrete structure*, have been developed, which open a new era of transforming association standards into national standards.

T/CECS 02-2020, *Technical specification for inspecting compressive strength of concrete by ultrasonic-rebound combined method*, was published in 2020 after revision for a second time. Since its first publication in 1988, this standard was reprinted for 16 times by 2005. Within 3 months after the second revision in 2020, it was reprinted for 3 times and sold for 15,000 copies. The inspection method described in the standard is technically mature, and has become the most popular inspection method in China.

CECS 03:2007, *Technical specification for testing concrete strength with drilled core*, was revised in 2007 after its first release in 1988, and was reprinted for 17 times. In 2016, it became an upgraded sectoral standard. In addition, CECS has a large number of testing standards and product standards adopted by testing bodies across the country.

Widespread application of standards

CECS standards, for their practicality and high quality, are praised by administrative authorities and related parties in the engineering construction sector and many other industries.

· Used for certification and procurement

A series of association standards on green building material assessment is determined as the basis for national green building material grading certification by the State Administration for Market Regulation, Ministry of Housing and Urban-Rural Development, and Ministry of Industry and Information Technology in 2020. Some indicators defined in the standards have been adopted by the Ministry of Finance and Ministry of Housing and Urban-Rural Development in Basic requirement for government procurement in green building and green building materials, as an important foundation for promoting green building material procurement in different regions in China.

· Cited by sectoral administrative authorities

T/CECS G: K50-30-2018, *Technical specification for highway manufactured-sand high-performance concrete*, was cited by the Ministry of Transport in its Notice on improving the performance of highway manufactured-sand on May 18, 2020.

· Adopted by local governments

In January 2020, T/CECS 655-2019, *Technical specification for prefabricated building sealant*, was cited by the Administrative guideline on water-proof technical quality in concrete buildings published by Shanghai Municipal Commission of Housing and Urban-Rural Development, which stipulated that any tests on the compatibility, durability, polluting performance of gap-filling water-proof sealant materials should follow the specifications in the standard.

In June 2020, core technologies described in T/CECS G: D41-02-2020, *Technical specification of high-performance cement and concrete for road engineering*, were integrated in the special program of "targeted poverty reduction by technologies" of Science and Technology Department of Xinjiang Uygur Autonomous Region as a technical support for the high-efficient development and construction of infrastructures in key regions along the Belt and Road. The standard helps realize targeted poverty alleviation, stabilize the long-term employment of rural labors, and contribute to the revenue generation and revitalization of rural areas.

· Selected as demonstration project of association standards

CECS 10017-2019, *Cast-in-place water-based rubber composite polymeric sheets for waterproofing*, drafted by related enterprises and research institutions, was selected as one of the top 100 association standards in the demonstration project of Ministry of Industry and Information Technology in 2020 for its novelty, advancement, and leading features. Patented technologies created by enterprises were included in this association standard, and hence popularized along with the application of the standard. Materials in the standard were applied in many engineering projects and highly acclaimed by the market.

Looking ahead

In the near future, CECS will make further efforts to implement the *National Standardization Development Outline* and relevant policies and regulations, grasp the right direction of association standardization development, and improve standardization services, fully promoting the development of the standardization undertaking in engineering construction filed. CECS will carry out its tasks in the following aspects.

Completing a sound and comprehensive association standards system. Key and significant fields, such as green building, prefabricated building, intelligent construction, urban upgrading, new urban construction, city information platform as well as city operation management services, are in need of a large amount of innovative leading association standards with high quality. CECS will promote the industrialized, digital and green transition and upgrade of the construction sector and support the building of smart cities that are livable and resilient.

Reinforcing efforts in the standardization of carbon peak and neutrality. CECS will harness the strengths of its high-end think tank and technical committees specialized in carbon peak and neutrality, set up a CECS standards system in this filed, and provide technical support for the green and low-carbon development of urban and rural construction.

Promoting the building of a high-end new think tank. CECS will utilize its pool of standards evaluation experts in setting up a pre-review and pre-evaluation mechanism on standards before they are submitted for evaluation or approval, so as to improve the quality of standards evaluation.

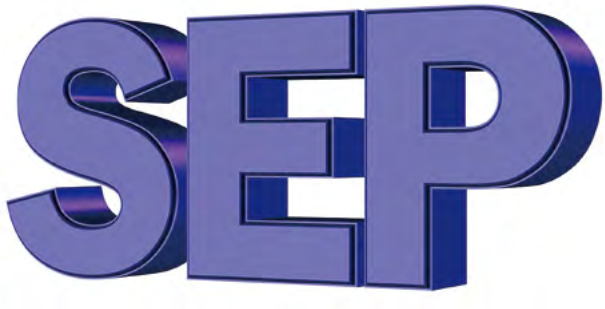
Improving the mechanism building of CECS. CECS will carry out research on revising the Administrative Measures of CECS Association Standards, and formulate the Administrative Measures of Patent-related Association Standards of CECS, building a fair and reasonable mechanism in dealing with patent-related standards.

Accelerating the pace of international standardization. To reinforce cooperation and exchange with other countries and regions in the area of international standardization, CECS will leverage opportunities of China-ASEAN Expo and similar platforms, and well host the standardization academic seminar of Chinese engineering construction in Nanning, capital of Guangxi Zhuang autonomous region. The cooperation with ASEAN countries will be enhanced, giving full play to the pilot role of CECS in connecting and integrating international standards on engineering construction.

编译/刘宏博

(Edited and translated by Liu Hongbo based on the article in Chinese)

CEN and CENELEC publish a position paper for standard essential patents



Early this year, the European Commission proposed a Regulation on Standard Essential Patents (SEP) and launched a consultation for public feedback. CEN and CENELEC prepared a position paper in response to this consultation, outlining the role of the European Standardization System in SEP and proposing changes to the text to better reflect this role.

In the response, CEN and CENELEC:

· Note that the European Standardization Organizations do not take positions on and are not involved in defining FRAND licenses, determining FRAND rates, carrying out essentiality checks, and in setting up parameters for FRAND licensing negotiations or patent dispute resolutions;

· Stress that European Standardization Organizations (ESOs) take no position on whether patented elements incorporated in a draft standard being developed are "essential" to the use of the projected European standard;

· Remind that ESOs already have their own SEP database that would have to coexist with the proposed EUIPO database, which could increase administrative burden on participants to standardization;

· Note that ESOs have no authority over the behavior of the users of standards, and patent policies of the ESOs are merely intended to describe what they do in case they are informed that a patent may be relevant to the use of a standard;

· Insist that assessing the essentiality of a patent for the implementation of a standard may only be conceivable ex post. It cannot be done ex ante, at the time when the standard is being developed;

· Ask that the proposed Regulation make the distinction between standardization bodies recognized in the EU and any other standard development organization.

CEN and CENELEC also recommend several changes to the proposed text that would better take into account the perspectives of CEN and CENELEC and that would ensure that the proposed regulation can be properly implemented by stakeholders.

(Source: CEN)

Protecting against cyber attacks in biometric technologies

Biometrics has been around for centuries in the form of fingerprinting, but with advances in technology, its use and applications have exploded everywhere.

Biometrics are measurements of human characteristics used to identify individuals in a reliable and non-invasive way. Methods include fingerprinting, facial recognition, palm prints, ear shapes and behavioral characteristics such as keystroke when typing and gait.

Banking applications, mobile phones, passports and entry to buildings are just some of the areas where biometric technology is used to authenticate individuals, and its usage is growing exponentially. Currently 171 countries in the world use biometric passports, and increasing innovation in biometric technology means adoption of biometrics is expected to more than triple by 2028.

One of the main reasons it is so widely used is because, with markers unique to individuals, it is a reliable and highly accurate method of identification and authentication.

However, where technology grows, cyber criminals flow. One method used is the impersonation of biometric markers, such as fingerprints and facial characteristics to break into systems in what is known as "presentation attacks". Mechanisms for the automated detection of presentation attacks are known as presentation attack detection (PAD).

The ISO/IEC 30107 series of standards provides guidelines and recommendations for PADs. ISO/IEC 30107-1 provides a framework through which presentation attack events can be documented and analyzed to enhance decision making.

Other standards in the series include ISO/IEC 30107-2 which defines data formats for conveying the mechanism used as well as results of biometric PAD; ISO/IEC 30107-3 for testing and reporting and ISO/IEC 30107-4 for PAD testing of mobile devices.

(Source: IEC)

ITU Regional Development Forum for Asia and the Pacific

September 13-15, Bankok, Thailand

The Asia and the Pacific Regional Development Forum (RDF-ASP) is organized by the ITU in close collaboration with the Asia Pacific Telecommunity (APT), which will be held in hybrid forms.

The RDF-ASP will report on the outcomes and implementation of the World Telecommunication Development Conference (WTDC-22) held in June 2022. Emphasis will be given to the five regional initiatives for Asia and the Pacific approved by the WTDC-22. All the stakeholders will have an opportunity to discuss implementation plans, announce financial and in-kind commitments towards ongoing and future work, and exchange experiences and good practices.

It serves as a platform for assessing strategic orientations that may have an impact on ITU's regional work plan.

For more information on the event website: **https://www.itu.int/en/ITU-D/Regional-Presence/AsiaPacific/Pages/Events/2023/RDF%20ASP%2023/Regional-Development-Forum-for-Asia-and-the-Pacific.aspx**

The 87th IEC General Meeting

October 22-26, Cairo, Egypt

Every year, IEC standardization and conformity assessment experts, member and affiliate countries, and management boards gather at the week-long IEC General Meeting.

This year, IEC will convene its general meeting in Cairo, Egypt, which is open to all delegates registered in the IEC expert management system (EMS) and to representatives of invited international organizations.

IEC is a global not-for-profit standardization platform, where some 20,000 global experts from more than 170 countries work together. With approximately 10,000 international standards published, IEC provides a technical framework which enables governments to establish their national quality infrastructure and allows companies to produce, purchase and provide compliant products and services.

For more information on the event website: **https://gm2023.iec.ch**

SOSH 2023

November 1-2, California, the U.S.

IEEE Serious Open Source for the Benefit of Humanity (SOSH) is hosted by the IEEE Standards Association, which gathers industry experts, innovators, and engineering leaders from around the world to explore the profound benefits of open source technology for industries and their customers.

Open source is helping to shape the future of telecommunications, IT, business operations, manufacturing, electronic design, finance, data science, metaverse, AI and machine learning, IoT, etc.

With a variety of keynote sessions, technical tracks, panel discussions, and networking events, SOSH 2023 provides an immersive experience that fosters collaboration, inspires innovation, explores open source best practices and promotes the exchange of ideas. It will provide the opportunity to stay updated, gain practical knowledge, and contribute to the open source revolution for the benefit of humanity.

For more information on the event website: **https://engagestandards.ieee.org/SOSH_2023.html?utm_source=web&utm_medium=sahomepg&utm_campaign=spotlight&_gl=1*1u1bvz4*_ga*MTI1NDA3NDE3NC4xNjkzMTU1Mjcw*_ga_XDL2ME6570*MTY5MzE1NTI2OS4xLjAuMTY5MzE1NTI2OS42MC4wLjA.**

The 6th China International Import Expo (CIIE)

November 5-10, Shanghai, China

The 6th CIIE will be held from November 5 to 10 in Shanghai, which showcases China's new development paradigm, high-standard opening up, and public good for the whole world.

To date, the signed exhibition area has exceeded 360,000 square meters, and the expected number of participating Global Fortune 500 companies and industrial leaders has surpassed that of last year.

As a national-level expo themed import, the CIIE, an event held on an annual basis, covers sectors including food and agricultural products, automobile, technical equipment, consumer goods, medical device and healthcare. It will feature excellent performance, fruitful results and continued success in the years to come.

For more information on the event website: **https://www.ciie.org/zbh/en**

CNIS undertakes Chinese expert working group of ISO/ESG CC

Environmental, social and governance (ESG) refer to three dimensions of a framework that helps stakeholders understand how an organization manages risks and opportunities created by changing conditions, which gains increasing attention.

The Chinese expert working group for ESG Coordinating Committee of ISO (ISO/ESG CC) has been recently approved to be established, whose secretariat will be held by CNIS.

The main responsibility of the working group is to gather ESG experts, collect their opinions of research on ESG standards, carry out research, and organize international exchanges in related fields such as environmental management, climate change, energy conservation, social responsibility, organizational governance, as well as green and sustainable finance. The working group will contribute Chinese wisdom to ESG international standardization work.

Set up in September 2022, ISO/ESG CC aims at coordinating ISO's internal and external ESG activities and promoting the implementation of ESG strategy, so as to reduce the deviation of international market disorder and avoid the "greenwashing" phenomenon. ISO/ESG CC is composed of more than 50 representatives from relevant ISO technical committees, including 1 Chinese expert from the Branch of Resource and Environment, CNIS.

CNIS has undertaken mirror committees of over 10 ISO technical committees that are directly related to ESG, such as ISO/TC 207, ISO/TC 301 and ISO/TC 322. With a great deal of research on ESG standardization, CNIS has contributed to approximately 20 ISO international standards on ESG, covering carbon emission management, new and renewable energy, etc.

More efforts will be put into the communication and cooperation of domestic technical experts, as well as the comprehensive participation of Chinese experts and organizations in ESG international standardization activities, sharing Chinese experience with oversea partners in this field.

CNIS and the Palace Museum work together for standardization of heritage conservation

The Palace Museum is not only a historic ancient building preserving cultural relics, but also one of the irreplaceable spiritual symbols of Chinese people.

In order to implement the major deployments of the *National Standardization Development Outline*, and exert the basic and strategic role of standards in the protection of cultural relics, the Palace Museum and CNIS held a meeting on standardization work on August 28.

Lou Wei, Executive Vice President of the Palace Museum, and Luo Fangping, President of CNIS, signed a strategic cooperation agreement, witnessed by Wang Xudong, President of the Palace Museum, Huang Guoliang, Chief Engineer of SAMR and Secretary of the Party Committee of CNIS, Wang Yuegong, Vice President of the Palace Museum, Luo Xianliang, Deputy Secretary of the Party Committee and Vice President of the Palace Museum, and Li Aixian, Vice President of CNIS.

The Palace Museum shoulders the mission of protecting and carrying forward the excellent traditional culture of China, stressed Wang Xudong. The Palace Museum should boost the cultural development with standardization, and support the protection of cultural relics with standardization, which will facilitate the innovative transformation and development of Chinese culture.

Huang Guoliang pointed out that the strategic cooperation agreement on standardization research between the two parties channels out a path towards all-round, cross-field and in-depth cooperation on standardization. With joint effort, standardization will play a greater role in the protection of cultural relics, serving as an engine to build China's strength in culture.

All-round strategic cooperation will be carried out in multiple aspects such as research on the standards system for high-quality development of the Palace Museum, development of standards reference materials in related field, establishment of standardization service platform, international standardization work, and standardization talent cultivation.

Analysis of the construction of NQI one-stop service stations in Hubei

湖北NQI一站式服务站建设浅析

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Abstract: In order to promote the coordinated development of metrology, standards, certification and accreditation, inspection and testing, Hubei province has accelerated the construction of NQI, and established three one-stop service stations in 2021. This paper compares the situation of the three one-stop service stations in Hubei province, points out the problems in the construction of the one-stop service model, and proposes corresponding measures to achieve a positive interaction in various fields, which is expected to provide quality diagnosis services to enterprises, and create social and economic benefits.
Keywords: NQI construction, one-stop service station

This paper is supported by the R&D Plan of the State Administration for Market Regulation (Project number: 2022MK088).

1. Introduction

National quality infrastructure (NQI) refers to the systems and institutions that support economic development by ensuring the safety, reliability, and efficiency of goods, services, processes, and systems. These include metrology, standardization, inspection and testing, as well as certification and accreditation.

China has made significant progress in developing its NQI over the past few decades, largely through government investments and policies aimed at modernizing industries and improving product quality and competitiveness[1]. This includes efforts to align Chinese standards with international norms and promote greater participation in global value chains[2]. The government recognizes the importance of effective regulation as part of its efforts to promote sustainable economic growth[3]. To achieve this goal, China established institutions such as the China National Accreditation Service for Conformity Assessment (CNAS), which provides accreditation for certification bodies, inspection bodies, and testing laboratories. CNAS sets high-quality standards for these organizations based on internationally recognized principles and practices, ensuring their competence to conduct conformity assessment at home and abroad.

2. NQI construction in Hubei

Hubei province has been working on improving its NQI since 2011 to build a safe, efficient, green, convenient, fair, and sustainable quality infrastructure system. The 14th Five-Year Plan of Hubei Province mentions several key aspects of NQI, such as measurement, testing, certification and accreditation, standardization, market regulation against substandard products, metrology, etc. The provincial government allocates funds toward building labs, staffing them, developing standards & guidelines, training professionals, promoting international cooperation, etc.

The key progress of Hubei is building one-stop service stations. They offer standards for key products, establishment of laboratories, training personnel, establishing enterprise associations responsible for promoting compliance with new regulations as well as industry practices[4]. The one-stop service stations develop an actively platform to serve as an interface among government regulators, businesses, and consumers seeking to exchange information within relevant areas[5]. By July 2014, nearly 7,300 professionals had been trained to build the system of conformity assessment and handle other areas concerned with safety production, in order to build consumer confidence domestically and promote export opportunities globally. By December 2016, five public service platforms had been established for supervision, examination and appraisal, verification, accreditation, standardization, intellectual property rights, and measurement affairs.

3. One-stop service stations in Hubei

In recent years, Hubei built many online and offline quality service platforms, which relied on existing technology parks to serve enterprises and consumers. The platforms integrated expert resources in various fields, and provided quality diagnosis services for enterprises. In September 2021, 3 service stations were selected as the first batch of NQI one-stop service stations in Wuhan, including Daijiashan Sci-tech and Entrepreneurship City, HUST Sci-tech Park and Wuhan University Sci-tech Park.

The one-stop service station in Daijiashan Sci-tech and Entrepreneurship City

The one-stop service station of Daijiashan Sci-tech and Entrepreneurship City is a comprehensive service site established to promote technological innovation and entrepreneurial development, as shown in Figure 1. It provides a series of services, including entrepreneurial consultation, technology transfer, intellectual property protection, talent training, and project incubation, aiming to help technological innovation enterprises and entrepreneurs accelerate their development.

Since the construction of Daijiashan Sci-tech and Entrepreneurship City's first batch of quality service stations, an one-stop service station has been established with measurement, standards, certification, inspection and testing, and quality management as the core, along with knowledge property and brand cultivation. This comprehensive service infrastructure provides full-process, all-around, and all-link quality infrastructure services for small and medium-sized enterprises in the park. The service station regularly carries out standards publicity and business training for the station managers and service specialists, providing targeted "nanny-style" and "secretary-type" services, opening up green channels for enterprises' measurement services, implementing quality improvement projects, setting up quality management schools, strengthening intellectual property protection services, and cultivating high-tech enterprises. The service station is guided by the needs of enterprises and builds a dynamic integrated intelligent testing service center to provide testing and consulting services for enterprises' research and development, production, sales, and after-sales service of products, enhancing their technological innovation capabilities. The station generates substantial economic benefits, with over 100 service orders per year.

Figure 1: The one-stop service station in Daijiashan Sci-tech and Entrepreneurship City

Figure 2: The one-stop service station in HUST Sci-tech Park

The service station is jointly operated by government departments, research institutes, universities, business incubators, and commercial service agencies. It has a professional advisory team and management team, which can provide entrepreneurs with all-round entrepreneurial support and incubation services, help them utilize resources and market opportunities, and realize commercial value and long-term stable development.

The one-stop service station in HUST Sci-tech Park

The one-stop service station in the HUST Sci-tech Park is a professional organization that provides comprehensive entrepreneurial services for enterprises, as shown in Figure 2. The service station has multiple service centers covering various aspects of enterprise development, including but not limited to enterprise registration, standardization service, marketing planning, human resource, financial, legal, scientific research achievement transformation, innovation incubation, and market consultation.

The service station offers both online and offline services in the park. However, it does not show obvious advantages in online services or quality characteristic services, mainly relying on offline services. The service station has a dedicated consultation service desk and currently has one stationmaster, three quality commissioners, and more than 60 service organizations on display. Relying on the industrial advantages of Huazhong University of Science and Technology, the park has achieved significant results in technology transfer, talent introduction and cultivation, and digital construction, especially in the development of its own brand system, laying a foundation for the subsequent operation and output of the park, which can be used as a reference.

The one-stop service station in the HUST Sci-tech Park is customer-centric, with customer needs above all else, and adopts advanced management concepts and technological means to create a complete service process and system. The service station team consists of a group of highly experienced professionals with complete service capabilities, strong execution and service awareness, who can provide high-quality services according to customer requirements at any time. The service station will uphold the service philosophy of integrity, professionalism, and efficiency, and escort the development of enterprises.

The one-stop service station in Wuhan University Sci-tech Park

The one-stop service station relies on the academic advantages of Wuhan University and forms close connections with various innovative resources, providing customized services for enterprises in different industries, as shown in Figure 3. By providing comprehensive and multi-mode support and services to enterprises, the one-stop service station is committed to assisting enterprises in achieving sustainable development and innovation breakthroughs, and promoting China's innovation and entrepreneurship development.

The one-stop service station relies on the existing service system of the park to create a quality special service. The service station, officially licensed in 2021, relies on inspection and testing institutions located within the park to provide various quality services and other comprehensive services. Leveraging Wuhan University's scientific advantages, the service station promotes its operational brand to connect enterprises with resources. In terms of service promotion, the service station creates specialized industrial alliances, associations and other initiatives to provide integrated one-stop services for enterprises in the park.

Figure 3: The one-stop service station in Wuhan University Sci-tech Park

4. Comparison

Given the comprehensive research findings above, the three one-stop service stations in Hubei have their own unique characteristics, which can be compared to each other as shown in the Table 1.

5. Challenges

While there is notable success, challenges remain in the construction of one-stop service station in Hubei.

- Insufficient investment: The current investment of one-stop service station is still insufficient, making it difficult to fully upgrade and transform the quality infrastructure.
- Lack of experienced talents: The construction of one-stop service station requires a large number of experienced professionals in areas such as standards, testing, certification, and inspection. However, the talent gap is currently very large, which hinders the establishment of a high-quality talent team.
- Lack of unified standards: The construction of one-stop service station is based on a set of unified standards, but the current standards system is still incomplete and needs to be further improved.

Table 1: Comparison of the three one-stop service stations in Hubei

No.	Item	Daijiashan Sci-tech and Entrepreneurship City	HUST Sci-tech Park	Wuhan University Sci-tech Park
1	Time	2021	2021	2021
2	Staff	5	4	3
3	Distinctive services of quality	Constructing a dynamic integrated intelligent testing service center; Integrating idle and open equipment resources	Comprehensive services; Independent quality station; Professional services	Service display; Quality services
4	Service model	Focusing on quality and intellectual property services; Service specialists; Conducting themed activities monthly; Business orientation	Achievement transformation services; Complete service chain; Well-developed brand cultivation system; Well-established entrepreneurship	Online + offline service model; Quality service specialists
5	Achievement	An Intellectual Property Town established; 100 annual orders for inspection and testing; Excellent evaluation	Recognized by multiple entities	/
6	Policy	¥100,000 annual funding subsidy	¥100,000 annual funding subsidy	Reimbursement for actual expenses up to ¥100,000
7	Features	Brand building; Service system	Brand cultivation; Service standardization	Industrial alliance

- Inadequate coordination: The construction involves multiple departments and entities. The lack of a unified coordination mechanism and cooperation platform hinders the efficient and effective development.
- Low service level: The quality and efficiency of one-stop service station services need to be improved, and the satisfaction of users still needs to be further enhanced.

6. Solutions

To address the challenges faced by the construction of one-stop service station, relevant departments could consider the following measures:

- Increase investment: Increase investment, expand financing channels, and enhance the input level of construction.
- Talent cultivation: Strengthen talent cultivation and attraction, optimize the talent structure through policy support, talent introduction and other measures, and strengthen the NQI service team building.
- Improve standards system: Accelerate the establishment and improvement of recognized, universally applicable, and scientific standards system, promote standardized production, operation and management.
- Enhance coordination mechanism: Establish a work mechanism, coordination measures, negotiation platform, etc. for one-stop service construction, strengthen communication and coordination with relevant departments and regions, and improve work efficiency.
- Improve service level: Improve service quantity and quality, through training, improving work processes and technical means, and enhancing the service quality and user satisfaction of one-stop service station construction.

Furthermore, officials in Hubei province may learn experiences and take expert advice from other countries with similar challenges[6], and regularly review and update policies and guidelines based on emerging trends and feedback from consumers and NQI sevice suppliers.

With the acceleration of globalization and information technology, the reduction of trade barriers, and the increasing demand for product and service quality from consumers, NQI construction has broad prospects and development potential[7]. With the widespread application of digitalization, artificial intelligence, and other technologies, NQI construction needs to intensify its service upgrading efforts and provide intelligent, efficient, and personalized services. It also needs to further optimize its structure, improve overall efficiency, and promote the close integration of quality management with innovation, entrepreneurship, to promote economic development and social progress.

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ISSN 1672-5700
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Overseas Distributor: China International Book Trading Corporation
Distribution Number: BM5708
Postal Subscription Number: 80-136
Price: $30.00 ¥50.00