The 14th Five-Year Plan on Building the National Standard System that Promotes High-Quality Development

Standards compose not only the technical support of economic activities and social development, but also an important part of the national fundamental systems. During the 13th Five-Year Plan period, the reform of the standardization work was advanced in depth, with the coordination mechanism for standardization continuously improved, compulsory standards more streamlined, recommended standards further optimized, the system of reference materials gradually improved, association standards constantly emerged and enriched, and enterprise standards further opened up and invigorated. Moreover, the standards have become more internationalized, the new standard system featuring the collaborative development, coordination, and alignment of government-issued standards and those independently made by the market has gradually taken shape, and standardized services have grown more capable in bolstering high-quality development.

In order to implement the *Recommendations of the Central Committee of the Communist Party of China for Formulating the 14th Five-Year Plan for Economic and Social Development and Long-Range Objectives through the Year 2035* and the *National Outlines for Standardization Development*, guide the development and practice of national standards and speed up building the national standard system that promotes high-quality development, thus supporting hi-tech innovation, advancing opening-up at a higher level, driving development of high quality, and comprehensively bolstering the building of a socialist modern country, the *Plan* is hereby formulated.

I. General Requirements

1. Guiding Philosophy

Following the guidance of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, and fully implementing the guiding principles of the 19th National Congress of the Communist Party of China (CPC) and the second, third, fourth, and fifth plenary sessions of the 19th CPC Central Committee, we should base our work on the new development stage, apply the new development philosophy and build the new development paradigm in a complete, precise and comprehensive manner, uphold the people-centered development concept, coordinate development and security, deepen the supply-side structural reform in the field of standards, increase effective supply of national standards, step up management of compulsory national standards, recommended national standards, and national reference materials, focus on constructing the national standard system that promotes high-quality development, so as to advance the transformation of scientific and technological innovation results, propel industrial upgrading, green development, rural and urban construction, social development, and ultimately bolster the formation of a new “dual circulation” development paradigm with domestic circulation as the mainstay and domestic and international circulations reinforcing each other, fully leveraging the fundamental and leading role of standardization in promoting the modernization of China’s system and capacity for governance.

2. Fundamental Principles

We will commit to innovation-driven standardization. Steps will be taken to accelerate the transformation of scientific and technological results into standards, and leverage the role of standards in linking and empowering the proliferation of innovations and industrialization. Standards which moderately exceed the average industry development level will be developed to lead to the improvement of the industries’ basic capacities as well as the modernization of industry chains.

We will remain demand-driven. On the basis of closely following the demand of economic and social development, we will strengthen government guidance and industry collaboration, reinforce the fundamental role of national standards, and construct an advanced, appropriate, unified and authoritative national standard system with optimized structures, so as to underpin the construction of a unified national market.

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We will stress on system alignment. Efforts will be made to promote integrated development of standards for production, distribution, circulation, consumption and other links of the industry chain, construct a scientific, complete, and coordinated system of standards for industry chains and supply chains, thus promoting the effective alignment of upstream and downstream standards along the industry chain.

We will adhere to opening-up and integration. The development of national standards will be more open and transparent. International standards will be adopted more actively, so as to enhance the alignment of domestic standards with international ones, supporting the formation of the new "dual circulation" development paradigm with domestic circulation as the mainstay and domestic and international circulations reinforcing each other.

We will pursue both quality and efficiency. The tracing, oversight and error correction over the whole process of national standard development and implementation will be intensified, in a bid to fully improve the quality of standards. In addition, the evaluation of standard implementation will be stepped up to enhance the efficiency of national standard implementation and promote the transformation of standardized development from emphasizing on quantity and volume to quality and efficiency.

3. Major Objectives

By 2025, the national standard system that promotes high-quality development will be basically established, with the supply and guarantee capacity of national standards greatly improved, the national standard system becoming evidently more open, systematic and coordinated with greater applicability, and the quality and efficiency of standardization continuing to stand out.

The national standard system will cover all fields. The penetration rate of standardized agricultural production will increase steadily, with the standards for the whole agricultural industry chain basically in place. The standards for emerging industries will develop in depth, industrial standards will be optimized, standards for the tertiary industry will continue to expand, and those for social undertakings will be more innovative and complete. Also, new industries, business forms and models will have their own standards in a timely and effective way.

The structure of the national standard system will be further optimized. In this regard, the compulsory national standard system will grow coordinated and unified, the recommended national standards will play a more prominent role as fundamental and universal standards, and the number of national standards in the tertiary industry and the field of social undertakings increases steadily. The national reference materials system will embrace further improvement, and the forms of standard supply, suchas by national technical documents for standardization, will be further enriched.

The quality of national standards will witness marked improvement. The results of scientific and technological innovation will be integrated into the standard system, and a much higher ratio of planned projects for key generic technologies and applied science and technology will produce research results for national standardization. The mechanism of developing and revising national standards will become more effective and transparent, allowing a broader range of stakeholders to participate in standard development in a more convenient way. The digitalization of national standards will be continuously enhanced. The efficiency of national standard development will be steadily improved, with the average development period being shortened to no more than 18 months and the average review cycle controlled within five years.

The openness of national standards will be increasingly enhanced. The consistency between national standards and international standards will be significantly enhanced and the rate of international standards converted into Chinese standards will reach 85 percent or above. The national standards in foreign languages will better meet the demand of international cooperation and exchanges. Over 85 percent of international standardization technical organizations could find their counterparts in the National Standardization Technical Committees (TCs).

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The capacity of building the national standard system will be significantly improved. The organizational structure of national standardization technical organizations will become more reasonable, while the system will be further optimized and its operations more regulated. The theoretical ability and scientific research capacity of standardization will be further strengthened, and the talent education and cultivation system will become more complete. The national standard verification system will basically take shape, with over 50 national-level standard verification, examination and testing bases built. Also, over 50 national innovation bases for technical standards will be established.

The implementation and application of national standards will be more effective. Better coordinated and aligned with laws, regulations, and relevant policies, national standards will play a more prominent role in providing the basis for macro regulation, industry development, sectoral management, market access and quality supervision. The businesses will grow more capable of implementing and applying standards, as a batch of businesses featuring standard innovation emerges. An additional 500 standardization pilot demonstration zones will be established, creating a more favorable atmosphere for the whole society to know about, adhere to and use the standards.

II. Building National Standard Systems in Key Areas

1. Agriculture and Rural Areas

(1) We will develop standards for the whole agricultural industry chain. With a view to enhancing the standardization level of the whole agricultural industry chain in terms of security, quality, services and supporting function by intensifying standard development, we will follow the supply-side structural reform of the agricultural industry and focus on different aspects at different stages. In specific, at the stage of planting and breeding, we will focus on the standardized scale breeding of seeds, seedlings, and (breeding) stocks and poultries, as well as the prevention and control of animal and plant epidemics and the security of agricultural inputs in terms of both quantity and quality; at the stage of production and circulation of agricultural products, we will emphasize on the quality grading of agricultural products, processing and circulation, warehousing and fresh-keeping, cold-chain logistics, the evaluation of the supply management of agricultural materials and of product tracing, and the monitoring and early-warning of agricultural products and the agricultural materials market; in terms of the safeguards for agricultural production, we will highlight high-standard farmland building, irrigation and water conservancy, agricultural meteorology, agricultural mechanization, smart agriculture, and socialized agricultural services. Furthermore, according to local advantages and industry characteristics, we will step up the construction of agricultural standardization demonstration projects at various levels and of various types, strengthen the integrated application of standards, and put in place a system of agricultural standardization demonstration and promotion. The building of agricultural brands and the development of evaluation criteria will also be conducted.

(2) We will develop green development standards for agriculture and rural areas. Steps will be taken to promote standard development in the area of agro-forest ecosystem, which involves the standards on the resource recovery from livestock and poultry manures and wastes, the protection of cultivated land and the enhancement of land quality, the prevention and control of aquaculture pollution, the development and utilization of agricultural climate resources, the construction of the system of natural protected areas, the ecological conservation and restoration of forests, grasslands and wetlands, the conservation of aquatic biological resources, the protection of aquatic wild animals, as well as the prevention and control of alien species invasion. Focusing on improving rural living environment, we will step up supply of standards in such areas as the monitoring and evaluation of rural environment, rural roads, green makeovers of water and electricity in rural areas, the safety of drinking water in rural areas, the construction and maintenance of rural sanitary toilets, as well as the treatment of rural toilet waste. The pilot standardization demonstration of beautiful countryside will be deepened, and the standardization level of beautiful countryside will be further improved.

(3) We will develop rural governance standards. Efforts will be made to perfect the standard system of social governance in rural areas, with a focus on the disclosure of village affairs, consultation about village affairs, comprehensive services in villages, rural public legal services, and others. Steps will be accelerated to improve the system of rural public security prevention and control standards in

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terms of rural police affairs, firefighting, and safe production, etc. We will strengthen the development, promotion and application of standards for the comprehensive reforms in rural areas, intensify the development of standards for the long-term mechanism of stable poverty elimination, the monitoring and assistance mechanism on preventing poverty reoccurrence, precise assistance mechanism, and investment asset project management mechanism in the principle of quality, safety and green, so as to step up protection of the place of origin of agricultural products in formerly impoverished areas.

2. Food and Consumer Products

(4) We will develop food safety and quality standards. Intensive efforts will be made to specify the limit indicators of the residue of pesticides and veterinary drugs, pollutants, microorganism, and other toxic and harmful substance; set forth testing methods of such limit indicators; and develop food safety standards for the maximum level of food additives and the nutrition of the diet of special groups. We will accelerate constructing the food quality standard system underpinned by the basic, universal testing methods for product quality grading, specifications of food processing quality control, management, and tracing, as well as the quality standards for Chinese special food and traditional food products, and ramp up efforts to develop food quality standards that can popularize Chinese traditional food culture and lead industry development, thus better satisfying the food industry's demand for high-quality development and the people's yearning for a better life.

(5) We will develop standards for the quality and safety of consumer products. The evaluation of the consistency between China's consumer product standards with international standards will be conducted on a continuous basis, and advanced international standards will be transformed into domestic ones in a timely manner. We will reinforce the development of standards on the limits of toxic and harmful chemical substances in consumer products, improve the compulsory national standard system of the safety of consumer products, and continuously enhance the level of standards for the safety of consumer products. Following the development trend of customization, intelligent products, green products, and cross-industry and cross-field combination products, we will step up efforts to develop standards for key technologies in such areas as household appliances, furniture and house decoration, textiles, apparel and clothing. The level of standards for traditional cultural products as well as stationery, sporting and leisure goods will be enhanced. We will also push forward the development of standards for consumer product manufacturing equipment, silk, leather, cashmere and other raw materials, as well as consumer product quality testing equipment, with a view to bolstering the basic capacity for the high-quality development of consumer products.

(6) We will develop product standards for infants, children and the elderly. The compulsory national standards on students' supply, paper products for children, children's shoes, children's furniture and toys will be revised to increase safety requirements for children products. Standards for cross-industry and cross-field products for children and infants, such as those for safety protection at home, safety protection during sports, bathing and soothing, will be developed to increase product quality requirements. We will research into and establish a standard system of elderly supplies, organize the development of standards for the shoes, household appliances and other consumer products for the elderly. Standard development for household assistive products, intelligent life support equipment and others will also be advanced to bolster the development of the wellness industry.

(7) We will develop standards for medical supplies. Steps will be taken to organize the standardization on advanced medical devices, household medical devices, remote medical devices, and in vitro diagnostic reagents, and strengthen the development of standards for the core components and key raw materials for medical devices, so as to promote the high-quality development of the medical device industry towards a higher level. We will continue our efforts to optimize the standard system of protective suits, isolation gowns and other key medical protective products; speed up specifying standards for high-performance reusable protective textiles that feature high efficiency, low resistance and anti-splash function, as well as relevant testing methods; establish standardization technical organizations in the area of protective products and other medical devices, and thus enhance the quality and safety of medical protective products.

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3. High-end Manufacturing

(8) We will develop standards for the digital transformation of the manufacturing industry. We will formulate standards for intelligent manufacturing equipment, digital workshops, intelligent plants, mass customization, operation and maintenance services, network collaborative manufacturing and others, and carry out the construction of the standard system of intelligent manufacturing in niche areas within the industry. We will improve the standard system of the management of the integration of informatization and industrialization, and promote the construction of the standard system of the Internet of Things (IoT). We will also organize the "navigation program" for standard development concerning additive manufacturing, in a bid to develop standards for special materials, techniques and equipment, testing methods and so on, thus regulating and leading industry development.

(9) We will develop green manufacturing standards. Standards for the design, production process, usage, recovery and recycling of products throughout their life cycles will be developed. Works on developing standards for the green-oriented construction, evaluation, services and other aspects of factories and industrial parks will be sped up. The focus will be placed on improving the national standard system of the green supply chain, and optimizing the standard system of remanufacturing. We will also endeavor to improve the standard system of green packaging, revise national standards that restrict excessive packaging of commodities, and specify standards for the grade-based evaluation of packaging in terms of appropriateness.

(10) We will develop standards for high-end equipment. We will accelerate improving standards in such areas as industrial robots, high-grade computer numerical control machine tools, new display devices, aerospace equipment, marine engineering equipment and high-tech ships, advanced rail transportation equipment, new energy automobiles, electric equipment, agricultural machinery and equipment, engineering machinery, and special equipment, so as to enhance the core competitiveness of domestic high-end equipment. Steps will be taken to improve the standard system of industrial fundamentals, and develop national standards for the general requirements on mechanical safety. The standard system of service-oriented manufacturing will be constructed to promote the in-depth, integrated development of the advanced manufacturing industry and the modern service industry. The pilot standardization demonstration of national high-end equipment manufacturing will be launched to propel the marketization and industrialization of scientific and technological innovation achievements in industrial clusters. Furthermore, we will work to improve the standard system of intelligent connected vehicles while accelerating standard development for intelligent driving assistance, autopilot, wireless charging for vehicles, vehicle operating systems, network communications, information security, etc.

(11) We will develop standards for materials. We will accelerate the upgrading of standards for iron and steel, non-ferrous metals, building materials, chemicals and other materials, optimize standard development for materials and relevant collaboration mechanisms for scientific and technological innovation and industry development, eliminate low-end products and backward production capacity, and promote the sound, effective alignment of upstream and downstream standards along the material industry chain and supply chain. Continuous efforts will be made to implement the "navigation program" for new material standards, and improve the standard systems of not only functional materials made of high-temperature alloy, high-strength aluminum alloy, and high-performance rare earth, but also advanced ceramic materials, special engineering plastics, new fiber materials, composites, and so on. We will earnestly plan for standard development for cutting-edge new materials on a forward-looking basis, develop standards for high-entropy alloys, liquid metals, superconducting materials and others when appropriate, and propel the integration of the R&D and standard development of breakthrough innovative technologies.

4. Industry of Next Generation Information Technologies and Biotechnologies

(12) We will develop standards for the new information infrastructure. Works will be organized to promote the development of standards for low-power, time-sensitive networks, so as to improve the standard system of the IoT. Steps will be taken to advance standards for cloud native, edge computing, open source, application supporting platforms and others, in a bid to improve the standard system of cloud computing. We will intensify efforts to formulate standards for the Internet

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Protocol Version 6 (IPv6), thus speeding up the construction of the IPv6 standard system. We will also promote the development and implementation of standards for big data governance, data resource planning, data service capability, graph database and others, in a way to improve the standard system of big data. Standards for machine translation, data labeling, machine learning systems' specifications, algorithm interface, among others, will be developed so that the standard system of artificial intelligence (AI) will embrace further improvement. In addition, we will establish and improve the standard system of urban information model platforms, and promote the integration of the management information on urban planning and construction. The development of standards for the basic technologies, system interconnection, industry application and others of blockchain will be advanced for the construction of the blockchain standard system.

(13) We will reinforce the standards for basic software and hardware. The development of fundamental standards for basic components, electronic materials and techniques, as well as basic software will be advanced, and the development of important technical standards for ultra high-definition video (UHDV), virtual (augmented) reality (VR/AR), application software and others will be intensified. We will step up formulation of key standards for intelligent operation and maintenance, among others, in a way to enhance the level of intelligent services. Combined with new technologies and new models, we will put in place a complete standard system of information technology services.

(14) We will develop standards for cyber security. We will propel the development of national standards in various key areas, including the security protection of key information infrastructure, data security, personal information protection, security management of cross-border data transfer, review of cyber security, trusted identity in cyberspace, network products and services, supply chain security, 5G security, security of smart cities, security of the IoT, security of the industrial internet, security of the Internet of Vehicles (IoV), and AI security, etc. All of these will contribute to improving the cyber security standard system and supporting the building of China into a country strong on cyber.

(15) We will develop standards for biotechnologies. Efforts will be made to research into the testing methods and evaluation of such indicators as stability, reliability and performance of biochemical reagents, and accelerate the development of standards for the testing methods used to test pathogenic microorganisms, biotoxins or others concerning biosafety, as well as those for the quality control of such methods. We will reinforce the development of standards in such basic fields as biological samples, tool enzymes, plant extracts, biological materials, and biological services. We will encourage the development of standards for generic technologies in the field of biotechnology application, involving biological products, synthetic biology, biological breeding, bio-based degradable materials and products, and the protection of biological genetic resources. Also, we will support the rapid transformation of new technologies with application prospects.

5. Urban Construction

(16) We will develop standards for the sustainable development of urban areas. Steps will be taken to study and formulate evaluation standards for the urban physical examination, refine the standard system of urban habitat environment construction and quality evaluation, and strengthen standard development for the evaluation of the sustainable development of urban areas. We will optimize standards for urban ecological restoration and function improvement, green building, disaster prevention in construction projects, renovation and transformation, sponge city construction, as well as construction and management of landscaping. We will also standardize urban design, the inheritance and protection of the cities' history and culture, the creation of urban features, the protection and management of urban scenic areas, as well as the renovation of old residential communities.

(17) We will develop standards for smart cities. Focusing on the classified and categorized construction of smart cities, the intelligent transformation of infrastructure, the use of urban digital resources, city data brain, innovative application of AI, urban digital twins, and other aspects, we will improve the construction of the standard system, and speed up developing standards for smart emergency response, smart elderly care, smart communities, smart business circles, and other

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typical fields. The experiment-based verification of standards will be organized and the standards will be applied, enabling standardization to lead and support the construction of smart cities.

(18) We will develop standards for the construction of urban infrastructure. Standards will be improved for the construction of municipal infrastructure, which includes urban roads and urban underground utility tunnels. Focusing on the "four-network integration," namely the integration of main line railways, intercity railway, municipal (suburban) railways, and urban rail transits, we will work to promote standard development for the construction of high-speed railways, municipalities (suburban) railways, and other projects. We will also research into and develop a system of construction standards for the county town-based in situ urbanization, the urban-rural coordinated development taking county area as single units, as well as a system of standards for infrastructure and public service facilities in small-sized towns.

6. Service Sector

(19) We will develop standards for producer services. We will formulate standards for e-commerce, sharing economy, postal logistics and trade logistics. We will improve standards for green finance, inclusive finance, supply chain finance, financial markets, financial technology, and financial risk prevention and control. Actions will be taken to improve the system of social credit standard by focusing on formulating standards for credit information collection, aggregation, sharing, public use and for credit evaluation, management, application, as well as for the protection of the rights and interests of entities. We will upgrade the system of quality control standards, and accelerate the formulation of standards of quality control methods, systems, and models that focus on quality excellence and meet the needs of digital transformation. We will improve the circulation standard system, and develop standards for supply chain risk assessment, digitization, and management services, as well as for the application of digital technology in commerce. We will research and formulate standards for trade in services, and begin with the comprehensive pilot zone for cross-border e-commerce to improve relevant standards.

(20) We will develop standards for consumer-oriented service industries. We will step up developing standards in key areas such as retail, domestic service, tourism, education, and catering; accelerate formulating new standards for new business forms including domestic service e-commerce, education and training, as well as online learning and central kitchens; and establish and improve service quality standards and system of convenient living circle standards. We will speed up improving urban mobility service standards for digital transportation applications, and develop new urban mobility service standards such as online taxi reservations, bike sharing, and time-sharing rental for small and mini passenger cars.

(21) We will develop public service standards. We will accelerate the establishment of a system of basic public service standards for the overall planning in urban and rural areas, and develop service standards for childcare, education, elderly care, child welfare and juvenile protection, services for the disabled, employment and entrepreneurship, social insurance, and meteorology. Steps will be taken to improve the standards of medical and healthcare and traditional Chinese medicine, as well as the standard system of basic public health services. Efforts shall be made to revise the national guiding standards for basic public cultural services and improve the standards of public sports service such as the national fitness program. We will promote the development of standards for community services and community smart governance, and accelerate developing standards for social work and volunteering. We will also improve the system of public legal standards, and establish standards for judicial appraisal, notarization, etc.

7. Business Environment Optimization

(22) We will develop administrative management and service standards. We will improve the standards for administrative licensing, administration service hall, digital government, transparency in government affairs, administration service hotline, public resource transactions, government office management and others; and promote standards for administration service reviews, integration of online and offline administration services, open public data utilization, government affairs transparency at the primary level, electronic record and electronic archives, so as to form a systematic, integrated, collaborative and efficient government service standard system.

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(23) We will develop standards for the protection of market entities and the optimization of market environment. The development of standards will be accelerated for intellectual property protection, reform of "separating permits from business license," and business establishment. We will also promote standardization in market entity protection, and formulate a standard system for the full lifecycle of market entities, so as to support market entity protection and market environment optimization.

(24) We will develop law enforcement supervision standards. We will carry out research on relevant standards of administrative law enforcement and supervision to advance their standardization. We will develop standards in law enforcement information, data, equipment and smart supervision, thus establishing a standard system for administrative law enforcement and supervision.

(25) We will develop business environment evaluation standards. We will learn from international business environment evaluation indicators to build a standard system oriented to market entities and public satisfaction, and improve the indicators, optimize procedures, so as to promote open, transparent, and standardized evaluation of the business environment.

8. Public Security Emergency Response

(26) We will develop management standards for public safety emergency response. Focusing on responses to public health emergencies, natural disasters, accidents and social security incidents, we will improve the standard system for responding to public safety emergencies throughout the entire process, including prevention and preparation, monitoring and early warning, disposal and rescue, as well as recovery and reconstruction. In particular, we will formulate and implement management standards for fire protection, disaster prevention, mitigation and relief, safe production, hazardous chemicals, criminal technology, police equipment, emergency equipment, and explosives safety. We will also clarify the coordination and transformation mechanism of domestic and foreign standard applications in response to public safety emergencies, and realize the rapid establishment, transformation and application of standards in an emergency.

(27) We will develop management standards for emergency supplies. A standard system will be established to cover the full lifecycle of emergency supplies management including production, storage, distribution, delivery, use and processing. We will improve the classification and coding, financing and procurement, as well as storage of emergency supplies, so as to advance the scientific and standardized management of emergency supplies and meet the management requirements of public safety emergency response.

(28) We will develop standards for personal protective equipment. We will build a dynamic standard base covering domestic and overseas protective equipment, comprehensively compare the key technical indicators of Chinese and international standards, increase the standard supply of protective equipment in key high-risk industries, establish standard guidelines for the graded and classified use of protective equipment in emergency situations, and guide personnel to use personal protection products reasonably in various scenarios.

9. Development of Ecological Civilization

(29) We will develop standards for natural resources. Key technical standards will be formulated for natural resource survey, monitoring and evaluation, and cultivated land protection, etc. We will develop standards for natural resources and real estate ownership survey, unified confirmation and registration, developing, monitoring and evaluation of land and spatial planning, and management of nationally owned natural resources and minerals. We will improve the land use standard system, as well as standards in areas including the conservation and intensive use of natural resources, natural resource grading and price evaluation, classification of mineral resources reserves, green mines, green geological exploration, conservation and comprehensive utilization of mineral resources, and so on. We will also introduce standards in fields such as integrated management of waters and islands, marine observation, monitoring and investigation, marine forecasting and warning, and marine disaster prevention and mitigation.

(30) We will develop standards for efficient recycling of resources. Water saving standards will be formulated for water intake (use) quota, water efficiency of the products, water-saving technologies

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and products, and unconventional water sources utilization, etc. We will carry out standard formulation for industrial solid waste, construction waste, kitchen waste, recycling and comprehensive utilization of renewable resources, environmental management systems, and recycling of storage batteries for new energy vehicles, thus improving the resource recycling and utilization standard system. We will also continue formulating green product evaluation standards and improve the standard system of green product evaluation.

(31) We will develop ecological and environmental standards. We will accelerate the revision of standards on environmental quality and soil contamination management and control that cover surface water, seawater, noise, vibration, etc. We will make overall plans and continuously improve pollutant emission standards and standards for noise, vibration, and light radiation control. We will develop standards for the industry of environmental protection, including pollution prevention equipment, environmental protection services and so on. We will establish standards for the investigation and evaluation of ecological conditions, assessment of ecological product value, ecological protection and restoration, and biodiversity protection. We will improve the standards for ecological environment zoning control as required by the "ecological protection red line, environmental quality bottom line, resource utilization online and ecological environment access list," environmental impact assessment, and pollutant discharge permits technologies. We will also actively formulate standards for adapting to climate change.

(32) We will develop standards for peaking carbon emissions and achieving carbon neutrality. Standard formulation will be accelerated for the accounting, reporting and verification of greenhouse gas emissions, the evaluation of greenhouse gas emission reduction effects and the disclosure of greenhouse gas management information. Efforts will be made to develop key standards for carbon emissions management systems, carbon footprints, carbon sinks, carbon neutrality, carbon emissions trading, and climate investment and financing. Standards for carbon capture, utilization and sequestration, and low-carbon technology evaluation will be improved to give full play to the standards' leading and regulating roles in cutting-edge low-carbon technologies. We will speed up developing energy conservation standards for energy efficiency, energy consumption quota, energy control, energy foundation, energy conservation monitoring and control, energy conservation optimization, integrated energy, etc. We will introduce standards for clean and efficient use of fossil energy, including coal, oil and natural gas, and for the construction of production, supply, storage and sales systems. We will also enhance standard formulation in emerging fields such as solar power, wind power, biomass power, hydrogen power, nuclear power, distributed power generation, micro-grids, and energy storage.

III. Improving National Standard Supply System

1. Optimizing Compulsory National Standards

Focusing on people's health, life and property safety, national security, and ecological safety, we will strengthen top-level design, continuously optimize the structure of compulsory national standards, and improve their quality, so as to establish a sound, coordinated, unified, systematic, and moderate-scale compulsory national standard system. We will build a demand analysis and identification mechanism in line with laws and regulations, strengthen the coordination and alignment of compulsory national standards with laws, regulations and policies, and ensure that the compulsory national standards are authoritative, scientific and applicable. We will provide a better full lifecycle management mechanism to compulsory national standards, clarify areas that require these standards, and promote the transition from single product to cross-product, cross-field, and cross-industry standards. We will strengthen the openness and transparency of the key information during the compulsory national standard formulation process. We will provide a diagnosis for the implementation of compulsory national standards for micro, small and medium-sized enterprises (MSMEs), to strengthen the implementation and supervision of compulsory national standards. Efforts will be made to improve the statistical analysis and reporting mechanism for the implementation of compulsory national standards, advance the pilot statistical analysis, encourage third-party institutions to conduct performance evaluation of the implementation, and better apply assessment results in the review of the standards.

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2. Increasing the Supply Efficiency of Recommended National Standards

We will strengthen the top-level design of recommended national standards and their coordination with compulsory national standards, improve the framework of standard systems in various fields, formulate and revise national standards in a systematic way, and effectively link up upstream and downstream standards in the industry chain. We will explore the multi-channel project declaration mechanism for the national standard plan, improve the demand-oriented, bottom-up and top-down project establishment mechanisms for standards, strengthen the third-party assessment of standard necessity and technological maturity, and ensure the quality of national standard supply. We will improve the national standard review system, establish a national standard withdrawal mechanism, form an effective national standard dynamic maintenance mechanism, and continue to optimize and integrate recommended national standards. We will also coordinate and advance the cross-sector and cross-field standards as well as those with major controversies.

3. Improving the Mechanisms for Transforming Scientific and Technological Achievements into National Standards

We will improve the procedures for rapidly transforming scientific and technological achievements into standards. Efforts will be made to enhance standardized building of technological innovation and entrepreneurship services, establish a standardized service platform for scientific and technological achievements, cultivate and develop market-oriented, standardized professional service institutions, strengthen the instructional service for transforming standard technical content into standards, and integrate scientific research with standards throughout the process from project planning to implementation and evaluation, so as to improve the transformation mechanism and accelerate the transformation of innovative achievements into technical standards. We will set up standard laboratories with national-level quality to strengthen the technical support of scientific and technological resources for the development of standards. We will ramp up efforts to establish comprehensive and sector-specific national standard verification and inspection points, and build a standard verification technical system and working system. We will continue building the national technical standard innovation base, and strengthen its role as a resource aggregation and service transformation platform.

4. Enriching the Forms of Supply of National Standards

We will establish a mechanism that adopts association standards as national standards. In terms of innovative development demand, such as new technologies, new industries, new business forms, and new models, advanced association standards that are effective and conform to the scope of national standard setting shall be adopted as national standards in a timely manner. Efforts will be made to improve the technical documentation mechanism for national standardization, promote the pilot digitalization of national standards, and explore new forms of supply of national standards such as machine readable standards, open-source standards and database standards. We will also strengthen the formulation of national standards related to the needs for standardization of major regional strategies, such as the coordinated development of Beijing-Tianjin-Hebei, the development of the Yangtze River Economic Belt, the development of the Guangdong-Hong Kong-Macao Greater Bay Area, the integrated development of the Yangtze River Delta, and the ecological protection and high-quality development of the Yellow River Basin.

5. Aiming at Advanced International Standards and Improving the Supply of National Standards

We will track international standards and improve the mechanisms to adopt international standards. We will compare domestic and foreign standards and carry out verification analysis, timely transform applicable advanced international standards in key areas into national standards, and increase the conversion rate of international standards. We will actively participate in the formulation of international standards, improve the coordination and linkage mechanism between domestic technical organizations and the National Standardization Technical Committees, so as to support the timely transformation of international standards.

6. Strengthening the Supply of National Reference Materials

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We will improve the national reference materials management mechanism, optimize the coordinated national reference materials system, and step up the development of national reference materials for pillar industries and new technologies, green development, food and consumer products, biotechnology, non-ferrous metals, and energy. We will improve the publicity, application and supervision of national reference materials, build information service platforms, smooth the supply anddemand channels, and expand their coverage.

IV. Improving the National Standard Guarantee System

1. Improving the National Standardization Technical Organizations

We will push forward the classified development of N national standardization technical organizations, and establish standardization working groups for new technologies, new industries, and new sectors. Steps will be taken to constantly optimize the system of national standardization technical organizations, and carry out structural adjustments to the existing system through integration, scope adjustment and other methods, so as to achieve systematic optimization and meet the needs of standard system building and development. We will gradually establish and improve the national liaison mechanism for cross-field National Standardization Technical Committees and strengthen the coordination and technical communication among them. We will strengthen the supervision and management of the National Standardization Technical Committees, reinforce the evaluation of technical committees and standardization working groups, gradually establish and improve the negative list system, introduce credit management, and enhance the quality of standardization technical organizations. We will encourage national standardization technical organizations to actively invite representatives from foreign-funded enterprises to participate in the formulation of national standards on an equal footing in accordance with the law.

2. Improving the Talent Training System for Standardization

We will establish a standardized education system that suits China's national condition, incorporate standardization into higher education, support the arrangements of standardization courses, and carry out pilot projects for integrating professional and standardization education. Efforts will be made to cultivate professional talents and leaders in standardization with both research and standardization capabilities, select and train young talents for international standardization, and carry out professional standardization talent assessment. We will improve vocational education and continuing standardization education to enhance the vocational and professional skills of practitioners. We will build a team of standardization professionals at the grassroots level and encourage associations and enterprises to increase training and use of employees with standardization skills. We will also popularize and educate standardization knowledge to enhance people's awareness and application of standards.

3. Enhancing the Supporting Capacity of Informatization

We will improve the unified national standard information service platform to provide an effective way for all parties to contribute to standardization. The national standardization business system will be constantly optimized to enhance the transparency and efficiency of the standard formulation and revision process. We will also establish information systems that support the digital transformation of national standards and strengthen the coordination of national standard information systems and improve the capacity of standardization information services.

4. Expanding International Cooperation in Standardization

We will participate in in-depth international and regional standardization events. We will promote cooperation in standardization with countries involved in the Belt and Road Initiative, strengthen dialogues on standardization with international organizations such as BRICS and APEC, and deepen regional cooperation on standardization with Northeast Asia, Asia Pacific, Pan America, Europe, and Africa. Steps will be taken to improve standard information sharing and services and develop mutually beneficial cooperation relations. Focusing on foreign trade, overseas projects, and foreign economic and technological exchanges and cooperation, we will expand standardization exchanges in key areas, such as promoting reciprocal recognition of Chinese and foreign standards by carrying out foreign aid training and enriching foreign language versions of national standards.

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V. Organization and Implementation

1. Strengthening Overall Planning and Coordination

Building on the inter-ministerial joint conference system of the State Council for the coordinated development of standardization, we will strengthen the linkage of relevant departments, and timely study and address major problems in the building of the national standard system. All regions and authorities shall coordinate well the construction of the national standard system to promote high-quality development, thus forming national standardization synergy through effective collaboration and a clear division of labor and responsibility.

2. Strengthening Implementation Guarantees.

All regions and authorities shall strengthen organization and implementation, clarify the division of responsibilities, intensify policy and funding guarantees, and organically link the building of a national standard system that promotes high-quality development with relevant construction plans. We will give full play to the guiding role of fiscal funds to encourage and guide more social capital to invest in the building of a national standard system that promotes high-quality development.

3. Strengthening Incentives and Publicity

All regions and departments shall establish and improve relevant incentive mechanisms, and recognize and reward outstanding organizations, individuals and advanced projects in standardization in accordance with relevant regulations. We will carry out standardization knowledge promotion and popularization, mobilize all parties in the society to participate in the building of a national standard system as well as the implementation and application of national standards, so as to create a sound environment where the whole society values and promotes standardization.

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