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Foreword

With the successful realization of the First Centenary Goal, China has embarked on a new journey towards socialist modernization in all respects. At the 20th National Congress of the Communist Party of China (CPC), it was clearly stated that from that day forward, the central task of the CPC would be to lead the Chinese people of all ethnic groups in a concerted effort to realize the Second Centenary Goal of building China into a great modern socialist country in all respects and to advance the rejuvenation of the Chinese nation on all fronts through a Chinese path to modernization. The journey of Chinese modernization is both substantial and arduous, and the scale of such an undertaking is what makes it so profoundly meaningful. Documenting the process of Chinese modernization and exploring the major issues facing China's development are of great significance for both China and global development.

The Development Research Centre of the State Council (DRC) releases the China Development Report annually. The report aims to document the extraordinary progress made under the leadership of the Party in advancing Chinese modernization, guided by Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, while simultaneously examining the deep-rooted problems facing China's development. This year's report continues to use the framework structure of "1+5+N", where "1" stands for the documentation of the theoretical, institutional, and practical achievements in overall development; "5" stands for

the documentation of the major achievements in related fields under the vision of innovative, coordinated, green, open and shared development; and "N" stands for the release of the DRC's research sub-reports on a number of major development issues.

2023 was the first year for fully implementing the guiding principles from the 20th National Congress of the CPC. Despite facing a complex international environment and the challenging tasks of advancing reform and development and ensuring stability at home, the CPC Central Committee with Xi Jinping at its core brought together the Chinese people of all ethnic groups and led them in withstanding external pressures and overcoming internal difficulties through dedicated efforts. New progress was made in the undertakings of the Party and the country, and the country secured a smooth transition in epidemic response following the major, decisive victory in the fight against Covid-19. China strengthened its macro regulation and worked to expand domestic demand, improve the economic structure, bolster confidence, and prevent and defuse risks. It sped up the formation of new quality productive forces and put the country's economy on an upward trajectory. The main goals and tasks for economic and social development in 2023 were accomplished, and reform continued to deepen. The Second Plenary Session of the 20th CPC Central Committee reviewed and adopted the Plan for the Reform of Party and State Institutions to deepen institutional reform in key areas. Significant progress was made in building a modernized industrial system, and the transformation and upgrading of traditional industries continued to accelerate. Strategic emerging industries achieved vigorous growth, and groundwork was laid for developing future industries. Breakthroughs were made in scientific and technological innovation, and the capacity for innovation-driven development was further enhanced. The environment saw steady improvements, and people's wellbeing

was ensured. Steady progress was made in pursuing high-quality development, overall social harmony and stability were maintained, and the building of a modern socialist country in all respects made solid advances.

In addition to documenting the achievements of China's economic and social development in 2023, the *China Development Report 2024* also includes five major thematic sub-reports of the DRC. "China's New Energy Industry: Market-Based Support for Global Green and Low-Carbon Transition" explains how China's commitment to promoting a green and low-carbon transition, coupled with the economies of scale and comparative advantages built up over the long term, have been instrumental in developing its new energy industry. "Understanding the Development of China's Future Industries" puts forward key areas in future industries that are worthy of attention and provides a techno-economic analysis of each of these areas. "Major Trends and Implications of the Development of AI" provides an analysis of the techno-economic characteristics, development trends, and major impacts and challenges that artificial intelligence (AI) may bring. "Capturing the Economic Characteristics of Data" analyzes the economic characteristics of data and the main risks worthy of attention in data development and utilization. "Improving the Carbon Market Trading Mechanism and Pursuing the Goals of Peak Carbon Emissions and Carbon Neutrality" examines the progress of China's carbon pricing system, which focuses on the carbon market and the direction of future reforms.

The present and future stages are a critical period for building China into a great modern socialist country in all respects and advancing the great rejuvenation of the Chinese nation on all fronts through the Chinese path to modernization. To turn the blueprint of Chinese modernization into reality, further deepening of reform is essential. The Third Plenary Session of the 20th Central Committee of

the CPC, held in July 2024, laid out systematic plans for comprehensively deepening reform, providing strong impetus and institutional support to advance China's modernization.

The *China Development Report 2023*, issued last year, has attracted extensive interest from all sectors of society, helping people to understand China's development philosophy and achievements and the relationship between China's development and that of the world. The *China Development Report 2024* has incorporated the advice of experts and undergone multiple rounds of discussion and revision. We welcome suggestions from readers, as they will be invaluable in aiding us to improve and make further progress.

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Chapter One

An Overview of China's Development

2023 marked the beginning of full implementation of the guiding principles laid down at the 20th CPC National Congress. It was a critical year for bridging the past and the future in implementing the 14th Five-Year Plan, and also a year of economic recovery, following three years of Covid-19 prevention and control. Despite facing an unusually complex international environment and the challenging tasks of advancing reform and development and ensuring stability at home, the CPC Central Committee with Xi Jinping at its core brought together the Chinese people of all ethnic groups and led them in withstanding external pressures, overcoming internal difficulties, and deepening reform and opening up. The country strengthened macroeconomic regulation and control, expanded domestic demand, optimized structures, boosted confidence, and worked to prevent and defuse risks. The formation of new quality productive forces was accelerated. The economy showed signs of recovery, and progress was achieved in high-quality development. Overall social stability was also maintained, as solid strides were made in the building of a modern socialist country.

I. Development Environment in 2023

1. External environment

In 2023, the gradual recovery of the world economy from the Covid-19 pandemic created certain favorable conditions for China's economic recovery. International economic exchanges recovered, and international travel for business and tourism increased, with international air passenger traffic up 41.6 percent year on year. Logistics continued to improve, with 80 of the 132 economies with comparable data, as per the World Bank, having logistics indices above pre-Covid levels. The Global Supply Chain Stress Index, monitored by the Federal Reserve Bank of New York of the United States, declined from 1.9 in 2022 to -0.6 in 2023, indicating a fallback of supply chain stress. The global services sector has also shown resilient growth, with the recovery of international tourism and the surge in digital delivery services driving a growth in trade in commercial services, which totaled US$7.5 trillion in 2023, up 9 percent from the previous year, according to the World Trade Organization. The green and low-carbon transition gave rise to new international demand as countries increased their efforts to combat climate change and reduce emissions, leading to a boom in the green industry. An International Energy Agency report showed that the global installed capacity of new renewable energy rose by nearly 50 percent compared to 2022, the fastest growth

rate recorded in the last 20 years[1]. The new round of technological revolution and industrial transformation has also gained momentum, with new technologies in the fields of AI, cloud computing, quantum computing, and biotechnology developing vigorously.

At the same time, the complexity, severity, and uncertainty of the external environment increased throughout the year. Global growth momentum weakened, and global economic growth slowed, with data from the World Bank showing that the global economy grew by 2.6 percent in 2023, down 0.4 percentage points from the previous year[2]. Economic growth in most of the developed economies was weak, with gross domestic product (GDP) growth in the euro area at 0.5 percent, down 2.9 percentage points from the previous year. Economic growth in some emerging markets and developing economies also declined, with South Africa and Vietnam growing at 0.6 percent and 5.0 percent, respectively, down 1.3 and 3.1 percentage points from the previous year. Global trade contracted, and barriers to trade and investment also saw an increase. Trade protectionism gained momentum, with countries announcing a total of about 3,000 trade-restrictive measures in 2023, nearly three times as many as in 2019, according to the International Monetary Fund. This trade protectionism caused a reduction in global trade, with the World Trade Organization reporting that the global exports of goods totaled US$23.8 trillion in 2023, down 4.6 percent from the previous year, after two consecutive years of positive growth. Some economies stepped up restrictions on China's new energy and high-tech sectors, including the European Union, which introduced a new battery law and launched an anti-subsidy investigation into electric vehicles originating in China. The United States also increased restrictions on

[1] International Energy Agency: "Renewable Energy 2023", January 2024.

[2] World Bank: "Global Economic Prospects", June 2024.

chip exports to China. Geopolitical risks continued to spread throughout the year, with the continued Russia-Ukraine conflict highlighting issues of food, energy, and resource security. Europe continued to face tight energy supplies, and its inflation remained high. Economic recovery was slow across the continent, with the Eurozone manufacturing PMI (purchasing managers' index) remaining in contraction territory from July 2022 to the end of 2023. In October 2023, a new round of the Palestinian-Israeli conflict broke out. The spillover of this conflict saw attacks on shipping in the Red Sea, causing the shipping price index for routes from China to the eastern Mediterranean to rise by a cumulative 247 percent, according to the Ningbo Shipping Exchange. The spillover effects of the tightening of macro policies in developed economies, including Europe and the United States, began to emerge throughout 2023, as they continued to tighten their monetary policies to cope with high inflation. The Federal Reserve in the United States raised interest rates by a total of 100 basis points, the European Central Bank by a total of 200 basis points, and the Bank of England by a total of 175 basis points, the spillover effects of which are continuing to be felt. The pressure of currency depreciation and capital outflows on developing countries increased, and the annual average values of the Argentine peso, Turkish lira, and South African rand depreciated by 55.7 percent, 30.2 percent, and 12.7 percent against the US dollar, respectively, compared with the previous year.

2. Domestic environment

(1) Favorable conditions for economic recovery

Post-Covid recovery effects began to emerge throughout 2023. With the lifting of epidemic-related restrictions, the flow of people recovered significantly.

China's annual inter-regional population mobility was 61.29 billion person-times, up 30.7 percent year on year. The logistics sector sustained steady growth, with freight volume reaching 54.75 billion tonnes, an increase of 8.1 percent over the previous year. Cargo turnover stood at 24.1 trillion tonne-kilometers, an increase of 6.3 percent over the previous year. Improved people flows and logistics laid the foundation for economic recovery.

The effects of forceful macro policies continued to be felt, with the leverage ratio of the Chinese government remaining comparatively low when compared to developed countries such as the United States. The debt burden of the central government was low, leaving room for further macro policies. The stabilizing effect of macro policies, including tax and fee cuts, the issuance of additional government bonds, and cuts in interest rates and required reserve ratios, continued to take effect throughout the year.

The economic fundamentals sustaining the sound development of the Chinese economy remained unchanged. Thanks to the large potential in aggregate demand and the significant advantages accumulated over the long development process, China's economy remained resilient, promising, and dynamic, and its fundamentals for sound long-term development did not change. With urbanization, greenization, and digital transformation driving China's mega market, the potential of aggregate demand remained large. On the supply side, in the course of its long-term development, China accumulated several important advantages, such as economies of scale, a complete manufacturing system, continuous improvement of production factors, and the emergence of new business models and forms. These advantages further consolidated and enhanced the continuous deepening of supply-side structural reform.

(2) A less-than-solid foundation for domestic economic recovery

Insufficient effective domestic demand and some other constraints impeded economic recovery and hindered consumption growth. According to the National Bureau of Statistics, the propensity of Chinese residents to consume was 68.3 percent in 2023, 1.9 percentage points lower than in 2019, prior to the Covid-19 pandemic. Efforts to stabilize investment were challenged by a decline in real estate investment, with some non-government entities unwilling and unable to invest. In some localities, support for infrastructure development weakened due to fiscal pressure and insufficient guarantees for projects in terms of production factors.

The supply side faced powerful structural constraints, and numerous challenges persisted in supply chain stability, stable food production, and stable energy supply. Prominent bottlenecks remained in some basic raw materials and key equipment, parts, and components, while obstructions and blockages impacted industrial and supply chains. The supply and demand of coal remained tight, and challenges were faced in ensuring the supply of natural gas.

Social expectations were weak, with the economic downturn putting pressure on business, especially on small and medium-sized enterprises (SMEs) and the self-employed. Business confidence was slow to return, and households took time to rebuild their financial stability after the pandemic. Concerns among residents about future employment and income led some to prioritize saving over spending.

Potential risks were especially present in certain sectors. The property market continued to face downward pressure, local debt pressure increased, and some small and medium-sized financial institutions in some localities faced increased operating risk.

II. Strategies for Development in 2023

Faced with the need to further consolidate the foundation for achieving economic recovery internally and the increasing uncertainties in the external environment, the CPC Central Committee made a series of decisions and plans for economic work in 2023 at the Central Economic Work Conference, held at the end of 2022. These provided strategic guarantees and policy support for realizing the overall recovery of the economy throughout the year, promoting high-quality development, and advancing Chinese modernization.

1. Macro policy implementation with a focus on expanding domestic demand

(1) Setting appropriate economic and social development objectives

By balancing what is required with what is possible, China set the expected economic growth target for 2023 at around 5 percent. In terms of employment, the target for new urban jobs was revised upward to around 12 million, and the target for the urban surveyed unemployment rate was set at around 5.5 percent. In terms of prices, overall price stability was maintained, and the expected increase in consumer price index (CPI) was set at around 3 percent. In terms of residents' incomes, China raised the incomes of both urban and rural residents through various channels and ensured that personal incomes generally grew in step with economic growth.

(2) Continuing with proactive fiscal and prudent monetary policies and strengthening the coordination with various types of policies

China enhanced the intensity and effectiveness of its fiscal policies, ensured spending in key areas, and balanced the use of deficits, special-purpose bonds, interest subsidies, and other tools. The country arranged for the release of an additional RMB3.8 trillion in local government special-purpose bonds to support the construction of a number of infrastructure and public service projects, in an effort to foster strengths and tackle areas of weakness. It refined and improved tax and fee reduction policies, put them into practice, and introduced additional tax and fee relief measures during the year, resulting in savings exceeding RMB2.2 trillion. The central government issued an additional RMB1 trillion of treasury bonds to support post-disaster recovery and reconstruction and build up capacity for disaster prevention, mitigation, and relief, giving priority to projects that were urgently needed and had a clear return on investment. Monetary policies were implemented in a targeted and effective way, and liquidity was reasonably adequate. Required reserve ratios and policy interest rates were lowered two times, and there was an increase in support for scientific and technological innovation, advanced manufacturing, micro and small businesses, and green development initiatives. The country also improved the coordination of economic policy with other policies, being more conscious of the big picture. Evaluations were also strengthened to ensure consistency with the country's macro policies.

(3) Prioritizing the recovery and expansion of consumption

China enhanced the basic role of consumption in driving economic development, boosted consumer purchasing power, improved the conditions for consumption, and created new consumption channels. In January, the executive meeting of the State Council introduced measures such as helping to reduce the burden on

consumer service enterprises and the self-employed, promoting the full implementation of the policy on spending on automobiles and other big-ticket items, organizing rich and diverse consumption promotion events, and reasonably increasing consumer credit to expand consumption. In July, the General Office of the State Council forwarded the Measures on Recovering and Expanding Consumption of the National Development and Reform Commission (NDRC). These measures focus on six aspects, namely stabilizing consumption of big-ticket items, expanding consumption of services, boosting rural consumption, expanding new types of consumption, and improving consumption facilities and consumption environment. Twenty specific policies and measures were also put forward, based on creating a worry-free consumption environment, boosting consumer confidence, and stimulating consumption activities.

(4) Driving investment society-wide with government investment and policy incentives

Investment plays a key role in optimizing the supply structure. The meeting of the Political Bureau of the CPC Central Committee in April underscored the need to employ the guiding role of government investment and policy incentives to effectively drive and stimulate private investment. Based on the 102 major projects of the 14th Five-year Plan and other key construction projects under major national strategies, China selected projects with a certain level of return and relatively mature conditions, and encouraged and attracted more non-governmental capital to participate in these major national projects and projects aimed at strengthening areas of weakness.

In February, the NDRC collaborated with other relevant departments to issue the Guidelines on Integrating Energy Conservation and Carbon Reduction with Recycling and Utilization to Accelerate Product and Equipment Renewal and

Upgrading in Key Areas. These guidelines call for the integrated use of government investment, targeted re-lending, and other fiscal and financial policies, and advocate for increasing support for medium- and long-term loans and guiding enterprises in carrying out product and equipment renewal, upgrading, and recycling. In July, the executive meeting of the State Council reviewed and adopted the Guidelines on Actively and Steadily Promoting the Construction of Public Infrastructure for Normal and Emergency Use in Mega Cities. The guidelines propose strengthening standards guidance and policy support and motivating private investment in the construction and transformation of facilities for both normal and emergency use, as well as in the operation and maintenance of such facilities.

(5) Further leveraging the role of exports in driving economic growth

In 2023, the General Office of the State Council issued the Guidelines on Promoting the Stable Scale and Improved Structure of Foreign Trade and Several Measures on Accelerating the Integrated Development of Domestic and Foreign Trade, among other policies, launching positive actions for expanding markets, accelerating innovative development, aligning domestic and foreign trade rules and systems, connecting market channels, and helping domestic commercial enterprises to export. These policies provide an enabling environment for developing foreign trade and build a new model for the integrated development of domestic and foreign trade. Sixteen initiatives were launched to improve the business environment in four areas, including promoting smooth import and export logistics, facilitating cross-border trade, reducing the burden on enterprises and increasing efficiency, and pursuing innovative development of foreign trade. China acceded to the Convention Abolishing the Requirement of Legalization for Foreign Public Documents, which greatly reduced the cost of cross-border circulation of

documents. The Ministry of Commerce (MOFCOM) and nine other departments jointly issued the Guidelines on Enhancing the Development Level of Processing Trade to promote the processing trade of high-added-value products, promote the development of bonded maintenance business, and boost the development of carriers for cross-region industrial transfer. These guidelines aim to make cross-border trade settlement more convenient while promoting the innovative development of services trade and digital trade and enhancing the role of national exhibition platforms in promoting the development of high-quality trade.

2. Modernization of the industrial system through innovation

Since July 2023, during his visits to Sichuan, Heilongjiang, Zhejiang, and Guangxi, President Xi Jinping has emphasized the importance of integrating science, technology, and innovation resources to drive the development of strategic emerging industries and future industries and to accelerate the development of new quality productive forces[1]. In September, President Xi gave important instructions on promoting new industrialization, stressing the need to fully understand the basic laws of promoting new industrialization on the new journey in the new era and highlighting the importance of implementing high-quality development throughout the whole process of new industrialization[2].

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[1] Xi Jinping: "The Development of New Quality Productive Forces Stands as an Intrinsic Requirement and an Important Focus of High-Quality Development", Chin. ed, *Qiushi*, 2024 (11), pp. 1-4.

[2] "Xi Jinping Issues Important Instruction on Promoting New Industrialization, Emphasizes Implementing the Requirement of High-Quality Development Throughout the Entire Process of New Industrialization and Building a Strong Material and Technological Foundation for Chinese Modernization", Chin. ed., Xinhua News Agency, September 23, 2023.

(1) Striving for greater strength and self-reliance in science and technology

The CPC Central Committee strengthened its centralized, unified leadership over science and technology work and led scientific and technological system reform through institutional reform. The country reinforced national strategic science and technology, expanded the capacity of national laboratories, reorganized key national laboratories in a steady manner, and continued to implement relevant tax policies for technology business incubators, university science and technology parks, and co-working spaces. The scientific and technological innovation capacity of businesses was also enhanced. The first meeting of the Commission for Further Reform under the 20th CPC Central Committee reviewed and adopted the Guidelines on Strengthening the Principal Role of Enterprises in Scientific and Technological Innovation to motivate businesses to innovate through market-oriented mechanisms. China further improved the development of the science and technology reward and punishment system and science and technology ethics and academic norms, while simultaneously deepening reform in the talent system. The International Science and Technology Cooperation Initiative and the Global Security Initiative Concept Paper were released, advancing the development of international exchange and cooperation platforms and enhancing global collaboration in scientific and technological innovation and international security governance in emerging scientific and technological fields.

(2) Coordinating actions to advance new industrialization

In the face of both internet and external changes, and taking into account the features of different phases in China's new industrialization, the country comprehensively improved the quality, efficiency, and international competitiveness of its industrial development and promoted stable growth of the industrial economy.

In September, a national meeting on promoting new industrialization was held to draw up a comprehensive plan for promoting new industrialization on the new journey in the new era. The meeting made clear that China should focus on improving the resilience and security of industrial and supply chains, accelerate the enhancement of the industrial innovation capacity, and continue to improve and upgrade the industrial structure. Additionally, it should better integrate digital technology with the real economy and comprehensively promote the green development of industry.

(3) Promoting the transformation and upgrading of traditional industries

China worked to shore up weak links in the industrial and supply chains of key industries. A number of industrial foundation re-engineering projects were launched, and the preferential policy on accelerated depreciation of fixed assets was extended to cover the entire manufacturing sector, encouraging enterprises to accelerate the pace of equipment upgrading and technological transformation. The country sped up the digitalization of traditional industries and SMEs to make them higher-end, smarter, and more eco-friendly. In December, the Ministry of Industry and Information Technology (MIIT) issued the Guidelines on Accelerating the Transformation and Upgrading of the Traditional Manufacturing Industry, in collaboration with other relevant departments. These guidelines propose accelerating the promotion and application of advanced and applicable technologies to bring about the intelligent, digital, and networked transformation of enterprises and foster the transformation and upgrading of entire industrial parks and clusters. They also aim to strengthen green and low-carbon development, making the traditional manufacturing sector higher-end, smarter, more eco-friendly, and more integrated. Additionally, the guidelines call for technology transformation and the

upgrading of the manufacturing sector.

(4) Cultivating and expanding strategic emerging industries

The 2023 Government Work Report proposed accelerating the development of emerging industries such as high-end equipment, biomedicine, new energy vehicles, photovoltaic power, and wind power. In May, the State Council executive meeting made plans to speed up the development of advanced manufacturing clusters and emphasized that this should be considered a priority. Relevant departments guided enterprises to take strategic emerging industries as a key direction for development, with an aim to refine the industrial configuration, develop world-class products, services, and brands, foster specialized and innovative SMEs, as well as leading single-product specialists, and promote the deep integration of scientific and technological innovation with industrial innovation.

(5) Making forward-looking plans for future industries

China encourages industry players to tackle future industrial innovation challenges in four key directions through an open competition mechanism: metaverse, humanoid robots, brain-computer interface, and artificial general intelligence. In August, the MIIT and several other departments issued the Implementation Plan of Standardization Pilot Project for New Industries (2023-2035), which emphasizes the need to establish an efficient and collaborative standardization work system for new industries. The plan concentrates on nine future industries: metaverse, brain-computer interface, quantum information, humanoid robots, generative artificial intelligence, bio-manufacturing, future displays, future networks, and new energy storage, and aims to coordinate the research, formulation, implementation, and internationalization of standards in these fields.

(6) Supporting the development of the digital economy and modern services

In February, the CPC Central Committee and the State Council issued the Overall Layout Plan for the Building of Digital China, which outlines a holistic, systematic, and coordinated approach to building a digital China. In October, the National Data Bureau was officially established, which is responsible for coordinating and facilitating the establishment of institutions fundamental to data development, as well as coordinating the planning and building of a digital China, the digital economy, and the digital society. Since the second half of 2023, several important documents related to AI, computational infrastructure, and data elements have been published consecutively. The national meeting on promoting new industrialization highlighted the importance of combining China's role as a strong manufacturer with the development of the digital economy and industrial informatization. This involves integrating the digital economy with advanced manufacturing and modern service industries. Throughout the year, China also promoted the establishment of a national integrated demonstration zone aimed at enhancing openness in the services sector. Additional efforts were also made to advance the construction of national logistics hubs and key national cold-chain logistics centers.

3. Deepening of reform

(1) Deepening the reform of Party and state institutions

In March, the CPC Central Committee and the State Council issued the Plan for the Reform of Party and State Institutions in order to deepen the reform of the institutions of the CPC Central Committee, the National People's Congress,

the State Council, and the National Committee of the Chinese People's Political Consultative Conference, by establishing a well-developed, procedure-based, and effective framework for Party and state institutions. The Central Financial Commission, the Central Financial Work Commission, the Central Science and Technology Commission, the Central Society Work Department, and the Central Hong Kong and Macao Work Office were established to strengthen the unified leadership of the CPC Central Committee over financial, social, and scientific and technological work. The setup and functions of the Ministry of Science and Technology were restructured, and concerted efforts were made to optimize and strengthen the functions for agriculture and rural areas, data management, and work related to the elderly. China pushed for a comprehensive restructuring of the functions of the financial management departments, established the National Financial Regulatory Administration and restructured its functions, and strengthened the regulatory functions of the China Securities Regulatory Commission with respect to the capital market.

(2) Working hard to consolidate and develop the public sector and encourage, support, and guide the development of the non-public sector

The first meeting of the Commission for Further Reform under the 20th CPC Central Committee reviewed and adopted the Guidelines on Strengthening and Improving the Management of the State-Owned Sector to Support Chinese Modernization, which lays out a strategic plan for building an efficient management system for state-owned enterprises featuring top-level coordination, clearly defined power and responsibility, and effective regulation. In June, the General Office of the CPC Central Committee and the General Office of the State Council issued the Action Plan for Deepening and Upgrading the Reform of State-Owned Enterprises (2023-2025), which draws up in-depth reform plans for improving the core

competitiveness of state-owned enterprises, optimizing the distribution and structure of state-owned capital, helping businesses to enhance quality and efficiency, and improving enterprise management modernization. In July, the CPC Central Committee and the State Council issued the Guidelines on Promoting the Growth of the Private Sector, which proposes 31 policies to optimize the environment for the development of the private sector, strengthen policy support for the private sector, strengthen the rule of law to protect the development of the private sector, and promote the healthy development of those working in the private sector. The NDRC established a mechanism to communicate regularly with private enterprises to help them solve practical problems, and in September, the State Commission Office of Public Sectors Reform approved the establishment of the Bureau of Private Economy within the NDRC as a specialized agency to promote the development and growth of the private sector. Based on their respective functions, the Supreme People's Court, the Supreme People's Procuratorate, the NDRC, the MIIT, and the State Administration for Market Regulation issued a series of supporting policies for developing and growing the private sector.

(3) Deepening supply-side structural reform in the financial sector

The financial sector is the lifeblood of a nation's economy and a crucial component of a country's core competitiveness. In October, the Central Financial Work Conference emphasized the need to build a nation with a strong financial sector, accelerate the development of a modern financial system with Chinese characteristics, focus on the high-quality development and supply-side structural reform of the financial sector, and meet the growing demand of the economic and social development and the people for financial services. The conference made plans to develop technology finance, green finance, inclusive finance, pension finance, and digital finance, build modern financial institutions and market systems,

optimize the ratio between direct and indirect financing, equity financing and debt financing, improve financial services for the real economy, and strengthen the protection of the rights and interests of financial consumers.

4. Furthering of opening up

In July 2023, the second meeting of the Commission for Further Reform under the CPC Central Committee adopted the Guidelines on Developing New Systems for Higher-Standard Open Economy and Forging a New Pattern of Development. These guidelines aim to enhance the top-level design of new systems for a higher-standard open economy, deepen the systemic and institutional reform in the trade and investment field, expand market access, improve all aspects of the business environment, enhance the service guarantee system, and attract global resources with the domestic economy to elevate the quality and level of trade and investment cooperation.

(1) Expanding market access

China plans to deepen reform and opening up by expanding comprehensive pilot projects that increase openness in the services sector. At the Third Belt and Road Forum for International Cooperation, it was announced that market access restrictions on foreign investment in the manufacturing sector would be completely removed. In November, the State Council approved the Working Plan for Supporting Beijing to Build a Comprehensive National Demonstration Zone for Expanding the Opening up of the Services Sector, which includes over 170 pilot initiatives that promote deeper reform and further openness in key areas of the services sector.

(2) Improving all aspects of the business environment

In response to the concerns of multinational corporations, in July, the State Council issued the Guidelines on Further Optimizing the Foreign Investment Environment and Intensifying Efforts to Attract Foreign Investment, proposing 24 specific measures in six areas, namely: improving the quality of foreign capital utilization, guaranteeing equal treatment of foreign-invested enterprises, strengthening the protection of foreign investment, improving the facilitation of investment and operation, increasing fiscal and tax support, and improving ways to promote foreign investment. China has introduced the "Invest in China" brand, established a more practical public service platform, and deepened international cooperation in two-way investment. In order to encourage foreign investors to participate in innovation and development, the General Office of the State Council issued a circular to forward the Several Measures for Further Encouraging Foreign Investment in Setting Up Research and Development Centers as introduced by MOFCOM and the Ministry of Science and Technology in January. The measures aim to increase support for foreign investors in setting up R&D centers in China as part of their research and innovation activities. In response to the demand for intellectual property protection of foreign-invested enterprises and other innovators, the China National Intellectual Property Administration and the Ministry of Justice issued the Guidelines on Strengthening Administrative Adjudication of Patent Infringement Disputes in the New Era in September. In light of the challenges facing foreign nationals when entering China, streamlined procedures were adopted for foreign nationals applying for visas, and the list of countries exempted from visas was expanded. China has now established a roundtable mechanism for foreign-invested enterprises to further strengthen regular communication and exchanges with these

enterprises and foreign business associations in the country[1].

(3) Promoting the role of open platforms in pilot implementation

In January, the executive meeting of the State Council called for platforms such as the pilot free trade zones to play a greater role. In June, the State Council issued Several Measures for Conducting the Pilot Program of Aligning with International High Standards and Promoting Institutional Opening Up in Eligible Pilot Free Trade Zones and the Hainan Free Trade Port. These measures would be first piloted in the eligible free trade pilot zones of Shanghai, Guangdong, Tianjin, Fujian, and Beijing, as well as the Hainan Free Trade Port. Their goal is to establish systems and regulatory models that align with high-standard institutional opening up, with a focus on key areas. In November, the State Council issued the General Plan on Advancing the High-Level Institutional Opening Up of the China (Shanghai) Pilot Free Trade Zone (FTZ) in Alignment with High-Standard International Economic and Trade Rules. This plan proposes 80 measures across seven key areas, including expanding the opening up of the services trade, strengthening goods trade liberalization and facilitation, implementing high-standard digital trade rules as a priority, and enhancing intellectual property rights protection. The goal of this plan is to create a demonstration zone for institutional opening up.

5. Effective prevention and diffusion of major economic and financial risks

In 2022, the Central Economic Work Conference called to effectively forestall and defuse major economic and financial risks in areas such as real estate, finance,

[1] Sun Hongli: "MOFCOM: To Hold a Monthly Roundtable Meeting for Foreign-Invested Enterprises to Listen to Their Opinions and Suggestions", Chin. ed., People's Daily Online, February 5, 2024.

and local government debt. In October 2023, the Central Financial Work Conference emphasized the need to make financial regulation more effective and cover all financial activities in accordance with the law. This requires the strengthening of regulation of financial institutions, conducts, and functions, and the introduction of measures that are more penetrative and long-lasting, thus leaving no room for regulatory gaps or blind zones.

(1) Forestalling and defusing financial risks

The CPC Central Committee strengthened its centralized, unified leadership over financial work and deepened the reform of financial management systems at the central and local levels. A long-term mechanism for joint supervision of large payment platform companies was established, and after the completion of the special rectification of the financial business of platform enterprises, the focus of work shifted to regular supervision. Assessment and supervision systems for systemically important banks and insurance companies improved throughout the year, and the country maintained the sound operation of the financial market, regulated the issuance of financial products and their transactions, made plans to address the risks of small and medium-sized financial institutions, and prevented the transfer and co-movement of risks across regions, markets, and borders.

(2) Supporting for defusing real estate risks

On the supply side, throughout 2023, China continued to implement the lending scheme that ensures presold homes are delivered on time. Macro prudential management of real estate finance was improved, and a loan support program for rental housing was implemented. Policy-backed financial institutions and development financial institutions were encouraged to provide credit support for the "three major projects" of the construction of basic-need housing, the redevelopment of urban villages in cities, and the construction of public infrastructure for both

normal and emergency use. On the demand side, the country made downward adjustments to the down payment ratio and the lower limit of interest rates on home loans for individuals. It led the loan prime rate downward, and lowered interest rates on existing first-home loans. Additionally, it introduced a policy that treats mortgages on second homes in the same way as a first mortgage, as long as the buyer has paid off the first loan, and implemented relevant individual income tax policies to support residents in trading old homes for new ones.

(3) Addressing local government debt risks

To address debt risks in local governments, several working groups focused on financial support for debt relief have been set up at both the ministerial and local levels. A series of documents have been issued in relation to debt risks in financing platforms, and improvements have been made to the debt monitoring mechanisms of such platforms, with enhanced risk monitoring in key regions and for key financing platforms. In April, the Political Bureau of the CPC Central Committee highlighted the need to strengthen the management of local government debt and strictly control new hidden debt. In July, the Political Bureau emphasized once again that it was necessary to effectively forestall and defuse the risk of local debt, and to formulate and implement a package of measures to defuse risks. The Guidelines on Financial Support for Resolving Debt Risks of Financing Platforms was issued to strengthen the support for local government financing platforms from the financing side, strictly control the incremental debt, and steadily dispose of existing debts.

6. Coordinated development between regions, between urban and rural areas

After the 20th CPC National Congress, the CPC Central Committee set up the Central Leading Group for Coordinated Regional Development to further strengthen the top-level design and overall leadership of coordinated regional development. In 2023, President Xi Jinping presided over meetings related to the high-quality and high-standard development of the Xiong'an New Area, the coordinated development of the Beijing-Tianjin-Hebei region, the high-quality development of the Yangtze River Economic Belt, and the integrated development of the Yangtze River Delta. These meetings laid out important plans for the full implementation of the coordinated regional development strategy and major strategies for regional development.

(1) Continuing to implement the coordinated regional development strategy

2023 saw the establishment of key platforms for industrial cooperation between the eastern and western regions of China, supported by forward-looking plans to develop major projects in new materials, new energy, and equipment manufacturing in the western region. In October, the Political Bureau of the CPC Central Committee reviewed the Guidelines on Several Policies and Measures to Further Promote a New Breakthrough in the Comprehensive Revitalization of Northeast China in the New Era, which encourages the Northeast to blaze a new trail of high-quality development and sustainable revitalization. A three-year action plan to cultivate advanced manufacturing clusters in the central region has been implemented at a high level, and support has been provided for the

high-quality inter-provincial cooperation between Hunan, Hubei, and Jiangxi, and between Henan and Anhui, as well as cooperation among regions along the Huai-he River. The eastern region was encouraged to accelerate the development of a modernized industrial system, and Fujian has been supported in exploring a new path of cross-Straits integrated development and building a demonstration zone for the integrated development across the Straits.

(2) Pressing ahead with major regional strategies

In June, the Political Bureau of the CPC Central Committee reviewed the Guidelines on Several Policies and Measures to Support the Development of Xiong'an New Area with High Standards and High Quality, which continues the effort to promote the construction of landmark projects in Xiong'an New Area in order to relieve Beijing of functions nonessential to its role as the capital. In November, the Political Bureau of the CPC Central Committee reviewed the Guidelines on Several Policies and Measures to Further Promote the High-Quality Development of the Yangtze River Economic Belt, deploying policies to promote the high-quality development of the Yangtze River Economic Belt. In August, the State Council issued the Development Plan for the Shenzhen Section of the Hetao Shenzhen-Hong Kong Science and Technology Innovation Cooperation Zone, and in December, it approved the Overall Development Plan for the Guangdong-Macao In-Depth Cooperation Zone in Hengqin, both of which steadily push forward the development of the Guangdong-Hong Kong-Macao Greater Bay Area. The Three-Year Action Plan for Major Projects in the Yangtze River Delta Green Integration Development Demonstration Zone (2024-2026) and the Program for the Construction of the Xin'anjiang-Qiandao Lake Ecological Environment Joint Protection Cooperation Zone (2023-2027) were successively issued to advance the high-quality integrated development of the Yangtze River Delta. Intensive campaigns for

ecological conservation and restoration, pollution prevention and control, and intensive water conservation of the Yellow River also continued throughout the year, while the implementation of key projects in the Yellow River basin accelerated, and provinces and regions along the Yellow River were supported in exploring innovative paths for ecological conservation and high-quality development according to local conditions.

(3) Accelerating the promotion of new urbanization

China optimized the coordinated development of large, medium, and small cities, planned for and carried out actions to shore up weak links in counties, decided on the core functions of 19 mega cities, and introduced and implemented the development plans for 12 metropolitan areas in 2023. The State Council's executive meeting in July reviewed and approved the Guidelines on Actively and Steadily Promoting the Redevelopment of Urban Villages in Mega Cities. At the executive meeting of the State Council in December, initiatives to promote people-centered new urbanization were reviewed, and it was decided to give priority to granting permanent urban residency to eligible people who have moved from rural areas to cities, and to further deepen the reform of the household registration system. With the approval of the State Council, the NDRC and other departments issued the National Basic Public Service Standards (2023 Edition), further relaxing the scope of beneficiaries for some service items, and raising the level of basic public services that those who move from rural to urban areas can enjoy in their place of permanent residence.

(4) Comprehensively promoting rural revitalization

In February, the CPC Central Committee and the State Council issued the Guidelines on Comprehensively Promoting the Key Work of Rural Revitalization in 2023 and made arrangements for essential tasks, including ensuring greater

food security, preventing large-scale relapse into poverty, and promoting rural development and construction. The central government has deployed a new round of initiatives to increase grain production capacity by 50 million tonnes, and has furthered projects to increase the production capacity of soybeans and other oilseed crops. The construction of high-standard farmland and infrastructure, including farmland irrigation and drainage systems, was reinforced, and further steps were taken to invigorate the seed industry to ensure a stable and secure supply of food and critical agricultural products. We strengthened the dynamic monitoring of any indicators related to relapse into poverty, and launched employment promotion initiatives to prevent any return to poverty in areas that had recently shaken off poverty, allowing people in these areas to build their own momentum for growth. The General Office of the CPC Central Committee and the General Office of the State Council issued the Guidelines on Promoting the Sound Development of the Rural Medical and Health System Through Deeper Reform and the Guidelines on Establishing a Quality and Balanced Basic Public Education System, which aim to make quality resources of basic public services, including education and healthcare, accessible at the rural level. In June, government departments such as the Office of the Commission for Financial and Economic Affairs under the CPC Central Committee issued the Guidelines on Vigorously and Effectively Promoting the Experience Gained from the Green Rural Revival Program in Zhejiang Province, which emphasizes the need to improve the living environment and gradually build a beautiful and harmonious countryside that is desirable to live and work in. In July, the Central Commission for Further Reform under the 20th CPC Central Committee reviewed and adopted Implementation Plans for Deeper Rural Reform at its second meeting, further refining the top-level design of rural reform.

7. A green transformation of development approaches

In July 2023, the National Conference on Ecological and Environmental Protection was held, during which President Xi Jinping delivered an important speech. He proposed that, to build a beautiful China, the country should continue to prevent and control pollution and accelerate the implementation of six major tasks: transforming for green and low-carbon development, improving the diversity, stability, and sustainability of ecosystems, proactively and steadily moving towards peak carbon emissions and carbon neutrality, ensuring the security guarantees for building a beautiful China, and improving the institutional safeguard for building a beautiful China[1]. The Guidelines of the CPC Central Committee and the State Council on Comprehensively Promoting the Building of a Beautiful China, issued in December, draws up comprehensive plans for the goals and tasks for building a beautiful China in the next five years and up to 2035.

(1) Strengthening ecological and environmental protection

China continued its efforts to keep skies blue, waters clear, and land pollution-free in 2023. It redoubled its efforts in environmental pollution prevention and control, and continued to carry out major projects for the conservation and restoration of key national ecosystems, pushing for the implementation of the Central Eco-Environmental Protection Inspection, and formulating the Work Plan for Central Eco-Environmental Protection Inspection (2023-2027). In November, the

[1] "Xi Jinping Emphasizes at the National Conference on Ecological and Environmental Protection the Need to Comprehensively Promote the Building of a Beautiful China and Accelerate the Modernization Featuring Harmonious Coexistence Between Humanity and Nature", Chin. ed., Xinhua News Agency, July 18, 2023.

third meeting of the Commission for Further Reform under the 20th CPC Central Committee examined and approved the Guidelines on Strengthening the Zoning Management of the Ecological Environment, which focuses on building a modern environmental governance system. In the same month, the State Council issued the Action Plan for Continuous Improvement of Air Quality, which further points out the direction of the next phase of air pollution control. The Ministry of Ecology and Environment worked with other relevant departments to issue the Ten Codes of Conduct for Citizens in Ecological and Environmental Protection, calling for a nationwide environmental protection campaign. Efforts were made throughout the year to enhance the diversity, stability, and sustainability of ecosystems, and to reinforce the supervision of ecological protection and restoration.

(2) Accelerating the building of a new energy system

China fully implemented the new energy security strategy, advanced the energy revolution, ensured full energy security, and promoted green development, thus providing a strong energy guarantee for the all-round building of a modern socialist country. In July, the second meeting of the Commission for Further Reform under the 20th CPC Central Committee examined and approved the Guidelines on Deepening Reform of the Power System and Accelerating the Building of a New Power System. These guidelines emphasize the need to deepen the reform of the power system, accelerate the development of a new system that is clean, low-carbon, safe, sufficient, economically efficient, balanced in supply and demand, flexible, and intelligent, and speed up a rapid transition towards green and low-carbon development.

(3) Proactively and steadily moving towards peak carbon emissions and carbon neutrality

Led by the comprehensive green transformation of economic and social

development, China continued to advance the work of reaching peak carbon emissions and carbon neutrality. It accelerated the shift from controlling energy consumption and intensity towards limiting carbon emissions and intensity. The second meeting of the Commission for Further Reform under the 20th CPC Central Committee examined and approved the Guidelines on Promoting the Gradual Shift from Controlling Energy Consumption and Intensity Towards Limiting Carbon Emissions and Intensity. With an emphasis on the need to follow the principle of establishing the new before getting rid of the old, these guidelines call for improving the control of energy consumption and intensity, optimizing the control mode, strengthening the basic capacity building for limiting carbon emissions and intensity, and improving the supporting systems for reducing carbon emissions and intensity. China's aim is to create conditions for establishing and implementing a carbon emissions and intensity limitation system, and the country has worked to improve the national carbon market system, planned for and launched pilot projects for reaching peak carbon emissions and demonstration of green and low-carbon technologies, and established a policy system for carbon footprint management, so as to make better use of market and technological means to reach peak carbon emissions and carbon neutrality goals.

8. Meeting people's basic living needs and developing social programs

(1) Consolidating the priority status of education

In June, the General Office of the CPC Central Committee and the General Office of the State Council issued the Guidelines on Building a Quality and Balanced Basic Public Education Service System, which outlines steps to ensure

high-quality and balanced development of compulsory education, enhance support for economically disadvantaged students, and coordinate other basic public services for students. The central government increased the per-student funding benchmark for public expenses in compulsory education schools and adjusted and improved policies on national student loans. The National Training Program was advanced to enhance the training of primary and secondary school teachers, while the National Excellence Program was implemented to develop top-class universities and cultivate excellent graduate-level teachers for primary and secondary schools. Efforts were made throughout the year to promote digitalization in education and to continue improving the legal and policy frameworks for education.

(2) Stabilizing employment

The Guidelines of the CPC Central Committee and the State Council on Comprehensively Promoting the Key Work of Rural Revitalization in 2023, issued in February, explicitly calls for stabilizing employment for migrant workers, promoting their skill enhancement, protecting the employment rights of over-age migrant workers, and advancing the urbanization of rural migrant workers within their counties. In April, the General Office of the State Council issued the Circular on Optimizing and Adjusting Policies for Stable Employment to Boost Development and Benefit People's Livelihood, which sets out initiatives to stimulate vitality and expand employment capacity, open more channels for college graduates and other young people to find jobs and start their own businesses, and increase assistance to ensure that basic living needs are met. Policies were introduced to support enterprises in stabilizing and expanding employment, and to encourage innovation and entrepreneurship, while vocational skills training was also enhanced.

(3) Building an institutional framework under which primary, secondary, and tertiary distribution are well coordinated and mutually complementary

In 2023, significant improvements were made to the primary distribution system, with 15 provinces, autonomous regions, or municipalities raising their minimum wage standards. Guidelines were introduced on pilot programs for salary reform for higher education institutions and research institutes, and reforms in remuneration systems for public hospitals were deepened. Channels for increasing property incomes for urban and rural residents were broadened, and a work plan was introduced to revitalize existing patents at universities and research institutes. The role of redistribution was also increased, with improvements made to the individual income tax system and further reductions seen in the burden placed on families in terms of childbirth, child care, and elderly care. This was accomplished through the increase of special additional deductions for individual income tax, covering child care expenses for children under three, childhood education, and care for the elderly. The dynamic monitoring of the low-income group also improved, and multi-tiered and categorized social assistance was introduced. Additionally, the role of the tertiary distribution was leveraged. The Seventh Session of the Standing Committee of the 14th National People's Congress decided to amend the Charity Law of the People's Republic of China, aiming to strengthen the responsibility of the government and its departments in promoting the development of the charity sector, while improving regulations on the standardized operation of charitable organizations and charitable trusts and standardizing emergency charity and personal request for assistance. The Ministry of Civil Affairs issued relevant documents to strengthen an effective link between government assistance and charitable support.

(4) Strengthening the social security network

The State Council executive meeting approved the Regulation on the Administration of Social Insurance to strengthen social insurance administration and fund supervision. The General Office of the State Council issued the Implementation Guidelines on Strengthening Regular Supervision over the Use of Medical Insurance Funds to improve the medical insurance mechanism. Efforts were made to steadily advance the coordination of the national management of basic pension insurance funds for enterprise employees and the reform of the private pension system. China extended the temporary policies on reducing premiums for unemployment insurance and workers' compensation, further alleviating the burden on enterprises to enhance their vitality and promote stable employment. The pilot programs on occupational injury insurance for people in new forms of employment were continued. In addition, the General Office of the State Council forwarded from the Ministry of Civil Affairs and other departments the Guidelines on Strengthening the Dynamic Demographic Monitoring of the Low-Income Population for a Better Multi-Tiered and Categorized Social Assistance System, aiming to intensify assistance for the low-income population and improve the social assistance system. The State Council executive meeting approved the Guidelines on Planning and Constructing Government-Subsidized Housing to further improve the systems for access to housing.

(5) Improving the healthcare service system

The General Office of the CPC Central Committee and the General Office of the State Council issued the Guidelines on Promoting the Construction of a Basic Eldercare Service System and published a national catalog of basic eldercare services. The Law of the People's Republic of China on the Construction of a Barrier-Free Living Environment came into effect, providing more comprehensive

legal safeguards for the elderly to participate in and integrate into social life equally, fully, and easily. The General Office of the State Council forwarded the NDRC's Implementation Plan for the Construction of Service Facilities Embedded in Urban Communities, which emphasizes that priority should be given to securing spaces necessary for nursery enrollments and short-term beds in elderly care facilities. The General Office of the CPC Central Committee and the General Office of the State Council issued the Guidelines on Further Improving the Medical and Health Service System to promote the expansion and regional balance of quality medical resources and optimize the tiered diagnosis and treatment system.

(6) Enhancing social governance capabilities

A Central Society Work Department was established in 2023, as per the guidance of the Plan for the Reform of Party and State Institutions. The General Office of the CPC Central Committee and the General Office of the State Council issued the Guidelines on Further Strengthening Mine Safety Management and the Guidelines on Comprehensively Strengthening Forest and Grassland Fire Prevention and Control Under New Circumstances. The Office of the Work Safety Commission under the State Council released the Stringent Measures on Preventing and Curbing Major Accidents in the Mining Sector defining the responsibilities of all parties involved in the mining sector. China established a mechanism of command and coordination by the National Emergency Command Headquarters, consolidated and established the National Committee for Disaster Prevention, Reduction and Relief, and inaugurated the National Fire and Rescue Administration. Extensive efforts were made to prevent and combat floods, and to rehabilitate and rebuild after disasters. Special measures were taken to crack down on violent terrorist activities, while online crimes were investigated and punished. The Fifth Session of the Standing Committee of the 14th National People's Congress revised and passed

the Administrative Review Law of the People's Republic of China, and the Supreme People's Court, together with the Ministry of Justice, issued the Guidelines on Giving Full Play to the Foundational Role of People's Mediation in Enhancing Source Governance, uplifting the capability to resolve social disputes. Efforts were made to deepen the reform of the circuit courts of the Supreme People's Court and advance the development of public legal service platforms. The Regulation on Handling Public Complaints was fully implemented to promote the rule of law in handling letters and visits from the public.

III. Development Achievements in 2023

Under the strong leadership of the CPC Central Committee, China secured a smooth transition in epidemic response following a major, decisive victory in the fight against Covid-19, and the main goals and tasks of China's economic and social development were successfully completed.

1. An overall recovery and improvement of the economy

(1) Fastest economic growth among the world's major economies

In 2023, China's GDP reached RMB126.1 trillion, marking a year-on-year increase of 5.2 percent (see Figure 1-1), meeting the initial target of around 5-percent growth in GDP set at the beginning of the year. The value-added of enterprises above the designated size grew by 4.6 percent year on year, while the value-added of the services sector increased by 5.8 percent year on year. China remained

the world's largest engine of growth, contributing one-third to global economic growth. When compared to other major economies, China's economic growth rate exceeded that of the United States by 2.7 percentage points, the European Union by 4.7 percentage points, the United Kingdom by 5.1 percentage points, and Japan by 3.3 percentage points.

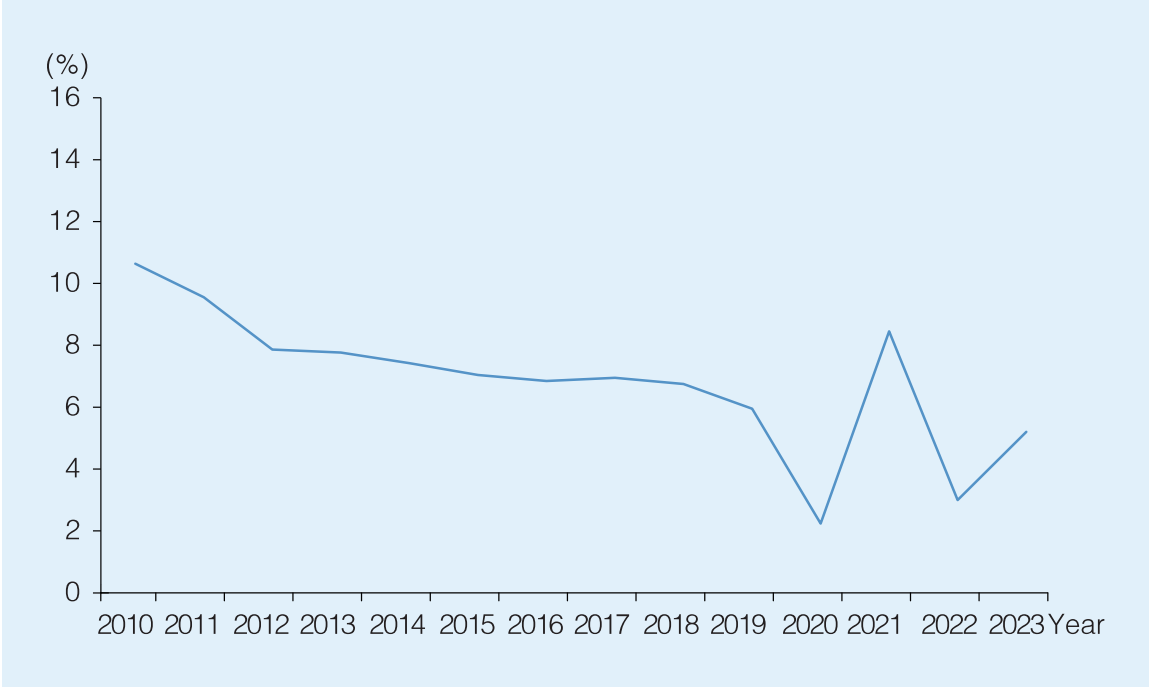

Figure 1-1 China's GDP Growth Rate

Source: National Bureau of Statistics.

(2) Stable key macroeconomic indicators such as investment, consumption and employment

In 2023, the annual investment in fixed assets of the whole society was RMB51.0 trillion, up 2.8 percent year on year; the total retail sales of consumer goods was RMB47.1 trillion, up 7.2 percent year on year; and the total import and export of goods was RMB41.8 trillion, up 0.2 percent year on year. Prices remained basically stable, with CPI rising 0.2 percent year on year, and the core

CPI, which excludes food and energy prices, rising 0.7 percent.[1] The rate of increase remained stable. Nationally, an additional 12.44 million urban jobs were created, 440,000 more than the 12 million target, and the urban surveyed unemployment rate averaged 5.2 percent, 0.4 percentage points lower than in 2022. As employment improved, residents' income levels also rose, with the national per capita disposable income growing faster than the GDP growth rate. China's international payments remained generally balanced, thanks to a merchandise trade surplus of US$823.22 billion, down 1.8 percent from 2022. As of the end of December, China's foreign exchange reserves stood at US$3.2 trillion, up US$110.3 billion from the end of 2022.

2. Major progress in building a modernized industrial system

(1) The transformation towards a higher-end, smarter, and greener industry

In 2023, the share of high-tech manufacturing and equipment manufacturing in the added value of industries above the designated size rose to 15.7 percent and 33.6 percent, respectively. By the end of 2023, China had established 62 "lighthouse factories", accounting for 40 percent of the global total, and fostered 421 national-level intelligent manufacturing demonstration factories, as well as over 10,000 provincial-level digital workshops and smart factories. The digital transformation of manufacturing sustained steady progress, and the National Public Service Platform for the Integration of Informatization and Industrialization served 183,000 industrial enterprises. Of these enterprises, the penetration rate of digital

[1] National Bureau of Statistics: "China's Economic Recovery and Growth and Solid Progress in High Quality Development in 2023", National Bureau of Statistics website, January 17, 2024.

research and development and design tools reached 79.6 percent, while the numerical control rate of key processes reached 62.2 percent. Green manufacturing advanced rapidly, and the efficiency of the comprehensive utilization of industrial resources was further improved. The comprehensive utilization of bulk industrial solid waste amounted to about 2.2 billion tonnes for the year, with a utilization rate of 54 percent. Seventy-eight iron and steel enterprises, with a crude steel capacity of 390 million tonnes, completed the whole-process ultra-low emission upgrade. From 2021 to 2023, water consumption per 10,000 yuan of industrial added value decreased by 20.3 percent.

(2) Booming strategic emerging industries

In 2023, investment in the aviation, spacecraft, and equipment manufacturing sector, computer and office equipment manufacturing sector, and electronics and communications equipment manufacturing sector grew by 18.4 percent, 14.5 percent, and 11.1 percent, respectively. The production of solar cells, new energy vehicles, and generator sets (power generation equipment) grew by 54.0 percent, 30.3 percent, and 28.5 percent, respectively[1]. China accelerated research into core technologies and increased their application, achieving significant breakthroughs in innovation in fields such as industrial machine tools and key software. The *C919*, a domestically produced large aircraft, entered commercial service, and the first domestically produced large cruise ship was successfully built.

(3) Accelerated development of the digital economy

By 2023, the value-added of China's core industries in the digital economy accounted for 10 percent of the GDP, and the number of authorized patents for inventions reached 406,000, with an average annual growth rate of 21.0 percent over

[1] "State Council Information Office Press Conference on the Operation of the National Economy in 2023", Chin. ed., State Council website, January 17, 2024.

the past five years. Network infrastructure was continuously strengthened throughout 2023, with the total number of 5G base stations standing at 3.377 million and the total number of ports with gigabit network service capability standing at 23.02 million by the end of the year. The country's total computing power reached 230 EFLOPS, the second highest in the world. Online retail sales totalled RMB15.42 trillion, an increase of 11 percent, making China the world's largest online retail market for 11 consecutive years. The share of online retail sales of physical goods in total retail sales of consumer goods rose to 27.6 percent, and sales of online tourism services, online entertainment, and online catering services grew strongly, contributing 23.5 percent to the growth of online retailing. The integration of the digital economy and the real economy was comprehensively deepened, and 5G applications were integrated into 71 out of 97 major categories of the national economy. The industrial internet covered all 41 major industrial categories, and the number of "5G + industrial internet" projects exceeded 10,000. China's innovation capacity in cloud computing, big data, AI, and other technologies was among the highest in the world, with the number of AI enterprises exceeding 4,400.

(4) Rapid growth in modern services

In 2023, the value-added of the services industry exceeded RMB68 trillion, an increase of 5.8 percent over the previous year. It accounted for 54.6 percent of the GDP, 1.2 percentage points higher than that of the previous year, and contributed 60.2 percent to the growth of the national economy. The business revenue of service enterprises above the designated size increased by 8.3 percent over the previous year, and their total profit increased by 26.8 percent. The supporting role of the modern services industry was strengthened, with the value-added of information transmission, software, and information technology service, leasing and business service, and the financial industry increasing by 11.9 percent, 9.3 percent,

and 6.8 percent, respectively, over the previous year. Emerging areas of the services sector were expanded, and investment in fixed assets in the high-tech service sector increased by 11.4 percent over 2022. The annual Index of Business Activity in Productive Services Industry averaged within the high expansion range of 55.0 percent and above.

3. New breakthroughs in scientific and technological innovation

(1) Continuous improvement of scientific and technological innovation capacity

In 2023, the nation's total expenditure on research and experimental development reached RMB3.33 trillion, an increase of 8.1 percent over the previous year, accounting for 2.65 percent of the GDP. Of this, the expenditure on basic research reached RMB225.91 billion, an increase of 11.6 percent over the previous year, accounting for 6.77 percent of total expenditure on research and experimental development. The National Natural Science Foundation of China funded 52,500 projects altogether. As of the end of 2023, the number of valid invention patents in China reached 4.015 million, with the share of high-value invention patents exceeding 40 percent, making China the first country in the world with more than 4 million valid invention patents. There were 69,600 international patent applications filed through the Patent Cooperation Treaty, accounting for 25.6 percent of the global total. A total of 950,000 technology contracts were signed in 2023, and their transaction value amounted to RMB6.15 trillion, an increase of 28.6 percent over the previous year.

(2) Enhancement of the national strategic scientific and technological strength

China advanced the construction of the national laboratory system and further improved the new system for mobilizing resources nationwide to accomplish major undertakings. A new batch of major science and technology infrastructure projects were developed, and key national science and technology projects were continuously implemented. According to the 2023 Nature-Index Annual Tables[1], which reflect the contribution of scientific research in natural sciences and medicine, six of the top ten research institutions in natural sciences were from China, and 123 Chinese universities were among the top 500 academic institutions in the world. As of the end of 2023, there were 207 national engineering research centers and 1,798 national enterprise technology centers under the new management system. Leading technology companies increased their investment in frontier and disruptive technologies, and 679 mainland enterprises entered the top 2,500 enterprises in terms of global R&D investment, ranking second in the world in terms of the number of enterprises on the list.

(3) Fruitful results of major scientific and technological research

Shenzhou XVI returned to Earth successfully, and *Shenzhou XVII* was successfully launched. The world's first liquid oxygen-methane-fuel powered carrier rocket successfully entered its planned orbit, while reusable rocket development and testing accelerated. The world's first high-orbit synthetic aperture radar satellite was successfully launched, and direct-to-cell satellite phones were introduced into the consumer market. The *Striver* manned submersible completed its maiden

[1] The Nature-Index Annual Tables is compiled and regularly published by an affiliate of the Springer Nature Group, an internationally recognized science and technology publisher. The Tables reflects the distribution and trends of global scientific research output based on the publications in *Nature, Science*, *Cell*, and other top journals around the world.

extreme deep dive, while the world's first 16 MW offshore wind turbine was connected to the grid. The world's first demonstration project of a high-temperature gas-cooled reactor for Generation IV nuclear power plants was put into commercial operation, and China's FAST telescope found key evidence for nanohertz gravitational waves. The Jiuzhang 3.0 quantum computer once again pushed the boundaries of photonics quantum computing technology.

4. Further deepening of high-standard opening up

(1) Strong resilience in foreign trade

In 2023, despite a global decline in merchandise trade by 4.6 percent, China's foreign trade withstood the pressure, and achieved a record-high total import and export volume of RMB41.8 trillion, posting a positive growth of 0.2 percent. According to the World Trade Organization, China's share of global merchandise exports stood at 14.2 percent, maintaining its market share and ranking first globally for the 15th consecutive year. The structure of foreign trade continued to upgrade, with the share of mechanical and electrical products reaching 58.6 percent, an increase of 1.3 percentage points. Exports of China's "New Trio", namely new electric vehicles, lithium-ion batteries, and solar panels, collectively amounted to RMB1.06 trillion, exceeding the trillion-yuan mark for the first time. The intermediate goods trade reached RMB25.5 trillion, accounting for 61.1 percent of the total import and export value. Cross-border e-commerce exports totaled RMB1.8 trillion, growing by 19.6 percent. Services trade further recovered, with a total import and export value of RMB6.6 trillion, up 10 percent year on year.

(2) Steady improvement in two-way investment

The "Invest in China Year" and numerous other international industrial investment cooperation activities were rolled out, and landmark foreign investment projects were launched one after another. A total of 53,800 new foreign-invested enterprises were established, representing a year-on-year increase of 39.7 percent. Actualized foreign direct investment reached US$163.3 billion, the third highest in China's history and the second highest in the world. Investments in high-tech manufacturing and technology achievement transformation services grew by 6.5 percent and 8.9 percent, respectively. Outward direct investment reached US$177.29 billion[1], registering a year-on-year increase of 8.7 percent and placing China third globally.

(3) Fruitful results in high-quality joint development of the Belt and Road

In 2023, the value of China's imports and exports with countries participating in the Belt and Road Initiative reached RMB19.5 trillion, increasing by 2.8 percent over the previous year, and its share in China's total foreign trade rose to 46.6 percent. Exports to these countries amounted to RMB10.7 trillion, growing by 6.9 percent compared to 2022. The China-Europe freight train service remained stable and smooth, with 17,000 trips throughout the year transporting 1.9 million TEU containers, an increase of 6 percent and 18 percent, respectively. Non-financial direct investment in the Belt and Road countries reached US$31.8 billion, representing a growth of 22.6 percent.

[1] National Bureau of Statistics: *2024 China Statistical Yearbook*, Chin. ed., China Statistics Press, 2024.

5. New progress in regional coordination and integration of urban-rural development

(1) Enhanced regional development coordination

The disparities among regions continued to narrow, with the ratio of per capita GDP between the highest and lowest-ranking provinces, autonomous regions, or municipalities decreasing from 4.26 in 2022 to 4.18 in 2023. This narrowing was driven by utilizing the advantages of regions. The western region saw robust growth in characteristic and advantageous industries, such as new materials, new energy, and equipment manufacturing. The northeastern provinces' capacity for ensuring food and energy security was strengthened. The central region consolidated its role as a base for grain production, energy resources, modern equipment manufacturing, and high-tech industries, and as a comprehensive transportation hub. The eastern region continued to play a leading role in modernization efforts. Green, coordinated, and interconnected development accelerated throughout the country, driven by strengthened cross-regional cooperation on environmental protection, fostering a collective effort towards ecological conservation and gradually improving mechanisms for ecological compensation among regions. Major inter-regional corridors began to form rapidly, and key projects such as power transmission from west to east and natural gas pipelines from west to east were steadily advanced, accelerating the construction of a new pattern of land-sea connectivity and east-west bidirectional opening up.

(2) Rapid advancement in new urbanization construction

As of the end of 2023, China's urbanization rate based on permanent resident population stood at 66.16 percent, an increase of 0.94 percentage points compared

to the previous year. The sense of belonging and adaptability of migrant workers in cities continued to increase, and according to the Report on the Monitoring and Survey of Rural Migrant Workers in 2023 published by the National Bureau of Statistics, 47.3 percent of the migrant workers considered themselves "locals" in their cities of residence, up 1.6 percentage points from the previous year. Shortcomings in urban infrastructure and public services were addressed, with progress made in urban renewal, further enhancing the quality and livability of cities. In 2023, renovation began on 53,700 old urban residential areas across the country, benefiting 8.97 million households, with a total investment of nearly RMB240 billion directed at meeting the housing needs of urban residents.

(3) Positive achievements in urban-rural integration

Economic ties between urban and rural areas were strengthened, with the role of rural consumption and factor markets becoming more evident. The income and consumption gaps between urban and rural residents further narrowed, with the actual growth rates of disposable income for urban and rural residents standing at 4.8 percent and 7.6 percent, respectively. The growth rate of rural residents' disposable income exceeded that of urban residents for the 14th consecutive year. In 2023, the actual growth rates of per capita consumption expenditure for urban and rural residents were 8.3 percent and 9.2 percent, respectively. The ratio of per capita consumption expenditure between urban and rural residents was 1.82, a decrease of 0.01 from the previous year. The coverage of urban and rural infrastructure continued to expand. As of the end of 2023, the nationwide rural sanitary toilet penetration rate exceeded 73 percent, and the rate of rural domestic sewage treatment (management) exceeded 40 percent. The proportion of administrative villages where household waste is collected and processed remained above 90 percent.

6. New achievements in ecological civilization

(1) Significant progress in green and low-carbon energy transition

In 2023, the energy consumption per unit of GDP decreased by 0.5 percent. The level of low-carbonization in the energy mix continued to rise, with the consumption of clean energy sources such as natural gas, hydropower, nuclear power, wind power, and solar power accounting for 26.4 percent of total energy consumption, an increase of 0.4 percentage points from the previous year. As of the end of 2023, China's total installed capacity of renewable energy reached 1,516 gigawatts, representing 51.9 percent of the country's total installed capacity, surpassing that of coal-fired power for the first time and accounting for nearly 40 percent of the global total installed capacity of renewable energy. The newly installed capacity of renewable energy nationwide stood at 305 gigawatts by the end of the year, accounting for 82.7 percent of the newly installed capacity of power generation in the country and representing half of the global increase, surpassing the combined total of other countries in the world[1]. The world's largest single-unit offshore wind turbine with a capacity of 16 megawatts was successfully connected to the grid and began operation. The newly installed capacity of new energy storage increased by more than 260 percent compared to the previous year. The development of green industries accelerated, with the production and sales of electric passenger vehicles ranking first in the world for the ninth consecutive year. The output of key segments of the photovoltaic industry remained the highest globally, a position China has held for many years.

[1] "National Energy Administration Organizes a Situation Analysis Meeting on Renewable Energy Development in China for January 2024", Chin. ed., National Energy Administration website, February 7, 2024.

(2) Steady improvement in environmental quality

In 2023, the average concentration of fine particulate matter (PM2.5) in cities at or above the prefecture level was 30 micrograms per cubic meter, a decrease of 16.7 percent compared to 2019, before the Covid-19 pandemic. The proportion of sections with excellent surface water quality (Grade I to III) reached 89.4 percent, an increase of 1.5 percentage points year on year. The mainstream of the Yangtze River achieved Grade II water quality for the fourth consecutive year, and the mainstream of the Yellow River achieved Grade II water quality for the second consecutive year. Positive progress was made in the prevention and control of heavy metal pollution in soil, and the overall condition of the soil environment of arable land remained stable.

(3) New achievements in ecological conservation and restoration

In the ecological quality index released by the Ministry of Ecology and Environment, the national level in 2023 was 59.64, with the comprehensive evaluation of ecological quality remaining at Class II, essentially unchanged from 2022. The area designated as terrestrial ecological protection zones accounted for over 30 percent of the country's land area, with the forest coverage rate reaching 24.02 percent, and the overall vegetation cover on grasslands reaching 50.32 percent. Throughout the year, 63,000 square kilometers of soil erosion area were treated, bringing the national soil conservation rate to 72.56 percent. Afforestation and grassland improvement was carried out across a total area of 125 million *mu*, or around 8.33 million hectares, while 2.857 million *mu,* or about 190,467 hectares, of sandy and rocky desertification land was treated, exceeding the annual targets and achieving "double growth" in forest area and forest stock for the past 40 consecutive years.

(4) Proactive and steady progress towards peak carbon emissions and carbon neutrality

In 2023, the carbon dioxide emissions per unit of GDP remained essentially unchanged from the previous year. The second compliance cycle of the national carbon emissions trading market successfully concluded, covering over 5 billion tonnes of CO2 emissions annually, with a compliance completion rate exceeding 99 percent. By the end of 2023, the cumulative trading volume of the national carbon emissions trading market had reached 440 million tonnes, with a trading value of approximately RMB 24.9 billion.

7. Real progress in public wellbeing and social programs

(1) Improvement in educational equity and quality

In 2023, China ranked 21st globally in the Strong Education Country Index, released by the China National Academy of Educational Sciences. The gross enrollment rates for preschool education, nine-year compulsory education, secondary education, and higher education reached 91.1 percent, 95.7 percent, 91.8 percent, and 60.2 percent, respectively, increasing by 1.4, 0.2, 0.2, and 0.6 percentage points from the previous year. The proportion of teachers qualified both in delivering theoretical knowledge and guiding practice in secondary vocational education reached 56.71 percent nationwide, an increase of 0.53 percentage points from the previous year.

(2) Stable employment

The average monthly urban surveyed unemployment rate was 5.2 percent, down from 5.6 percent in 2022. Among this group, the surveyed unemployment rate for individuals with non-local *hukou* (household registration) decreased from

5.6 percent at the beginning of the year to 4.7 percent by the end of the year. The number of participants in the basic old-age pension scheme for urban employees, unemployment insurance, and work injury insurance reached 521 million, 244 million, and 302 million, respectively, increasing by 17.66 million, 5.66 million, and 10.54 million from the previous year.

(3) New progress in promoting common prosperity

The per capita disposable income of residents nationwide was RMB39,218, representing a nominal growth of 6.3 percent from 2022, and a real growth of 6.1 percent after adjusting for price factors. Wage income and net operating income accounted for 56.2 percent and 16.7 percent of per capita disposable income, respectively, increasing by 0.5 and 0.2 percentage points from 2020. The ratio of per capita disposable income between high-income groups and low-income groups was 10.32, a decrease of 0.16 from the previous year. The ratio of per capita disposable income between urban and rural residents was 2.39, a decrease of 0.06 from the previous year. The ratio of per capita income between residents in eastern and western regions was 1.74, narrowing by 0.01 from the previous year.

(4) Continued improvement in social security

In 2023, the basic pension levels for retirees in enterprises and public institutions achieved their 19th consecutive increase. Fourteen provinces and some cities and prefectures raised the basic pension standards for urban and rural residents. Basic medical insurance, critical illness insurance, and medical assistance collectively reduced the medical expense burden for low-income rural residents by RMB188.35 billion. The central government allocated RMB154.68 billion in relief funds and RMB204 million in temporary price subsidies to those in need. Construction was initiated or funding was made available for a total of 2.13 million units of government-subsidized rental housing. Construction was also initiated for

1.59 million housing units rebuilt in run-down areas, and 1.93 million units were completed as of the end of the year.

(5) Further improvement of healthcare for the people

The number of primary healthcare institutions, licensed physicians and assistant physicians, registered nurses, and hospital beds in healthcare institutions reached 1.016 million, 4.782 million, 5.637 million, and 10.174 million, respectively, increasing by 36,000, 347,000, 413,000, and 424,000 from the previous year. The vaccination rate for immunization programs remained above 90 percent. Support provided by tertiary hospitals expanded to 1,496 county-level hospitals in 940 counties. More than 5,500 secondary general hospitals and above implemented a "one-stop" integrated service model. The average cost per hospital stay was RMB10,315.8, decreasing by 5.0 percent based on current prices and by 5.2 percent based on comparable prices from the previous year. The transfer payments for supporting the development of traditional Chinese medicine increased by 19.6 percent. The coverage rate of county-run traditional Chinese medicine healthcare institutions reached 87.8 percent, with 99.5 percent of community health centers and 99.4 percent of township health clinics providing traditional Chinese medicine services. Life expectancy reached 78.6 years, an increase of 0.3 years from the previous year. The infant mortality rate, under-five child mortality rate, and maternal mortality rate dropped to 4.5 per 1,000, 6.2 per 1,000, and 15.1 per 100,000, respectively.

(6) A more harmonious and orderly functioning society

In 2023, the number of deaths from all types of industrial accidents and traffic accidents decreased by 4.7 percent and 5.5 percent, respectively, compared to the previous year. Social stability was maintained, as the number of public security cases handled remained essentially unchanged from the previous year, and

reported criminal cases dropped by 4.8 percent. The clearance rate for current homicide cases remained at 99.9 percent. Positive progress was made in social work. More than 230 million people registered themselves as volunteers, and such national standards as the Specifications for Minors' Justice Social Work Services were introduced.

8. Solid foundation for security-based development

(1) Increased capacity for ensuring food security

The total grain production reached a record high of 695 million tonnes in 2023, marking the ninth consecutive year of production above 650 million tonnes. The annual average yield per *mu* was 389.7 kilograms. The increase in total crop production due to higher yields per unit area accounted for 58.7 percent of the overall production increase. Notable progress was made in increasing the cultivation of soybeans and other oilseed crops. Soybean planting areas reached 157 million *mu*, or about 10.47 million hectares, and stayed above 150 million *mu*, or about 10 million hectares, for the second consecutive year. Oilseed crop planting areas exceeded 200 million *mu*, or about 13.33 million hectares. The declining trend of arable land was brought under control, and positive progress was made in the development of high-standard farmland and farmland water conservancy. The seed industry revitalization action achieved preliminary results, and the use of fertilizers and pesticides continued to decline while their effectiveness increased. The development and promotion of advanced agricultural machinery also continued to accelerate.

(2) Stable supply of energy resources

The capacity for stable energy supply further strengthened, with crude oil

production staying above 200 million tonnes for the second consecutive year, and natural gas production increasing by over 10 billion cubic meters for the seventh consecutive year. The power generation of industrial enterprises above the designated size reached 8.9 trillion kilowatt-hours, growing by 5.2 percent from the previous year. The construction of new energy systems accelerated, and clean energy power generation, including hydro, nuclear, wind, and solar, reached 2.7 trillion kilowatt-hours, an increase of 3.1 percent over the previous year. The supply and price stability of primary products were maintained. Domestic mining projects advanced steadily, and cooperation in overseas mineral resource development saw continued progress. The country's capacity for ensuring strategic reserves, exercising macro control, and providing emergency response continued to increase.

(3) Self-supporting and risk-controllable industrial and supply chains in key fields

The capacity for self-supporting and risk-controllable industrial and supply chains was further enhanced, with breakthroughs made in several weak spots. Progress was made with regard to core technologies in bottleneck fields, such as integrated circuits, industrial machine tools, and basic software. China steadily advanced projects to rebuild industrial foundations and major technical equipment innovation projects, and put a batch of research results into large-scale application. The country advanced the development of national logistics hubs and key national cold-chain logistics bases, and made great efforts to strengthen integrated national freight hubs. A total of 102 strategic pivot cities were designated for developing modern logistics.

(4) Steady progress in defusing risks in key areas of economy and finance

China continued to refine policies for regulating the property market and

supported financial institutions in meeting the reasonable financing needs of real estate companies. Positive progress was made in ensuring the on-time delivery of presold homes, and by the end of 2023, the majority of the RMB350 billion special loan for ensuring the delivery of presold homes had been allocated to specific projects, while commercial banks had provided the supporting commercial financing. Local government debt risks were managed in an orderly manner, existing hidden debts were resolved swiftly, and arrears owed by governments to enterprises were repaid at an accelerated pace. At the end of 2023, the balance of local government debt nationwide was RMB40.74 trillion, below the debt cap for local governments approved by the National People's Congress (RMB42.17 trillion). Financial risks related to large enterprise groups were properly managed, and high-risk small and medium-sized financial institutions were dealt with by type. Key operating and regulatory indicators for banking, insurance, and securities institutions remained within reasonable ranges.

In 2023, China successfully achieved the main goals and tasks of socio-economic development. However, challenges remain in terms of insufficient effective demand, weak social expectations, insufficient innovation capability, great pressure on ecological conservation, numerous weaknesses in public services, and a severe and complex external environment. On balance, favorable conditions outweigh unfavorable ones, and the fundamental trend of long-term economic improvement has not changed. To continue to make new strides towards building a modern socialist country in all respects, China must enhance confidence and determination, adhere to the guidance of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, and continue to deepen reform and opening up.

Chapter Two
Innovative Development

Innovation is the primary driving force for development. It occupies a core position in China's modernization efforts. In 2023, global scientific and technological innovation activities remained vibrant, and the landscape of innovation underwent rapid transformation. The new round of scientific and technological revolution and industrial transformation concurred with the transformation of China's development model. In light of this, President Xi Jinping proposed the idea of developing new quality productive forces, stressing the role of scientific and technological innovation in fostering industrial innovation, particularly through the emergence of new industries, models, and impetus driven by disruptive and frontier technologies[1]. The Central Committee of the Communist Party of China (CPC) further strengthened its unified leadership over science and technology work, continuously deepened the reform of the science and technology system, and reinforced the strategic role of scientific and technological forces. It also stepped up efforts to make major breakthroughs in core technologies in key fields, highlighted the leading role of enterprises in scientific and technological innovation, relied on innovation to guide industrial upgrading, and achieved a series of new successes in promoting high-quality development.

[1] "The Central Economic Work Conference Held in Beijing", Chin. ed., *People's Daily*, December 13, 2023, p. 1.

I. New Changes in the Innovation Development Landscape

As global technological innovation and industrial transformation are accelerating, competition among major powers in science and technology is intensifying. Amid this complex situation, there are both new strategic opportunities and potential risks and challenges.

1. Acceleration of global technological innovation and industrial transformation

In 2023, the pace of global technological innovation and industrial transformation significantly accelerated. Frontier technologies such as artificial intelligence (AI), quantum technology, synthetic biology, and space technology experienced frequent breakthroughs and were rapidly integrated across various sectors, while industries such as autonomous vehicles, bio-manufacturing, and commercial aerospace have reached new stages of development. Disruptive technology breakthroughs and frontier technologies will profoundly impact human production methods and lifestyles, spurred by the new round of technological revolution and industrial transformation. These industries will reshape the global innovation domain and economic structure for years to come. AI, in particular, is set to drive industrial transformation and significantly alter the global industrial and competitive landscape. The rapid iteration of industrial technologies provides opportunities for

"changing lanes" and will intensify international competition, placing China in a position where it must advance or risk falling behind. Currently, China has certain advantages in some areas but lacks sufficient foresight in the planning for disruptive and frontier technology innovations. This increases the risk that China might be overtaken by others. In many areas, China is still lagging and faces the risk of such a gap widening. To cope with increasingly fierce international competition in scientific and technological innovation and to seize the initiative in development, China must endeavor to form new competitive advantages in industry through improving the overall efficiency of the innovation chain, making greater efforts in researching basic and frontier fields, seeking breakthroughs in core technologies in strategic fields, promoting deeper enterprise-university-research institute cooperation, and leading industrial innovation through scientific and technological innovation.

2. Increasingly severe and complex international technology competition

In 2023, China faced escalating external curbs on technology development. In January, the United States reached an agreement with Japan and the Netherlands to restrict exports of certain advanced semiconductor manufacturing equipment to China. In August, US President Joe Biden signed an executive order establishing a mechanism for reviewing foreign investments, restricting US entities from investing in China in sectors such as semiconductors and microelectronics, quantum information, and AI. In October, the US Department of Commerce updated export control rules in the semiconductor sector, further tightening restrictions on AI-related chips and semiconductor manufacturing equipment exports to China,

expanding the scope of control to "any Chinese company", and adding more Chinese entities to the export control entity list. China's emerging industries, including electric passenger vehicles, also faced discriminatory industrial policies internationally. In May, the State of Montana in the United States officially enacted legislation banning TikTok from operating in the state[1]. In December, the US Treasury Department announced that US-produced electric passenger vehicles containing batteries manufactured or assembled in China would no longer be eligible for tax credits. Faced with a severe and complex international technology competition landscape, China cannot fundamentally ensure its national security and development unless it masters core technologies in key fields.

3. Accelerated implementation of the innovation-driven development strategy in China

China is at a critical stage of the transformation of its development model, optimizing its economic structure and shifting its growth drivers. High-quality development is its top priority in building a modern socialist country in all respects. To drive high-quality development through innovation, China must thoroughly implement an innovation-driven development strategy. At present, innovation is becoming an increasingly powerful driver of high-quality development. In 2023, the integration of AI into all aspects of economic production accelerated, highlighting a shift towards a more digitalized and intelligent means of production. China's AI computing power market size was estimated at RMB66.4 billion, representing a

[1] At the end of 2023, this ban was suspended by a federal court due to potential violations of the First Amendment's free speech principle and Congress' regulatory provisions on foreign transactions.

growth of 82.5 percent year on year[1]. The construction of a system for data circulation and utilization continued, and the value of data elements was further unlocked. The new subjects of labor rapidly took form, and the data trading market grew at a substantial rate[2]. The process of upgrading traditional industries through technological transformation accelerated, and the effort to promote intelligent manufacturing was intensified. Steady progress was made in efforts to achieve peak carbon emissions and carbon neutrality, as well as in innovation-driven green development, with the green foundation of high-quality development being further consolidated. China's total installed capacity of renewable energy power generation reached 1,516 gigawatts, accounting for 51.9 percent of the national total, surpassing coal-fired power generation for the first time in the country's history[3]. The results of innovation in support of high-quality development have become more pronounced. Looking ahead, China must continue to deepen reforms, eliminate institutional and systemic obstacles that hinder innovation-driven development, fully leverage the decisive role of the market in allocating resources, and further stimulate market innovation and social creativity.

[1] International Data Corporation, Inspur Information: "China's AI Computing Power Development Assessment Report 2023-2024", Chin. ed., November 2023.

[2] Research Institute of Industry and Planning, China Academy of Information and Communications Technology: "Research Report on Data Trading Venue Development Index (2024)", Chin. ed., August 2024.

[3] "National Energy Administration Organizes a Situation Analysis Meeting on National Renewable Energy Development in China for January 2024", Chin. ed., National Energy Administration website, February 7, 2024.

II. Key Measures for Deepening Innovation-Driven Development

The CPC Central Committee focuses on striving for greater strength and self-reliance in science and technology. It has made education, science and technology, and human resources the foundational and strategic pillars for building a modern socialist country in all respects, and continues to coordinate efforts to promote the integrated reform of institutions and mechanisms pertaining to these fields. To address such concerns as insufficient overall innovation system efficiency, underutilization of new production factors, and weak industrial foundations, China has intensified its efforts to achieve greater strength and self-reliance in science and technology, improve the innovation system, develop a strong workforce for the modernization drive, promote deeper integration of the innovation and industrial chains, and pursue openness, innovation, and innovation-driven high-quality development.

1. Striving for greater strength and self-reliance in science and technology

The Report to the 20th National Congress of the CPC proposed that China should achieve greater strength and self-reliance in science and technology and become a global leader in innovation by 2035. In 2023, China strengthened macro coordination in science and technology, deepened the reform of the science

and technology system, continued to advance research on core technology in key fields, enhanced enterprises' capacity for scientific and technological innovation, and made solid strides in scientific and technological innovation.

(1) Improving the system for the unified leadership of the CPC Central Committee over science and technology work

In March 2023, the CPC Central Committee and the State Council issued the Plan for the Reform of Party and State Institutions, which established the Central Science and Technology Commission, reorganized the Ministry of Science and Technology, and readjusted the functions of science and technology management between the Ministry of Science and Technology and relevant industry authorities. As the CPC Central Committee's body for decision-making, deliberation, and coordination on matters related to science and technology, the Central Science and Technology Commission strengthens the centralized, unified leadership of the CPC Central Committee on work in this field. The commission is responsible for overseeing the development of the national innovation system and the reform of the science and technology system, reviewing major strategies, plans, and policies for national science and technology development, and coordinating the resolution of major strategic, direction-setting, and overarching issues in the field of science and technology. It identifies national strategic science and technology tasks and major scientific research projects, formulates comprehensive plans for building national laboratories and other strategic scientific institutions, and promotes the harmonious development of military and civilian technologies. The Ministry of Science and Technology, as the administrative organ of the Central Science and Technology Commission, strengthens macro management functions such as strategic planning, institutional reform, resource coordination, comprehensive coordination, policy formulation, and supervision and inspection. The specific functions

for managing science and technology have been transferred to competent industry authorities, including the National Development and Reform Commission, the Ministry of Industry and Information Technology (MIIT), the Ministry of Agriculture and Rural Affairs, the Ministry of Ecology and Environment, the Ministry of Human Resources and Social Security, and the National Health Commission, while the management, coordination, and evaluation responsibilities for central fiscal science and technology plans (including special projects and funds) have been adjusted accordingly. This reform allows the CPC Central Committee to play a more significant role in science and technology work and strengthens macro coordination in science and technology.

(2) Promoting the development of national strength in strategic science and technology

In recent years, China's strength in strategic science and technology has grown stronger, and the nationwide system for addressing core technologies in key fields within the socialist market economy has improved, accelerating research on such technologies. The operation and management system of national laboratories has also improved and continued to expand. Batches of national key laboratories have been reorganized, a number of major scientific and technological infrastructure facilities have been built, and the development of the national laboratory system has advanced. In July 2023, the second meeting of the Commission for Further Reform under the 20th CPC Central Committee reviewed and approved the Guidelines on the Pilot Reform of the Remuneration System in Higher Education Institutions and Research Institutes. Following this, a new round of research institute reforms began to take shape, with high-level research universities advancing organized scientific research. Leading technology companies also began to intensify their efforts in deploying frontier and disruptive technologies. With the

support of the national strength in strategic science and technology, the "Sci-Tech Innovation 2030 Agenda – Major Projects" began to be implemented more rapidly in areas such as artificial intelligence, quantum information, brain science, and agricultural bio-breeding, while core technology research and development in fields such as integrated circuits, industrial machine tools, and foundational software began to advance steadily. To promote the transformation and application of core technology research results, measures such as standardizing bidding requirements, clarifying evaluation principles, and strengthening supervision and inspection were taken to support the equal participation of first-of-a-kind major technical equipment in corporate tendering activities. By fully leveraging the pivotal role and distinctive advantages of the "national team", the national strength in strategic science and technology, China's systematic capability for core technology research and development was greatly enhanced.

(3) Improving the technological innovation capabilities of enterprises

A package of policies has been introduced aimed at further enhancing the status of enterprises as innovators and increasing their motivation and ability to innovate. In April 2023, the first meeting of the Commission for Further Reform under the 20th CPC Central Committee reviewed and approved the Guidelines on Strengthening the Principal Role of Enterprises in Scientific and Technological Innovation. Focusing on such questions as "for whom we innovate, who innovates, what we innovate, and how we innovate", a comprehensive approach was taken from the perspective of institutional building, encompassing the entire chain of technological innovation decision-making, research and development (R&D) investment, research organization, and research outcome transformation. The policy of granting an extra tax deduction on enterprises' R&D costs was further refined, raising the deduction ratio for qualified integrated circuit and industrial machine

tool producers to 120 percent. Additionally, the policy of a 100-percent tax deduction ratio for R&D expenses of enterprises in qualified sectors was established as a long-term institutional arrangement. The innovation capacity building initiative for enterprises has been further advanced, and the special re-lending quota for supporting enterprise technological progress has been increased by RMB100 billion. Twenty-eight measures to promote the development of private enterprises have been introduced to support their participation in achieving major technological breakthroughs. The Special Action for the Intelligent Empowerment of Small and Medium-Sized Enterprises Through Scientific and Technological Achievements (2023-2025) was launched to promote the application of scientific and technological achievements and nurture more small and medium-sized enterprises (SMEs) that use special and sophisticated technologies to produce novel and unique products. Through a series of coordinated policies designed to enhance the innovation capabilities and dynamism of enterprises, the role of businesses as principal innovators has been enhanced. Enterprises are increasingly contributing to economic development and improving the overall efficiency of the national innovation system.

(4) Continuously optimizing the ecosystem for scientific research

China has continued to implement its Three-Year Action Plan for Reforming the Science and Technology System (2021-2023), which introduces reforms in areas such as science and technology awards, ethical practices, and academic standards, while further improving the research ecosystem. The nomination procedures for national science and technology awards have been standardized, with clear guidelines established regarding nomination eligibility, requirements, processes, and disciplinary measures, thereby enhancing the impact such awards have in driving innovation. Efforts have been stepped up to strengthen

the establishment, operation, guidance, support, and oversight of science and technology awards by the non-governmental sector, guiding the sector towards sustainably developing such initiatives. In September 2023, the Central Science and Technology Commission agreed to issue the Pilot Measures for Science and Technology Ethics Review, clarifying the review subjects, procedures, and supervision requirements. The revised Measures for Investigation and Handling of Scientific Research Misconduct in the National Natural Science Foundation of China has also entered into effect, standardizing the investigation and handling of research misconduct, safeguarding the fairness of the Natural Science Foundation and the rights and interests of scientific workers, and promoting scientific integrity and academic norms. Special actions have been deployed to promote academic self-discipline and self-purification among scientific civil organizations, guiding them to vigorously uphold the spirit of science, promote good scientific and academic conduct, set examples in promoting academic self-discipline and self-purification, and jointly foster a clean and honest research environment. The Ministry of Science and Technology has worked with other departments to jointly issue the Rules for Investigating and Handling Scientific Misconduct, and has investigated and reported various cases of misconduct, including those pertaining to plagiarism and solicitation. With the deepening of the science and technology system reform, the scientific research ecosystem has continuously improved. This has ensured a better-established system of institutions for greater strength and self-reliance in science and technology, and made the national innovation system and innovation governance system more systematically sound.

2. Strengthening the application and governance of new production factors

Revolutionary technology breakthroughs and the innovative allocation of production factors are crucial elements in fostering new quality productive forces. The Central Economic Work Conference, held at the end of 2022, proposed the development of a digital economy and the acceleration of AI development. In 2023, a series of policies were introduced to promote the application and governance of data elements and AI technologies.

(1) Establishing basic systems for data elements

As digital, networking, and intelligent technologies continue to permeate the economy and society, data resources have become integral new production factors deeply embedded in all facets of social production. In February 2023, the CPC Central Committee and the State Council issued the Overall Layout Plan for the Building of Digital China, which focused on the "two foundations" of digital infrastructure and data resource systems. The plan proposes measures such as advancing network facility construction, optimizing the layout of computing power facilities, establishing data management institutions, building national data resource databases in key fields, accelerating the establishment of a data property rights system, and conducting research on data asset valuation. In August, the State Council released the Guidelines on Further Optimizing the Foreign Investment Environment and Increasing Efforts to Attract Foreign Investment, which proposed exploring an enabling mechanism for the administration of cross-border data security. The security assessments of data exports, standard contracts for the transfer of personal information, certification for personal information protection,

and other components of the regulatory framework for cross-border data flows have since undergone numerous rounds of development and refinement. In October, the National Data Administration was officially inaugurated. It is mainly responsible for coordinating the establishment of data foundation systems, coordinating data resource integration and utilization, and coordinating the planning and building of Digital China, the digital economy, and digital society. In December, the National Data Administration and 16 other departments jointly issued the Three-Year Action Plan (2024-2026) for "Data Element ×", deploying 12 key actions, including "Data Element × Industrial Manufacturing" and "Data Element × Modern Agriculture" to promote the role of data elements in enhancing total factor productivity.

(2) Strengthening the application and governance of artificial intelligence

AI is a disruptive and revolutionary technology that plays a crucial role in fostering economic growth, shaping the international landscape, and impacting the future of humanity. While presenting significant development opportunities, it also introduces new risks and challenges to global cooperation and social governance. The CPC Central Committee recognizes the importance of AI development. At the April 2023 meeting of the Political Bureau of the CPC Central Committee, it was stressed that attention should be given to the development of artificial general intelligence (AGI), fostering an innovative ecosystem, and prioritizing risk management. In July, multiple departments jointly issued the Interim Measures for the Administration of Generative Artificial Intelligence Services, which emphasizes the importance of balancing innovation and development with rule-based governance and security. The measures address key issues surrounding AI, including those related to data security, personal privacy, misinformation, and intellectual

property rights, and provide a systematic framework for industry development and risk regulation. In October, China launched the Global AI Governance Initiative, which includes 11 proposals aimed at upholding a people-centered approach, respecting other nations' sovereignty, adhering to the principle of developing AI for good, promoting mutual respect, equality, and mutual benefit, establishing a risk-level-based testing and assessment system, gradually building and improving relevant laws, rules, and regulations, and ensuring fairness and non-discrimination. Relevant departments actively implemented the decisions and plans of the CPC Central Committee and the State Council regarding AI development. They intensified efforts in industrial planning and investment, promoted industry standardization, developed a national integrated computing power system, facilitated the deeper integration of AI with the real economy, and accelerated the formation of new, high-quality productive forces.

3. Strengthening the talent pool for innovation

The fundamental source of a nation's innovation capability lies in its people. Today's global competition ultimately comes down to a contest for talent and education. In the face of new challenges, China must tackle the prominent issues in its talent structure and improve the precision of its talent policies. Efforts must be intensified to train skilled individuals in scientific and technological fields and to deepen reforms in the talent system.

(1) Strengthening the training of young scientific and technological talent

In August 2023, the General Office of the CPC Central Committee and the General Office of the State Council issued Several Measures for Further

Strengthening the Cultivation and Management of Young Scientific and Technological Talent. These measures are designed to empower young talent by giving them key roles in national scientific projects, providing steady funding for early-career researchers, improving postdoctoral training in natural sciences, boosting young scientists' role in decision-making and consulting, enhancing institutions' ability to evaluate talent independently, lightening non-research workloads for young scientists, promoting international exchanges for them, and safeguarding their welfare. In December, China's education system underwent a period of reform and development tailored to the unique features of various schools and institutions, aiming to reinforce organizational support for the distinct development paths of academic and professional postgraduate programs, enhance the quality of top-tier innovative talent cultivation, promote the differentiated training of academic and practical innovators, and establish specialized training pathways for academic and professional postgraduate education, thus giving full backing to realizing the nation's goal of rejuvenation through building a robust education, science, and technology sector and talent cultivation.

(2) Deepening the reform of the academician system

In response to the central authorities' call to deepen the reform of the academician system, the Chinese Academy of Sciences and the Chinese Academy of Engineering have each developed implementation measures for selecting academicians. They have set up a supervisory system that integrates self-regulation with external oversight and have created negative lists for academician candidates, along with codes of conduct for nominees and other related guidelines. Scientists working in crucial fields and foundational disciplines or emerging and interdisciplinary areas vital to the nation, those who have significantly contributed to national defense and security, and those who have led major national scientific research projects,

infrastructure initiatives, or key national endeavors, are given priority in the academician selection process. The aim of these reforms is to restore the honor and academic integrity associated with the title of academician.

4. Accelerating the building of a modern industrial system

In February 2023, during the second group study session of the Political Bureau of the 20th CPC Central Committee, General Secretary Xi Jinping emphasized that the new development pattern relies on a modern industrial system, that the focus of economic development should continue to be placed on the real economy, and that the country should steadily advance new industrialization[1]. In May, at the first meeting of the 20th Central Commission for Financial and Economic Affairs, General Secretary Xi stressed that the acceleration of the building of a modern industrial system supported by the real economy is crucial for China to gain strategic initiative in future development and international competition[2]. In September, General Secretary Xi gave instructions for advancing new industrialization. He stressed the importance of following the basic law of promoting new industrialization on the new journey in the new era and called for actively adapting to and leading the new round of technological revolution and industrial transformation. General Secretary Xi also underscored the importance of integrating the

[1] "Xi Jinping Emphasizes at the Second Group Study Session of the Political Bureau of the 20th CPC Central Committee: Move Faster to Create a New Development Dynamic, Enhance Security and Self-Reliance in Development", Chin. ed., Xinhua News Agency, February 1, 2023.

[2] "Xi Jinping Chairs the First Meeting of the 20th Central Commission for Financial and Economic Affairs and Emphasizes: Move Faster to Create a Modern Industrial System Supported by the Real Economy, Support Chinese Modernization with the High-Quality Development of the Population", Chin. ed., Xinhua News Agency, May 5, 2023.

requirements of high-quality development throughout the process of new industrialization and combining the development of a manufacturing powerhouse with the development of the digital economy and industrial informatization, thus laying a solid material and technological foundation for Chinese modernization[1]. The CPC Central Committee implemented a series of measures to foster a modern industrial system, transform the development model, prioritize high-quality growth, and generate new vitality while creating new advantages for development.

(1) Coordinating the development of new industrialization

In September 2023, the CPC Central Committee convened the first national conference on promoting new industrialization. The conference mapped out comprehensive strategies for advancing industrialization on the new journey in the new era. It identified key tasks, such as strengthening the resilience and security of industrial and supply chains, enhancing industrial innovation capabilities, optimizing and upgrading the industrial structure, promoting deeper integration of digital technology with the real economy, and supporting green industrial development. A number of important measures were introduced at the conference relating to harnessing the power of a unified domestic market, guiding the rational distribution of industries through a functional zoning strategy, and leveraging both domestic and international markets and resources. These steps are designed to boost the strength and vitality of new industrialization and create a powerful synergy to drive its progress. On September 20, the State Council held an executive meeting focused on accelerating new industrialization. The meeting analyzed the evolving dynamics seen both domestically and internationally, as well as the characteristics

[1] "Xi Jinping Gives Important Instructions on Promoting New Industrialization: Integrate the Requirements of High-Quality Development Throughout the Process of New Industrialization, Lay a Solid Material and Technological Foundation for Chinese Modernization", Chin. ed., Xinhua News Agency, September 23, 2023.

of the different stages of China's new industrialization process. The meeting underscored the need for concerted efforts across all key areas to comprehensively improve the quality, efficiency, and global competitiveness of industrial development. It highlighted the importance of continuous promotion of traditional industry transformation and the upgrading, nurturing and strengthening of strategic emerging industries, the rapid development of advanced manufacturing, and the coordinated advancement of digital industrialization and industrial digitalization. Additionally, it emphasized the importance of addressing weaknesses, leveraging strengths, and cultivating new advantages.

(2) Transforming and upgrading traditional industries

The 2023 Government Work Report outlined several initiatives aimed at elevating industries to higher levels of development. These include reinforcing and upgrading weak links in the industrial chains of key sectors, launching a series of industrial foundation re-engineering projects, accelerating the pace of equipment upgrades and technological transformation in enterprises, extending the preferential policy on accelerated depreciation of fixed assets to the entire manufacturing sector, and speeding up the digitalization of traditional industries and SMEs to make them more advanced, intelligent, and environmentally friendly. In December, the MIIT released the Guidelines on Accelerating the Transformation and Upgrade of Traditional Manufacturing Industries in cooperation with other relevant departments. These guidelines propose accelerating the adoption and promotion of advanced and applicable technologies, further advancing industrial foundation re-engineering projects, promoting the intelligent and digital transformation and networked connectivity of enterprises, driving the comprehensive renovation and upgrading of industrial parks and clusters, strengthening green and low-carbon development, and striving to elevate traditional manufacturing towards higher-end,

more intelligent, greener, and more integrated operations. Essential tasks, including the technological transformation and upgrading of the manufacturing sector, have since been put into action.

(3) Cultivating and strengthening strategic emerging industries

The 2023 Government Work Report highlighted the need to accelerate the development of emerging industries, including high-end equipment, biomedicine, optoelectronics, new energy vehicles, solar power, and wind power, while deepening the integration of the digital economy with the real economy. In May, the State Council's executive meeting mapped out a plan to expedite the development of advanced manufacturing clusters, emphasizing their pivotal role. The meeting outlined plans to accelerate the transformation and upgrading of traditional industries while fostering and strengthening emerging industries, with an aim to boost technological innovation, transformation, and application to allow traditional industries to become more advanced, intelligent, and environmentally friendly. The goal is also to develop high-quality enterprise groups and prioritize strategic emerging industries. The meeting also highlighted the need to optimize industry configurations, foster world-class products, services, and brands, support specialized and sophisticated SMEs producing novel and unique products or excelling as single-product specialists, and enhance the synergy between technological and industrial innovation.

(4) Planning for future industries

Under the central authorities' unified planning, relevant departments have actively nurtured future industries, accelerating the emergence of new productive forces and boosting new drivers of development. In 2023, a program was launched to encourage competition in tackling future industrial innovation challenges, focusing on four key areas: the metaverse, humanoid robots, brain-computer interfaces, and AGI. The program is primarily focused on core foundations, key

products, public support, and demonstration and application, and aims to identify and nurture a group of competitive entities with core technologies and robust innovation capabilities. It seeks to achieve breakthroughs in a range of iconic technologies and products and to expedite the application of new technologies and products. The Implementation Plan for the New Industry Standardization Pilot Project (2023-2035), issued in August, aims to capitalize on opportunities in the development of future industries. It targets nine major sectors: metaverse, brain-computer interfaces, generative AI, bio-manufacturing, future displays, future networks, and new energy storage. The plan focuses on enhancing an efficient and collaborative standardization work system for these new industries, coordinating the research, development, implementation, and internationalization of standards.

5. International science and technology cooperation

At the Third Group Study Session of the Political Bureau of the 20th CPC Central Committee, General Secretary Xi Jinping highlighted the importance of international cooperation, openness, and sharing in resolving global development issues[1]. Throughout 2023, China continued to enhance international cooperation, improved its opening-up policies, built cooperative platforms, and further developed an open innovation ecosystem for developing science and technology.

(1) Promoting global innovation governance

Throughout 2023, China continued to broaden its openness in the field of

[1] "Xi Jinping Emphasizes at the Third Group Study Session of the Political Bureau of the 20th CPC Central Committee: Effectively Strengthen Basic Research, Lay the Foundation for Greater Strength and Self-Reliance in Science and Technology", Chin. ed., Xinhua News Agency, February 22, 2023.

science and technology. The country introduced the International Science and Technology Cooperation Initiative, calling for more international collaboration in scientific and technological innovation. The aim of the initiative is to build a global innovation network that promotes the application and dissemination of emerging technologies to collectively tackle global challenges such as climate change, health, environmental protection, energy security, and food security. China also published the Global Security Initiative Concept Paper, proposing strengthening international governance in emerging technological fields, including AI, and preventing and managing potential safety risks. Concerning international scientific and technological exchanges, relevant departments have issued regulations governing the lawful cross-border movement of R&D data, the transfer of intellectual property rights abroad, and the management processes for technology imports and exports.

(2) Building platforms for international cooperation and exchange

China views engagement with the global community in science and technology as a crucial foundation for scientific and technological development, and has deepened such exchanges through conferences and research collaborations. In May 2023, the Zhongguancun Forum, themed "Open Cooperation for a Shared Future", hosted over 150 events with international, high-end, and specialized features. In September, the Global Venture Capital Conference at the Pujiang Innovation Forum attracted more than 1,000 high-quality projects from countries such as the United States, Japan, Canada, and Finland. In November, the inaugural Belt and Road Ministerial Conference on Science and Technology was held, bringing together science and technology ministers and senior representatives from 24 countries. The Sustainable Development International Cooperation Program, launched by the National Natural Science Foundation Committee, aims to foster bilateral and multilateral exchanges and cooperation among researchers from different countries,

facilitating joint research to address global challenges. China has also been involved in international cooperation on the International Lunar Research Station with countries such as Russia and South Africa. These international science and technology cooperation activities represent important strides in China's mutually beneficial strategy of opening up and demonstrate the country's commitment to collaborating with others to advance scientific and technological innovation, with the ultimate goal of using science and technology to benefit people across all nations.

III. New Achievements in Building a Modern Industrial System Through Scientific and Technological Innovation

In 2023, under the strong leadership of the CPC Central Committee and through the concerted efforts of the entire society, China successfully overcame multiple internal and external challenges. The country accelerated the implementation of science and technology policies, which have led to a series of significant innovation outcomes. These achievements have established a solid foundation and provided new momentum for the development of high-quality productive forces. They represent significant progress towards enhancing strength and self-reliance in science and technology and building a modern industrial system.

1. Increasing investment in scientific and technological innovation

With the continued increase in R&D spending and other science and technology

resources, China has achieved sustained growth in both the quantity and quality of scientific and technological output, laying a solid foundation for scientific and technological progress and industrial development.

(1) Steady increase in R&D expenditure across society

In 2023, China's total R&D expenditure reached RMB3,327.8 billion, marking an 8.1-percent increase from the previous year. In the same year, R&D intensity [R&D/GDP] reached 2.65 percent (see Figure 2-1). Basic research funding amounted to RMB225.9 billion throughout the year, representing a growth of 11.6 percent, and the share of basic research spending in the total R&D expenditure increased from 6.03 percent in 2019 to 6.77 percent.

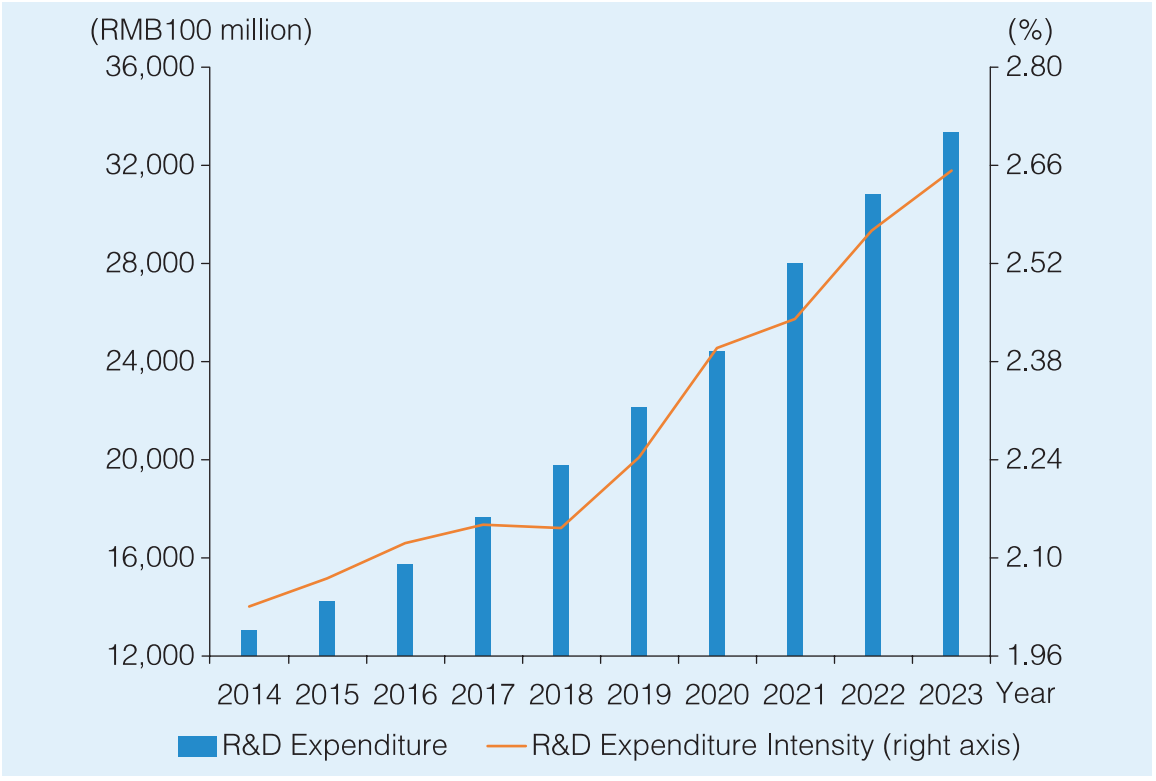

Figure 2-1 China's Total R&D Expenditure and Intensity from 2014 to 2023

Source: National Bureau of Statistics.

(2) Continued increase in public spending on education and science

In 2023, public spending on scientific research reached RMB1,082.3 billion, a 7.9-percent increase over the previous year, with the growth rate rising by 4.1 percentage points compared to 2022. This represents approximately 3.9 percent of total fiscal spending. The national general public budget expenditure on education continued to rise, increasing from RMB3,945.5 billion in 2022 to RMB4,124.2 billion in 2023, a growth of 4.5 percent, maintaining a share of around 14.5 percent of total fiscal expenditure.

(3) Rapid growth in high-tech industry investment

Investment in China's high-tech industries has maintained double-digit growth for many consecutive years, with a year-on-year increase of 10.3 percent in 2023. Specifically, investments in high-tech manufacturing increased by 9.9 percent year on year, while those in high-tech services grew by 11.4 percent. These figures indicate that the high-tech sector remains a key area of investment. According to Dealroom, an international market analysis firm, despite a global market downturn, China's venture capital scale saw only a slight decrease in 2023. Its share relative to the largest venture capital market, the United States, rose from 24.2 percent in 2022 to 32.2 percent in 2023. This growth has further established China's position as the world's second-largest venture capital market.

2. A constantly improving ecosystem for innovation

Overall, China's system of scientific and technological innovation has entered a new phase, providing stronger support for enhancing independent innovation capacity and achieving greater strength and self-reliance in science and technology. According to the World Intellectual Property Organization's Global Innovation

Index 2023, China ranked 12th globally for innovation. In 2023, China was home to 24 of the top 100 global innovation clusters, surpassing the United States for the first time to become the world leader. This achievement further solidifies China's status as an innovation powerhouse.

(1) Increasing market vitality for innovation

As of the end of 2023, China had a total of 184 million market entities, marking an 8.9-percent increase from the previous year. Among these, the share of enterprises rose to 31.67 percent, up 0.41 percentage points from 2022, indicating a rise in market vitality. In terms of market expectations, the average Purchasing Managers' Index (PMI) for high-tech manufacturing increased from 50.53 in 2022 to 51.1 in 2023, essentially returning to the levels seen in 2019. According to the Emerging Industries Purchasing Managers' Index (EPMI), jointly released by the China Academy of Science and Technology for Development and PMIII, a consulting firm, China's average EPMI rose from 49.56 in 2022 to 52.96 in 2023, remaining above the boom-bust line. This indicates a continuous upward trend in strategic emerging industries.

(2) Rapid development of the technology trading market

In 2023, the value of concluded technology contracts in China reached RMB6,147.6 billion, representing a 28.6-percent increase over the previous year, indicating a continued expansion in the scale of technology transactions. Last year also saw the conclusion of 950,000 technology transaction contracts, a year-on-year increase of 23.4 percent. The growth rate increased by 8.5 percentage points compared to 2022, signaling a continuous rise in transaction activity. The average value of individual technology contracts in 2023 was RMB6.47 million, an increase of 4.3 percent over the previous year, demonstrating a significant improvement in the quality of technology. In 2023, the total trade value of intellectual property royalties was US$53.7 billion, of which exports amounted to US$11 billion.

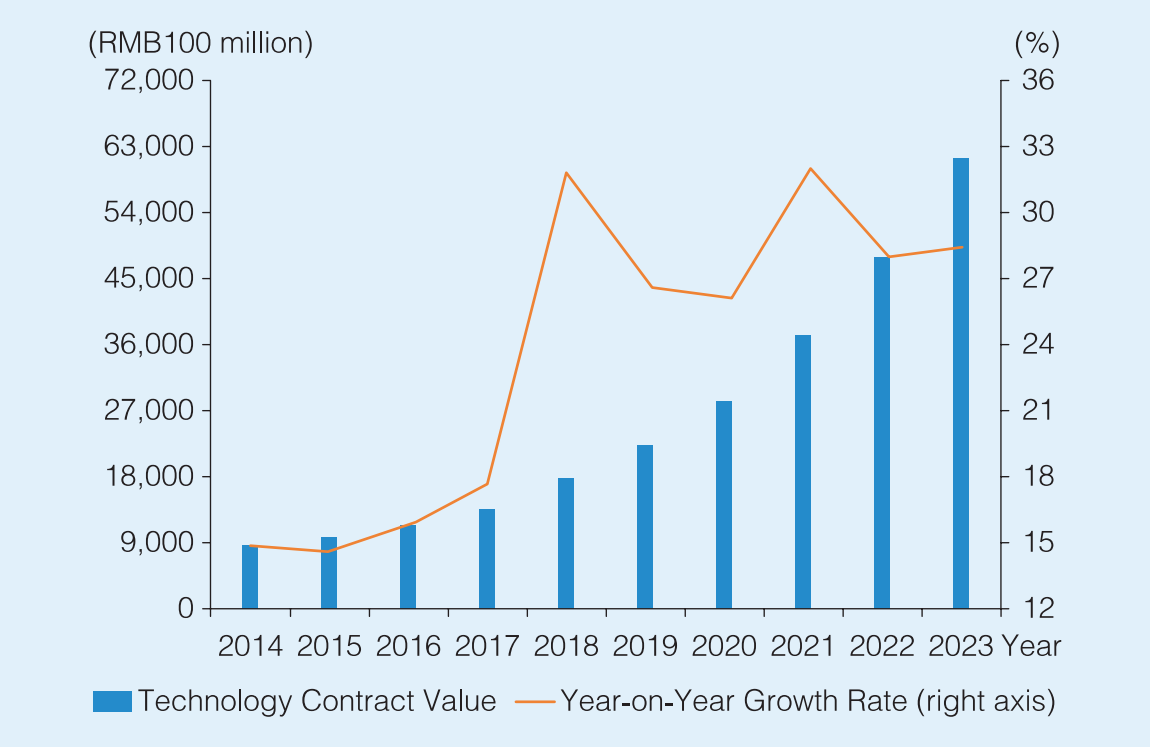

Figure 2-2 China's Technology Contract Value and Growth Rate from 2014 to 2023

Source: National Bureau of Statistics.

(3) Continuous improvement of the regional distribution of innovation

The national framework for developing science and technology innovation bases has become increasingly robust, and the development of regional innovation hubs has shown remarkable results. Beijing, Shanghai, and the Guangdong-Hong Kong-Macao Greater Bay Area have emerged as leading international centers of innovation. According to the World Intellectual Property Organization's Global Innovation Index 2023, the Hong Kong-Shenzhen-Guangzhou cluster, Beijing, and the Shanghai-Suzhou cluster ranked second, fourth, and fifth, respectively, among global technology clusters. These rankings highlight the significant role these regions play in driving the innovation capacity of the Pan-Pearl River

Delta, the Beijing-Tianjin-Hebei region, and the Yangtze River Delta. A series of major national science and technology projects with strategic, overarching, and forward-looking significance have been implemented, enhancing China's independent innovation capacity. Sustained progress has been made in building foundational scientific capacity and advancing international cooperation in science and technology, further enhancing the vitality of innovation in the country. As of the end of 2023, China has established scientific and technological cooperation relationships with over 160 countries and regions and signed 117 intergovernmental agreements on science and technology cooperation.

3. Solid support of technology innovation for high-quality development

Innovation in science and technology fosters new industries, business models, and growth drivers. China has achieved significant breakthroughs in foundational research and core technologies, bolstering the role of innovators and effectively advancing the development of new productive forces, thus boosting high-quality development.

(1) Significant improvement in innovation quality

The number of authorized invention patents and registered scientific and technological achievements in China is continuing to grow. In 2023, China issued 921,000 invention patents, a 15.3-percent increase from the previous year, accounting for 25.2 percent of all patents issued that year. The country's patent structure is also continuing to improve (see Figure 2-3). According to the World Intellectual Property Organization, Chinese applicants filed 69,622 international patents through the Patent Cooperation Treaty (PCT) in 2023, accounting for 25.6 percent of global filings, up 0.4 percentage points from the previous year.

This marks the fifth consecutive year that China has led in PCT applications. Additionally, the international influence of Chinese journals has increased. According to the 2023 Statistical Report on Chinese Scientific Papers by the Institute of Scientific and Technical Information of China, China's papers in the most influential interdisciplinary journals ranked first globally for the first time. China is now the world leader in both the quantity and citation frequency of high-level international journal papers. Driven by ongoing advancements in science and technology, China's overall labor productivity has seen a steady increase, reaching RMB162,000 per person in 2023, a 5.7-percent increase from the previous year.

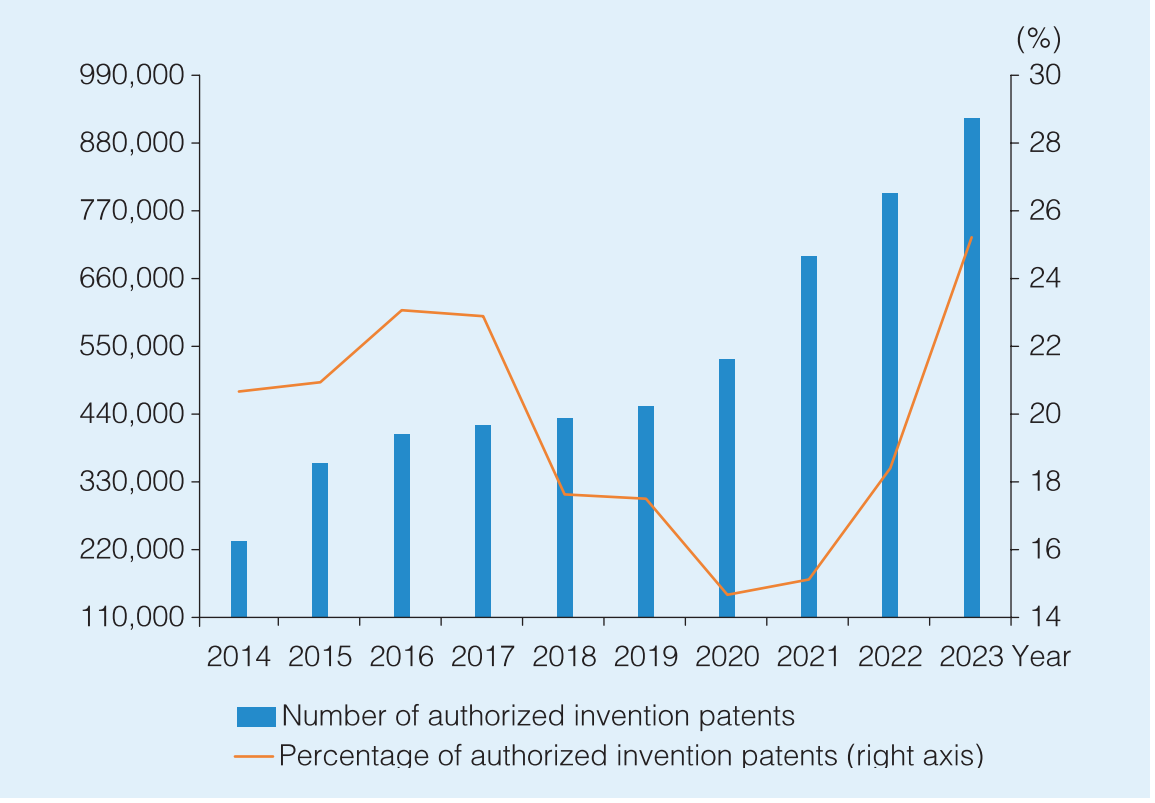

Figure 2-3 Number and Proportion of Invention Patent Grants in China from 2014 to 2023

Source: National Bureau of Statistics.

(2) Significant advances in science and technology innovation

Scientific breakthroughs and research and development in key areas have spurred major advances in fundamental studies, notably in the role of human genomic "dark matter" in driving aging, plant salt tolerance, and bosonic quantum error correction. These advancements hold great promise for advancing our understanding of genomics and fostering industrial development. China has made strides in core technologies, elevating several industries to internationally advanced levels. Key sectors like 5G, optical communications, and high-speed rail have seen significant technological progress. The Sci-Tech Innovation 2030 Agenda has also driven notable advancements in AI, quantum tech, brain science, and biotechnology. Significant breakthroughs have also been made in strategic high-tech areas: the Chinese space station is now fully operational, marking the start of long-term crewed residence; the *Tianwen-1* Mars probe completed China's first extraterrestrial planetary orbiting, landing, and roving mission; the *Xihe* satellite has achieved groundbreaking milestones in solar observation; the domestically produced *C919* large passenger aircraft has entered commercial service; large cruise ships have been successfully built and the first F-class 50-megawatt heavy-duty gas turbine is now in operation; domestic MRI equipment has reached mass production; and innovations in industrial machine tools and key software have made considerable progress, with their applications now widespread (see Panel 2-1).

Panel 2-1 China's Major Scientific and Technological Breakthroughs in 2023

Large passenger aircraft are often referred to as the "crown jewel of modern manufacturing". They symbolize a nation's scientific and technological capabilities, industrial power, and comprehensive strengths. The *C919* is China's first independently developed mainline passenger aircraft to meet internationally recognized airworthiness standards. It boasts independent intellectual property rights, and its design and development have driven breakthroughs in thousands of new technologies, materials, and processes. On May 28, 2023, the *C919* successfully completed its maiden commercial flight, marking the completion of the entire chain from R&D, manufacturing, and certification through to operation. Its launch signals the rise of China's domestic large aircraft industry.

The Experimental Advanced Superconducting Tokamak, often referred to as the "artificial sun", integrates cutting-edge technologies under extreme conditions, including ultra-high and ultra-low temperatures, ultra-high vacuums, super-strong magnetic fields, and ultra-large currents. It plays a crucial role in humanity's quest for "energy freedom" and the exploration of cosmic mysteries. On April 12, 2023, China's "artificial sun" set a new world record by achieving a steady-state, high-confinement mode plasma operation lasting 403 seconds. This milestone is crucial for addressing frontier physics challenges related to

future fusion reactors, improving the economic viability and feasibility of nuclear fusion energy, and accelerating the realization of fusion power generation.

Quantum computers are often likened to "nuclear weapons in the field of computing". Researchers at the University of Science and Technology of China, in collaboration with the Shanghai Institute of Microsystem and Information Technology of the Chinese Academy of Sciences and the National Research Center of Parallel Computer Engineering and Technology, successfully built a quantum computing prototype using 255 photons, named Jiuzhang 3.0. They further uncovered the mathematical connections between Gaussian boson sampling and graph theory, solving two practical graph theory problems – dense subgraphs and Max-Haf – with simulation speeds 180 million times faster than classical computers. This breakthrough has set new world records in photonic quantum information technology and "quantum computational supremacy".

Source: Compiled from publicly available information.

(3) Further enhancement of enterprises' principal role in science and technology innovation

In 2023, China's listed companies continued to boost their R&D spending, collectively investing RMB1.6 trillion, which has raised the overall R&D intensity to 2.21 percent. Among the top 2,500 global companies in R&D spending, 679 are Chinese mainland-listed firms, placing China in second place worldwide. By the end of 2023, China had a total of 1,606 national-level technology business

incubators, up by 200 from the end of 2022. From an industrial development perspective, the number of high-tech enterprises grew to 465,000, while science and technology-based SMEs reached 500,000. Innovative SMEs expanded to 215,000, and SMEs utilizing specialized and sophisticated technologies for novel and unique products rose to 103,000. Additionally, "little giant" enterprises, known for their high growth potential, advanced technology, and strong market competitiveness, increased to 12,000. These figures highlight the rapid expansion of the science and technology industry in China[1]. From a science and technology services industry perspective, in 2023, the revenue from the services sector related to strategic emerging industries at or above the designated size and to new technologies, innovation, and entrepreneurship in China reached RMB7,551.58 billion, a year-on-year increase of 7.7 percent, up 2.9 percentage points from 2022. Corporate involvement in the investment, organization, and services for scientific and technological projects has continued to grow, and the innovation chain of "science and technology-incubation-industry-services" has been optimized, offering systematic support for the development of new quality productive forces.

4. Notable results in the transformation and upgrading of traditional industries and the cultivation of emerging industries

The development of a modern industrial system has continued to advance, with significant progress seen in new industrialization. In 2023, China's industrial value-added reached RMB39.9 trillion, accounting for 31.7 percent of the country's GDP. The value-added of the manufacturing sector alone accounted for 26.2

[1] Shi Lanna, "Patent Industrialization Assists SMEs in Accelerating Growth", Chin. ed., *Workers' Daily*, March 22, 2024, p. 4; Data from the Ministry of Industry and Information Technology.

percent of the national GDP, representing approximately 30 percent of the global manufacturing value-added. The pace of advancing high-end, intelligent, and green manufacturing has accelerated, and the industry's innovation capability has been enhanced.

(1) Continuous advancement in high-end, intelligent, and green manufacturing

Significant strides have been made towards greater strength and self-reliance in science and technology, driving manufacturing towards a higher end. In 2023, the value-added of high-tech and high-added-value industries, such as specialized equipment manufacturing for semiconductor devices, spacecraft and carrier rocket manufacturing, and aircraft manufacturing, grew by 31.5 percent, 23.5 percent, and 10.8 percent, respectively – far exceeding the average manufacturing growth rate of 5.0 percent. According to the State Administration for Market Regulation, the product quality conformity rate of the manufacturing sector reached 93.65 percent in 2023, an increase of 0.36 percentage points over the previous year. Brand recognition has also steadily improved, with 48 Chinese brands included in the World Brand Lab's "Top 500 Global Brands" ranking for 2023, surpassing Japan's 43 brands for the first time and ranking third globally.

Intelligent manufacturing has continued to advance. In 2023, the value-added of electronic component and electromechanical component manufacturing grew by 29.8 percent year on year, while integrated circuit manufacturing grew by 10.3 percent. The value-added of smart vehicle equipment manufacturing and smart unmanned aerial vehicle manufacturing grew by 60.0 percent and 20.5 percent year on year, respectively. In terms of intelligent manufacturing capability maturity, the share of leading enterprises reaching intelligent operations and innovative development levels (L4-L5) increased by 6 percentage points from the previous year to

22 percent. The share of enterprises at the digital infrastructure construction level (L3) decreased by 13 percentage points, the share of enterprises at the partial construction level (L2) increased by 10 percentage points, and the share of enterprises at the single-point trial level (L1) decreased by 3 percentage points[1]. By the end of 2023, China had established a total of 62 "lighthouse factories", accounting for 40.5 percent of the global total. It had also nurtured 421 national-level intelligent manufacturing demonstration factories and tens of thousands of provincial-level digital workshops and smart factories.

The number of green factories, parks, and supply chain management enterprises has grown rapidly in China. According to the MIIT, by the end of 2023, a total of 5,095 green factories had been created at the national level, with their output value exceeding 17 percent of the country's total manufacturing output value. In 2023, 104 new green industrial parks were recognized, an increase of 57 compared to 2022, and 205 new green supply chain management enterprises were recognized, an increase of 93 from 2022.

(2) Growing emerging industries

Emerging industries such as new energy, new materials, intelligent connected vehicles, high-end equipment, biomedicine, and high-end medical equipment have continued to expand in China. The total number of strategic emerging industry enterprises has surpassed 2 million. Among these, biotechnology, related services, and the new generation of information technology industries account for

[1] These findings are based on the China Enterprise Intelligence Maturity Report (2023) jointly written by Lenovo Group and the China Academy of Information and Communications Technology, which categorizes enterprise intelligence maturity into five levels from L1 to L5: L1 (single-point trial), L2 (partial construction), L3 (digital infrastructure construction), L4 (intelligent operations), and L5 (innovative development).

the highest proportions, at 25 percent, 19 percent, and 17 percent, respectively[1]. In 2023, the production of solar cells, new energy vehicles, and power generation equipment increased by 54.0 percent, 30.3 percent, and 28.5 percent, respectively[2].

In 2023, the revenue from strategic emerging service enterprises in China grew by 4.8 percent compared to the previous year[3]. Fixed asset investment in high-tech services grew by 11.4 percent year on year, with investments in technology achievement transformation services increasing by 31.8 percent and e-commerce services growing by 29.2 percent. Knowledge-intensive service exports increased by 10.0 percent year on year, maintaining a rapid growth trend. The role of the services sector in supporting and safeguarding industrial upgrading and the development of strategic emerging industries has become increasingly prominent.

(3) Cultivation and growth of future industries

Research and development in cutting-edge technologies such as AI, humanoid robots, metaverse, next-generation internet, 6G, quantum information, and deep-sea and aerospace exploration have begun to take off. In 2023, China had over 4,400 AI companies, with the core industry reaching a scale of RMB500 billion. Nearly 10,000 digital workshops and smart factories have now been established. According to the China Center for Information Industry Development under the

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[1] Du Zhuang: "Rooting Downward, Growing Upward, and Breaking Through for the Better: Strategic Emerging Industries in 2023 from the Perspective of New Changes in the Industry", Chin. ed., *China Economic Herald*, December 23, 2023, p. 1. Data as of September 2023.

[2] "State Council Information Office Press Conference on National Economic Performance in 2023", Chin. ed., State Council website, January 17, 2024.

[3] National Bureau of Statistics: "Statistical Bulletin on the National Economic and Social Development of the People's Republic of China in 2023", Chin. ed., National Bureau of Statistics website, February 29, 2024. Strategic emerging services refer to industries that have emerged alongside the development of information technology, the emergence of the knowledge economy, the refinement of the social division of labor, and the upgrading of consumption structure. It includes computer services, software services, leasing, business services, technology exchange, promotion services, residential services, social welfare, and warehousing.

MIIT, the adoption rate of generative AI technologies by Chinese enterprises reached 15 percent in 2023. Adoption was particularly rapid in sectors such as manufacturing, retail, telecommunications, and healthcare. The low-altitude economy is poised to enter a period of accelerated growth. In 2023, there were 689 general aviation enterprises in China, with 3,173 registered general aircraft and 451 general airports, logging a total of 1.357 million flight hours throughout the year. The size of the low-altitude economy has exceeded RMB500 billion[1].

In 2023, amid the post-Covid economic recovery, corporate innovation and venture capital markets continued to rebound. While emerging and future industries showed a strong growth momentum, low-level, homogeneous competition also emerged. Persistent entry barriers in certain sectors limited the emergence of new market forces. Deep-rooted systemic issues in technology supply and talent development and utilization remained. The role of scientific and technological innovation in driving high-quality development requires further strengthening. Given the rapid pace of global technological innovation and intensifying international competition in science and technology, it is crucial to fully implement the strategies outlined at the 20th National Congress of the CPC. These strategies emphasize prioritizing education, talent, and innovation-driven development. China must concentrate on the forefronts of world science and technology, the core economic sectors, national needs, and public health. By integrating efforts in education, science and technology, and talent development, the country will enhance its scientific and technological strength and self-reliance, gather new momentum for fostering new quality productive forces, and cultivate new advantages for high-quality development.

[1] "The Size of China's Low-Altitude Economy Exceeded RMB500 Billion in 2023", Chin. ed., Xinhua News Agency, February 28, 2024.

Chapter Three
Coordinated Development

Coordinated development involves managing the major relationships in development to promote coordinated progress among regions, between urban and rural areas, and between material wellbeing and cultural-ethical standards. 2023 was the first year for fully implementing the guiding principles established at the 20th National Congress of the Communist Party of China (CPC). In terms of socio-economic development, China strengthened strategic coordination across regions and implemented regional coordinated development strategies, major regional strategies, and the functional zoning strategy. It promoted new urbanization and all-around rural revitalization in a coordinated way, facilitated the integrated development of urban and rural areas, and took concrete steps to consolidate and expand the outcomes of the fight against poverty. The country also deepened the theoretical understanding of the Chinese civilization, accelerated the development of cultural undertakings and industries, enhanced the quality and level of ethical and cultural product supply, and achieved a series of new outcomes in coordinated development.

I. New Strides in Coordinated Regional Development

In 2023, President Xi Jinping chaired several meetings focused on regional development, including the advancement of the Xiong'an New Area and the coordinated development of the Beijing-Tianjin-Hebei region. These meetings laid out

key plans for implementing regional coordination and major regional strategies. Following the guidelines from President Xi Jinping's speeches at these meetings, a series of new measures were introduced, resulting in significant progress in regional coordinated development.

1. New measures to promote coordinated regional development

Following the 20th CPC National Congress, the CPC Central Committee decided to establish a Central Leading Group for Coordinated Regional Development to enhance top-level design and overall leadership in this area. In 2023, under the guidance of this group, progress was made on numerous major issues, policies, and projects that promote coordinated regional development.

(1) Deeper implementation of the coordinated regional development strategy

Efforts were intensified to usher in a new phase in the large-scale development of China's western region. Key initiatives included establishing platforms for industry cooperation between eastern and western regions, advancing the development of strategic trunk corridors in the western region, promoting high-standard opening up for inland and border areas, accelerating the construction of industrial parks in border and port regions, and supporting high-quality development initiatives in western provinces and autonomous regions such as Guizhou, Guangxi, and Yunnan, as well as providing targeted assistance to Xizang and Xinjiang. In October 2023, the State Council issued the Guidelines on Promoting High-Quality Development in Inner Mongolia for a New Chapter of Modernization with Chinese Characteristics, which outlines five key tasks: strengthening Inner Mongolia as a robust environmental safety barrier in northern China, a strong shield for

security and stability in China's northern border area, a national key energy and strategic resources base, an important agricultural and livestock production base, and a gateway for northward opening up.

The northeast experienced rapid progress in its full revitalization. In September 2023, President Xi Jinping chaired a meeting focused on fully revitalizing Northeast China in the new era, emphasizing the region's critical role in safeguarding China's national defense security, food security, ecological security, energy security, and industrial security[1]. In October, the Political Bureau of the CPC Central Committee reviewed Several Policies and Measures for Achieving New Breakthroughs in the Full Revitalization of Northeast China in the New Era, which proposes exploring a new path of high-quality development and sustainable revitalization in Northeast China. In 2023, to accelerate the full revitalization of the northeast, support was provided to transform and upgrade traditional advantageous industries and foster emerging industries in the region. Efforts were made to expedite the development of modern infrastructure systems in transportation, energy, and information, as well as to deepen cooperation with Northeast Asia and speed up the development of key areas such as the Liaoning coastal economic belt, the Changchun-Jilin-Tumen Development Pilot Zone, the Harbin-Daqing-Qiqihar National Independent Innovation Demonstration Zone, and the Heixiazi Island road port.

Sustained efforts were made to promote the rapid rise of the country's central regions, including supporting high-quality development through inter-provincial cooperation among Hunan, Hubei, Jiangxi, Henan, and Anhui, and advancing

[1] "Xi Jinping Presides over a Meeting on Promoting the Comprehensive Revitalization of Northeast China in the New Era, Stressing the Need to Firmly Grasp the Region's Important Mission and Strive to Write a New Chapter of Its Comprehensive Revitalization", Chin. ed., Xinhua News Agency, September 9, 2023.

cooperation and development along the Huaihe River. A three-year action plan was implemented to cultivate and enhance advanced manufacturing clusters in the central regions, and provinces such as Anhui and Henan in central China accelerated the development of advantageous industrial clusters and key industrial chains. The National Development and Reform Commission issued the Plan for Establishing the Dongting Lake Ecological Economic Zone in the New Era, which promotes high-quality development in the zone and supports the rise of central China. Additionally, efforts to protect and improve the Danjiangkou Reservoir and its upstream areas were further advanced.

The eastern regions received support to advance their modernization efforts. This included encouraging these regions to accelerate the construction of modern industrial systems, maintain their leading position in opening up, and enhance their capacity for innovation and economic growth. In September 2023, the CPC Central Committee and the State Council issued the Guidelines on Supporting Fujian to Explore a New Path for Cross-Straits Integration and Build a Demonstration Zone for Cross-Straits Integration, which promotes deeper economic integration and comprehensive development across Fujian. Eastern provinces like Guangdong and Zhejiang formulated policies to upgrade and optimize industrial structures, focusing on new industrialization.

Support was provided to accelerate the development of areas with special features. This included promoting targeted cooperation in key cities within old revolutionary base areas, supporting the creation of high-quality development demonstration zones in the old revolutionary base areas in Ganzhou and western Fujian, and fostering a regional cooperation demonstration zone along the Hunan-Jiangxi border. There was also a continued focus on enhancing the self-development capabilities of ethnic minority areas and steadily advancing the

development of border towns, border ports, and new border villages.

(2) Solid progress in major regional strategies

The coordinated development of the Beijing-Tianjin-Hebei region was continuously advanced throughout 2023. In May, President Xi Jinping chaired a meeting to promote the high-standard and high-quality development of the Xiong'an New Area and the coordinated development of the Beijing-Tianjin-Hebei region. He emphasized that the Xiong'an New Area has reached a stage where both large-scale construction and the relocation of the non-essential functions from Beijing should be equally prioritized[1] and that focus should be shifted to high-quality construction, high-level management, and high-quality relocation and development. The aim of the meeting was to elevate the coordinated development of the Beijing-Tianjin-Hebei region to a new level, turning the region into a pilot zone and a demonstration area for Chinese modernization[2]. In June, the Political Bureau of the CPC Central Committee reviewed the Guidelines on Several Policies and Measures to Support the High-Standard and High-Quality Development of the Xiong'an New Area, which emphasizes the need to tailor support measures based on the current needs of the Xiong'an New Area, particularly focusing on the interests of relocated personnel. During 2023, to promote the high-standard and high-quality construction of the Xiong'an New Area and the coordinated development of the Beijing-Tianjin-Hebei region, a series of policies

[1] "On His Visit to the Xiong'an New Area in Hebei, Xi Jinping Presides over a Meeting on Promoting the Construction of Xiong'an New Area to High Standards and Quality, Emphasizing the Need to Stay Course, Maintain Confidence and Work for New Progress in the Construction of the Xiong'an New Area", Chin. ed., Xinhua News Agency, May 10, 2023.

[2] "Xi Jinping Inspects Hebei, Emphasizes at the Meeting on Further Advancing the Coordinated Development of the Beijing-Tianjin-Hebei Region: Pursue All Endeavors with Renewed Vigor and Drive, Continually Elevate the Coordinated Development of the Beijing-Tianjin-Hebei Region to New Heights", Chin. ed., Xinhua News Agency, May 12, 2023.

and measures were introduced, which included the sustained implementation of landmark relocation projects in the Xiong'an New Area, improving the mechanism for promoting coordinated development in the Beijing-Tianjin-Hebei region, accelerating the construction of a high-quality integrated development demonstration zone in the three northern counties of Langfang City, Hebei Province[1], and promoting the high-quality development of the Tianjin Binhai New Area.

Efforts were also made to accelerate the high-quality development of the Yangtze River Economic Belt throughout the year. In October, President Xi Jinping chaired a meeting to further promote the high-quality development of the Yangtze River Economic Belt, emphasizing that a high-quality ecological environment in the Yangtze River Basin is the fundamental basis for sustainable development[2]. Several measures were introduced to boost high-quality development in the Yangtze River Economic Belt, including enhancing conservation and restoration of key tributaries and managing river and lake shorelines; advancing integrated water environment management in the Taihu Lake Basin; systematically addressing urban sewage and garbage, chemical pollution, agricultural non-point source pollution, ship pollution, and tailing pond pollution; enforcing the Yangtze River Protection Law, and finalizing the revision of the Regulations on the Management of Sand Mining in the Yangtze River Channel. In November, the Political Bureau of the CPC Central Committee reviewed the Guidelines on Several Policies and Measures to Further Promote High-Quality Development in the Yangtze River Economic Belt, which outlines new strategies for high-quality development across areas such as scientific and technological innovation, industrial layout and

[1] Sanhe City, Dachang Hui Autonomous County, and Xianghe County.

[2] "Xi Jinping Emphasizes at the Meeting on Further Pushing for High-Quality Development in the Yangtze River Economic Belt: Advance High-Quality Development to Better Support and Serve Chinese Modernization", Chin. ed., Xinhua News Agency, October 13, 2023.

relocation, and regional transportation integration.

The Guangdong-Hong Kong-Macao Greater Bay Area saw further advancement, with steady progress made on the International Science and Technology Innovation Center. Infrastructure connectivity and regulatory alignment were further promoted. Development also accelerated in key cooperative platforms, including Hengqin, Qianhai, Nansha, and Hetao. The Overall Development Plan for the Guangdong-Macao In-Depth Cooperation Zone in Hengqin was introduced to coordinate deeper cooperation between Guangdong and Macao. The Overall Development Plan for the Qianhai Shenzhen-Hong Kong Modern Service Industry Cooperation Zone was released, which aims to build a platform for the comprehensive deepening of reform and innovation in the Greater Bay Area, focusing on Hong Kong's strengths in modern services industries. The Development Plan for the Shenzhen Section of the Hetao Shenzhen-Hong Kong Science and Technology Innovation Cooperation Zone was introduced to promote the high-standard, high-quality, and high-level development of the Shenzhen section of the cooperation zone.

The integrated development of the Yangtze River Delta was further advanced. In November, President Xi Jinping presided over a meeting on further promoting the integrated development of the Yangtze River Delta. He emphasized the need for the Yangtze River Delta region to strengthen cross-regional collaboration in science and technology innovation and industrial innovation, improve institutional mechanisms for integrated development, promote high-level collaborative opening up, strengthen joint ecological protection and governance, and strive for greater capacity in ensuring security-based development[1]. A series of measures

[1] "Xi Jinping Emphasizes at the Meeting on Advancing the Integrated Development of the Yangtze River Delta: Strive for New Major Breakthroughs in the Integrated Development of the Yangtze River Delta and a Stronger Leadership Role in Chinese Modernization", Chin. ed., *People's Daily*, December 1, 2023, p. 1.

were introduced to further promote the integrated development of the Yangtze River Delta, including using the Eco-Green Integrated Development Demonstration Zone in the Yangtze River Delta as a lever for promoting the integrated development of the delta region, improving the systems and institutions for the demonstration zone's integrated development, formulating a three-year action plan for its development, and publishing a list of authorized reform matters for the demonstration zone. The measures also include issuing policies and measures to upgrade the capacity of the Hongqiao International Opening-Up Hub, formulating the Plan for the Building of the Xin'anjiang River-Qiandao Lake Ecological Environment Joint Protection Cooperation Zone (2023-2027), and coordinating efforts to address challenges in port resource integration within the Yangtze River Delta.

The ecological protection and high-quality development of the Yellow River Basin was further advanced. In June, President Xi Jinping presided over a meeting focused on strengthening the comprehensive prevention and control of desertification and promoting key ecological projects, including the Three-North Shelterbelt Forest Program, which spans the northeast, north, and northwest of China. He stressed the importance of combating desertification in the Ω-shaped bend of the Yellow River and halting desertification in the Hexi Corridor and along the edge of the Taklimakan Desert[1]. The Yellow River Protection Law of the People's Republic of China was thoroughly implemented in 2023, and additional plans were released for the development of the Yellow River National Cultural Park and other related projects, alongside guidelines for regulating the construction of various

[1] "Xi Jinping Inspects Bayannurr, Inner Mongolia, and Emphasizes at the Meeting on Strengthening Comprehensive Desertification Prevention and Control and Developing Major Ecological Projects, Such as the Three-North Shelterbelt Forest Program: Assume the Mission with Courage and Steadfast Dedication, Strive for a New Miracle for Desertification Control in China in the New Era", Chin. ed., *People's Daily*, June 7, 2023, p. 1.

parks in the Yellow River Basin.

Continued efforts were made to protect and manage the environment, control pollution, and conserve water in the Yellow River Basin. These efforts involve intensifying comprehensive environmental pollution control, effectively regulating the construction of waterfront parks, and accelerating the development of key projects in the region, including large wind power and photovoltaic bases in the upper reaches of the Yellow River and the Ω-shaped bend region. Additionally, support was extended to provinces along the Yellow River to explore innovative pathways for ecological protection and high-quality development based on local conditions, with Ningxia encouraged to expedite the development of a pilot zone for ecological protection and high-quality development in the Yellow River Basin.

While advancing the coordinated regional development strategy and major regional strategies, China has continued to implement the functional zoning strategy. This includes fully implementing the National Territorial Spatial Planning Outline (2021-2035), which helps all regions clarify their principal functions, leverage their comparative advantages, and optimize the layout of national land space. Over 20 provincial-level territorial spatial planning documents have been approved by the State Council for implementation, and the Work Plan for the Building of the National Territorial Spatial Planning Monitoring Network (2023-2027) has been issued to accelerate the building of the monitoring network.

2. Important progress in coordinated regional development

(1) Significant achievements in the promotion of the coordinated regional development strategy

Regional disparities continued to narrow, with the ratio of per capita GDP

between the highest and lowest provinces decreasing from 4.26 in 2022 to 4.18 in 2023. Excluding municipalities directly under the central government, the ratio fell from 3.21 in 2022 to 3.14 in 2023.

The development advantages of different regions became more pronounced. The western region experienced significant growth in its characteristic and advantageous industries with accelerated construction of clean energy bases. As of the end of 2023, the total installed capacity of new energy power generation in the 12 western provinces, autonomous regions, and municipalities exceeded 400,000 megawatts, accounting for approximately 40 percent of the national total. The northeastern provinces continued to solidify their roles in ensuring food security and energy supply, while the central region reinforced its position as a base for grain production, energy resources, modern equipment manufacturing, high-tech industries, and as a comprehensive transportation hub. The eastern region maintained its leadership in innovation, building a modern industrial system, and promoting shared prosperity.

The ability for regional innovation collaboration continued to strengthen. According to the World Intellectual Property Organization's Global Innovation Index 2023, the Shenzhen-Hong Kong-Guangzhou, Beijing, and Shanghai-Suzhou clusters ranked among the top five global technology clusters, highlighting their growing influence in innovation leadership and their role in driving regional development.

Green, coordinated, and interconnected development accelerated. The Yangtze River Economic Belt and the Yellow River region witnessed enhanced inter-regional cooperation in environmental protection, fostering greater synergies in ecological conservation. The inter-regional ecological compensation mechanism gradually improved, achieving new successes in the protection and restoration of

key river basins.

Inter-regional major corridors developed rapidly. Projects such as the West-East Power Transmission and West-East Gas Pipeline steadily advanced, creating new links from east to west and from land to sea. In 2023, the number of containers transported via the sea-rail combined transport trains, cross-border highway shuttles (Chongqing, Sichuan), and international railway freight trains (Chongqing, Guangxi, Sichuan) operated by platform enterprises along the new western land-sea corridor reached a total of 615,200 TEUs, marking a 16 percent year-on-year increase in cargo value.

(2) Significant progress in major regional strategies

New progress was made in the coordinated development of the Beijing-Tianjin-Hebei region. Construction began on the Xiong'an campuses for the first four relocated universities, and the construction of the headquarters of the China Satellite Network Group, Sinochem Group, and China Huaneng in Xiong'an was expedited. The relocation of the second batch of administrative bodies, enterprises, and public institutions affiliated with the Beijing municipal government to the city's sub-center was accelerated, and the three major cultural buildings of the Beijing sub-center[1] were completed and opened to the public. Joint efforts for the prevention, control, and treatment of air pollution in the Beijing-Tianjin-Hebei region yielded more pronounced results, with the average concentration of PM2.5 in the region decreasing by 2.3 percent from the previous year.

Solid progress was made in the high-quality development of the Yangtze River Economic Belt. Restoring the ecological environment of the Yangtze River remains a critical task. In 2023, the water quality of the main stream of the Yangtze

[1] Beijing Performing Arts Center, Beijing City Library, Beijing Grand Canal Museum.

River remained at Grade II for the fourth consecutive year. Efforts to protect and restore important tributaries and manage river and lake shores were strengthened, effectively ensuring the comprehensive improvement of the water environment and the safe supply of water in the Taihu Lake Basin. The ten-year fishing ban in the Yangtze River has yielded significant results, with signs of recovery being seen in aquatic biodiversity and resources.

New progress was achieved in developing the Guangdong-Hong Kong-Macao Greater Bay Area. The building of the International Science and Technology Innovation Center continued in the Greater Bay Area, and facilitating measures such as the Hong Kong Vehicles Heading North and Macao Vehicles Heading North policies were expedited to promote people-to-people exchanges. Bottlenecks in investment and trade, qualification standards, and market access were overcome in the Bay Area Connect project, and over 40 institutional innovations were launched in Qianhai in some key areas, including Shenzhen-Hong Kong cooperation and the opening up of modern service industries. Cooperation between Hetao and Hong Kong in science and technology innovation also gained momentum, with several key research platforms being established.

Significant achievements were made in the integrated development of the Yangtze River Delta. Efforts to develop Shanghai as an international economic, financial, trade, shipping, and sci-tech innovation center have accelerated, with the region's overall strength and competitiveness consistently ranking among the best in the country. The integration of port resources and rail connectivity in the Yangtze River Delta continued to advance. Access has been made available to 152 government services, including residence certificates and housing fund withdrawals, via a single website covering different provinces in the region.

New progress was made in the ecological protection and high-quality

development of the Yellow River Basin. The Yellow River has continued to flow uninterrupted for 24 years, with 91 percent of the sections in the basin achieving Grade I to Grade III water quality and the main stream maintaining Grade II water quality for two consecutive years. A total of 31,000 square kilometers of land was saved from soil erosion, and a new oilfield with reserves of hundreds of millions of tonnes was discovered in Qingyang, Gansu Province. Three projects on carbon capture, utilization and storage, each with a capacity of 1 million tonnes, were rapidly advanced in Shaanxi, Gansu, and Ningxia.

Despite these achievements, coordinated regional development remains a long-term task, and several issues are yet to be rectified. Marked disparities still exist between regions, and the North-South gap has widened in recent years. Insufficient self-sustaining growth dynamics still persist in some regions, and local protectionism and regional barriers, homogeneous industrial development, and low levels of replication between regions all continue to hinder further coordinated development.

II. New Steps Taken in the Integration of Urban and Rural Development

The Central Document No. 1 of 2023, titled Guidelines of the CPC Central Committee and State Council on Comprehensively Promoting the Key Work of Rural Revitalization in 2023, proposes to develop China's strengths in food supply, agricultural technology and equipment, operational systems, industry resilience, and global competitiveness, all tailored to national conditions and agricultural realities. 2023 marked the start of China's journey to become a strong

agricultural country, and throughout the year, regions and departments diligently executed the central leadership's plans, strengthening coordination between new urbanization and the comprehensive revitalization of rural areas, further consolidating and expanding poverty alleviation gains, and accelerating the creation of a beautiful and harmonious countryside that is desirable to live and work in. These efforts have yielded positive results in integrating urban and rural development.

1. Intensified coordination between new urbanization and the comprehensive revitalization of rural areas

(1) Accelerating new urbanization

The process for granting permanent urban residency to eligible individuals moving from rural to urban areas was expedited. Household registration system reforms progressed to effectively remove restrictions on household registration in cities with fewer than 3 million permanent residents, and similar steps in cities with populations between 3 to 5 million are now being encouraged. Points-based household registration policies in mega cities were improved, and entry barriers were lifted in over half of cities with more than 3 million residents. Basic public services for rural migrants were expanded, which has seen a notable increase in the percentage of migrant workers' children attending public schools. National standards for basic public services for rural migrants were dynamically adjusted, broadening the scope of service recipients and enhancing the quality of services they receive in their new urban homes. The central government allocated RMB40 billion across the year to support infrastructure and public service improvements in cities experiencing significant population inflows.

Efforts were intensified to coordinate the development of large, medium, and

small cities, and the transformation of mega cities' development models was promoted, with the core functions of 19 mega cities being clarified. Development plans for 12 metropolitan areas were put into action, advancing integrated development mechanisms. The formation of city clusters was accelerated, with enhanced infrastructure and public service connectivity introduced within these regions. Initiatives to address shortcomings in county seats were launched, alongside pilot projects for new urbanization in counties, aimed at improving industrial support, upgrading municipal utilities, expanding public service facilities, and enhancing environmental infrastructure in county towns.

Urban renewal actions continued across the board. Regions successively released policies and guidelines tailored to local conditions, focusing on enhancing municipal infrastructure, renovating old neighborhoods, repurposing underutilized spaces, improving public areas, and preserving historical and cultural heritage. These initiatives aim to boost the quality and livability of cities. Additionally, there was a push towards building green and low-carbon cities, with efforts to promote energy-efficient renovations of existing buildings and enhance urban green spaces.

(2) Stabilizing and increasing agricultural production

An incentive-and-restraint mechanism was established to ensure the stable and secure supply of grain and key agricultural products. Provincial-level Party committees and governments were evaluated on their performance in guaranteeing food security and protecting farmland, with the goal of stabilizing grain planting areas. Mechanisms to ensure the income of grain farmers and to compensate major grain-producing regions were enhanced, including increases in minimum purchase prices for rice and wheat, maintaining stable subsidies for corn and soybean producers, and providing a one-time subsidy of RMB10 billion to grain

producers. Support for major grain-producing counties was bolstered, with the central government raising reward funds for these counties by 9.9 percent. A new initiative was launched to boost China's grain production capacity by 50 million tonnes, which focused on increasing yields in 200 major corn-producing counties and 100 major soybean-producing counties. Efforts were also made to expand the production of soybeans and other oilseed crops, including pilot insurance programs that cover total production costs and incomes. Additionally, 20 million *mu*, or about 133,400 hectares, was dedicated to corn-soybean strip inter-cropping, and RMB1.5 billion in special funds was allocated to support the expansion of winter rapeseed cultivation in the Yangtze River Basin, utilizing fallow fields during the winter season.

Construction of agricultural infrastructure was intensified, with increased protection for cropland. Pilot programs were launched to control farmland usage, and initiatives were introduced to protect and utilize chernozem soil. Pilot projects for the comprehensive utilization of saline-alkali lands were initiated, alongside intensified efforts to develop high-standard cropland and improve irrigation and water conservation facilities and other agricultural infrastructure. The central government allocated RMB92 billion to support the construction and upgrading of 86.11 million *mu*, or about 574,300 hectares of high-standard cropland. Additionally, 24.62 million *mu*, or about 164,300 hectares, of efficient water-saving irrigation was added over the year. Efforts were also strengthened to build drought and flood prevention systems, and to improve agricultural disaster prevention and relief measures.

Support for the development of agricultural science, technology, and equipment was bolstered, with a focus on revitalizing the seed industry. A national crop germplasm resources survey was conducted, and major biological breeding projects were initiated. The pilot scope for industrial applications of genetically

modified corn and soybeans was expanded in an orderly manner, and efforts were made to achieve key technological breakthroughs in agriculture. The stable support mechanism for basic research in agricultural science and technology was improved, and there was a push to develop large-scale intelligent agricultural machinery, as well as smaller machines suitable for mountainous areas and horticultural machinery. Policies for subsidies on the purchase and application of agricultural machinery were refined, and accelerating the application and promotion of technologies aimed at reducing agricultural inputs and improving efficiency was prioritized, along with the development of pilot zones for green agricultural development and the establishment of observation and experimental bases.

(3) Implementing assistance policies and measures for areas and people that have recently shaken off poverty

The dynamic monitoring of trends indicating a return to poverty was refined, and updates were made to the guidelines for dynamic monitoring and support mechanisms. Detailed norms and requirements were established to enhance monitoring and identification, ensuring swift and accurate determination of households needing monitoring. Development-oriented assistance was integrated with social security safeguards, and development-oriented assistance measures were implemented for monitored households capable and willing to work. The tiered and classified social assistance system was also improved to better serve those in need.

The self-sustaining capabilities of regions and populations that have been lifted out of poverty were strengthened, and efforts continued to upgrade characteristic and advantageous industries in these areas. This included addressing technological, infrastructural, and marketing deficiencies in assisted industries. Over 60 percent of the central government's follow-up rural revitalization assistance fund

was allocated to upgrading these industries. Mechanisms were improved to help farmers benefit economically from business-related assistance projects, enabling nearly three-quarters of those lifted out of poverty to establish close interest linkages with new agricultural operating entities. As of the end of 2023, the balance of loans to the population lifted out of poverty nationwide was RMB1.16 trillion, marking a year-on-year increase of 12 percent. Employment promotion initiatives were launched to prevent a return to poverty, including deepening labor service cooperation between eastern and western regions, supporting the development of assistance workshops, standardizing the creation of rural public welfare jobs, and intensifying the training of rural artisans and the cultivation of labor service brands in areas that have shaken off poverty. These measures were designed to provide stable employment opportunities for those lifted out of poverty.

Assistance in key regions continued to advance. The central government allocated RMB175 billion for the follow-up rural revitalization assistance fund, an increase of RMB10 billion compared to 2022. Credit supply in key regions was increased, with the balance of all types of loans in 832 counties that have been lifted out of poverty reaching RMB12.3 trillion, a year-on-year increase of 14.7 percent. In 160 key counties for rural revitalization assistance, the loan balance reached RMB1.9 trillion, growing by 15.85 percent year-on-year. Solid progress was made in "group-based assistance" for medical and education workers in the assisted areas. More than 5,000 private enterprises and over 260 national non-governmental organizations were mobilized to partner with key counties for assistance. Efforts to boost the consumption of goods produced by areas that have been lifted out of poverty were expended, and by the end of 2023, eight eastern provinces and municipalities had conducted consumption assistance worth RMB110.48 billion in ten western provinces and autonomous regions, aiding the stable sales of agricultural

and sideline products from these regions. Special campaigns were implemented to consolidate the outcomes of poverty alleviation through relocation, improve rural governance in resettlement areas, and provide employment support for relocated populations, ensuring their successful integration into new settlements.

(4) Boosting the development of rural industries that benefit local people

The modern agricultural industrial system was continuously improved, focusing on strengthening and extending the industrial chain. Efforts were made to establish modern agricultural parks, characteristic and advantageous industrial clusters, towns with robust farming industries, and modern agricultural demonstration zones, enhancing the exemplary effects of industrial scale-up. In 2023, 50 new national modern agricultural parks, 100 modern agricultural demonstration zones, and 40 new and 51 ongoing characteristic and advantageous industrial clusters were built. These initiatives fostered 139 clusters with a full industrial chain value exceeding RMB10 billion, 14 clusters with a value over RMB50 billion, and 3 clusters with a value above RMB100 billion. Additionally, 200 new towns with robust farming industries were supported, and 184 existing towns were recognized and rewarded. More than 350 towns had a full industrial chain value exceeding RMB1 billion. Agricultural product processing was upgraded by providing support to family farms, farmers' cooperatives, and small and medium-sized enterprises in the primary processing of agricultural products at the source and by guiding large agricultural enterprises towards refined and deep processing.

New rural industries and business models emerged alongside efforts to modernize protected agriculture. In June, the Ministry of Agriculture and Rural Affairs, along with related departments, unveiled the Modern Protected Agriculture Development Plan (2023-2030). This plan outlines the advancement of six major

projects: upgrading modern protected agriculture, developing modern facility-based planting on saline-alkali land in the Gobi, establishing intensive seedling nurseries, enhancing efficient and space-saving facility-based livestock farming, constructing intelligent fish farms, and improving cold-chain logistics and drying equipment. Initiatives to foster rural e-commerce, leisure agriculture, and tourism have been strengthened, with 60 counties designated as key areas for leisure agriculture, 256 villages recognized for their beauty and leisure appeal, and 109 top-tier routes and 365 scenic spots highlighted for visitors.

(5) Beautiful and harmonious villages that are desirable to live and work in

Work to improve the rural living environment advanced steadily throughout the year. In June, the Office of the Central Commission for Financial and Economic Affairs, along with related departments, issued Guidelines on the Effective and Orderly Promotion of Zhejiang's Experience in the Green Rural Revival Program. These guidelines aim to build beautiful and harmonious villages that are appealing places to live and work in, starting with enhancing the rural living environment. Efforts to improve village sanitation have continued, focusing on upgrading rural household toilets. There has been a push for categorized and phased treatment of domestic sewage, along with improvements to waste collection, transportation, and disposal systems. Initiatives also include reducing and promptly disposing of domestic waste at its source, as well as facilitating the local recycling of toilet waste, easily decomposable waste, and organic waste.

The construction of rural infrastructure has been significantly enhanced through improved maintenance and safety management of rural roads. Efforts were also made to promote the high-quality development of rural roads, with a focus on better construction, management, maintenance, and operations. Over

160,000 kilometers of rural roads were constructed or upgraded during the year. Large-scale rural water supply projects were advanced, along with standardized renovations of smaller water supply systems, and a special initiative to improve water quality was launched. In August 2023, the Office of the Central Commission for Financial and Economic Affairs, together with eight other departments, issued the Guidelines on Promoting High-Quality Development of Rural Circulation. These guidelines focus on accelerating the construction of an efficient and smooth modern rural commerce, logistics, and cold-chain network at production origins. The goal is to fully integrate rural circulation facilities and business models into the modern circulation system, ensuring the smooth flow of industrial goods to rural areas and agricultural products to urban markets.

The development of rural public services and rural governance systems was advanced. The General Office of the CPC Central Committee and the General Office of the State Council issued the Guidelines on Building a Quality and Balanced Basic Public Education Service System and Guidelines on Further Deepening Reforms to Promote the Healthy Development of the Rural Medical and Health System. These measures focus on strengthening the coordination and optimization of educational and medical resources within counties, ensuring greater access to high-quality basic public services, including education and healthcare, in rural areas. The functions of the three-tier governance system at the county, township, and village levels were enhanced, and practical and effective governance methods, such as point systems, list systems, digitalization, and prompt handling of public complaints, were promoted. Additionally, the pilot program for developing rural governance systems was deepened with the launch of the third batch of national model townships and villages. This included recognizing 100 model townships and 1,001 model villages, as well as recommending the fifth group of 32

exemplary practices for rural governance.

(6) Steadily advancing reforms in key areas of rural areas

In July 2023, the second meeting of the Commission for Further Reform under the 20th CPC Central Committee approved the Implementation Plan for Deepening Rural Reform, further refining the top-level design of rural reform. The plan identified 67 pilot counties, cities, or districts where land contracts would be extended for another 30 years after the second round of land contracts. This expansion brings the total number of pilot areas to 102, across 29 provinces and autonomous regions. Ongoing efforts include deepening the pilot reform of the rural homestead system, standardizing homestead confirmation and registration, and exploring effective ways to separate ownership, qualification, and usage rights. The pilot reform to bring rural collective land designated for business-related construction to the market continued, aiming to establish a fair mechanism for distributing the added value of land that takes into account the interests of the state, rural collective economic organizations, and farmers. Reform of the rural collective property rights system was deepened, with solid progress seen in ensuring the proper distribution of rights and better enabling farmers' activities under these rights. Pilot programs were launched to expand farmers' rights, including mortgage financing using future revenue from collective assets as collateral and paid exits that allow farmers to voluntarily relinquish their collective asset rights in exchange for economic compensation. New rural collective economies were developed through various means, including resource outsourcing, property leasing, intermediary services, and asset-for-equity models. Support was also provided for rural collective economic organizations to develop collaboratively and cooperate with various market entities.

2. Positive progress in urban-rural integration

(1) Further improvement of urban-rural economic circulation

The movement of people, land, and capital between urban and rural areas steadily improved, boosting the urban-rural economic cycle. Financial support for agriculture and rural regions remained strong, and by the close of 2023, the total amount of inclusive agriculture-related loans hit RMB12.59 trillion, 10.2 percentage points above the overall loan growth rate, marking a 20.34-percent increase from the previous year. Agricultural loans stood at RMB5.84 trillion, up 15.4 percent year on year, while rural loans (at the county level and below) totaled RMB47.26 trillion, a 15.2-percent increase from the previous year. Rural household loans reached RMB16.86 trillion, growing by 12.5 percent over the same period. Urban residents showed a marked increase in interest in rural consumption, particularly in rural tourism, which saw rapid expansion. Tourism platform data revealed that bookings for rural trips had exceeded pre-pandemic figures.

(2) Narrowing gaps in the incomes and living standards of urban and rural residents

The income growth rate of rural residents has consistently outpaced that of their urban counterparts for 14 consecutive years. In 2023, the per capita disposable income of rural residents reached RMB21,691, a real-term increase of 7.6 percent, with an income growth rate of 2.8 percentage points higher than the growth rate for urban residents. The income disparity between urban and rural residents, measured as the ratio of per capita disposable income, was 2.39, down 0.06 from the previous year, marking the 16th consecutive year of income disparity narrowing. The real growth rates of per capita consumption expenditure for urban

and rural residents were 8.3 percent and 9.2 percent, respectively, and the consumption expenditure gap between urban and rural residents, represented by the ratio of per capita consumer spending, was 1.82, a slight decrease of 0.01 from the previous year (see Figure 3-1).

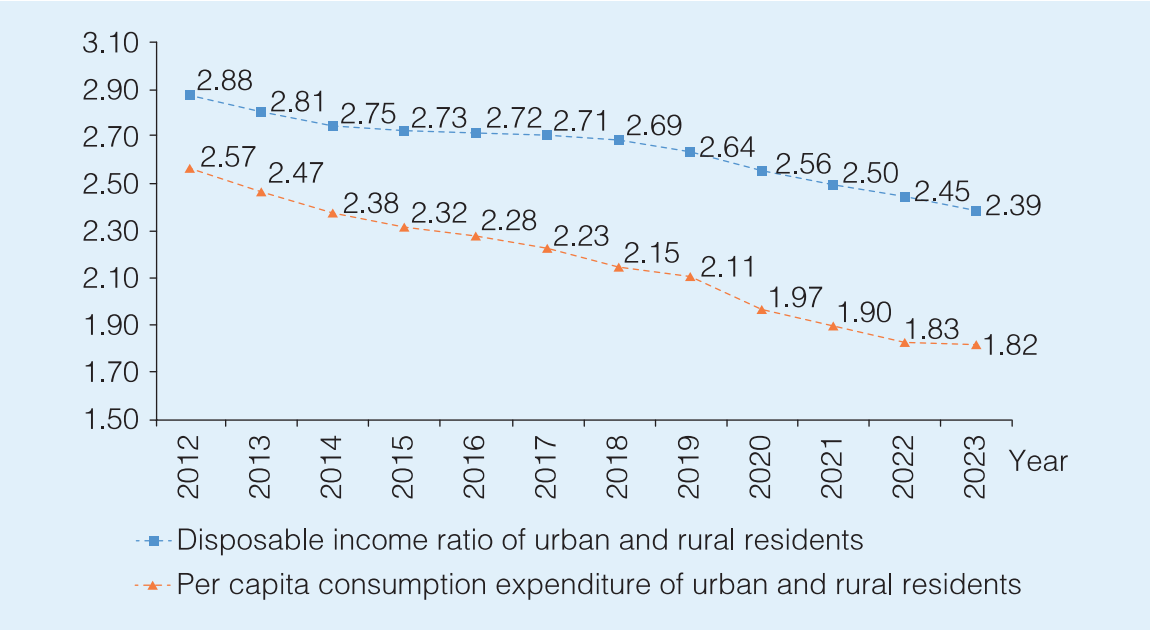

Figure 3-1 Changes in the Ratio of Per Capita Disposable Income and Consumer Spending of Urban and Rural Residents

Note: Calculated with the per capita level of rural residents set to 1.
Source: Wind.

(3) Continuous improvement in the quality and level of urbanization

As of the end of 2023, the national permanent resident urbanization rate and the registered resident urbanization rate reached 66.16 percent and 48.3 percent, respectively, marking increases of 0.84 and 1.3 percentage points from the previous year. Migrant workers' sense of belonging and adaptability in cities also grew, with 47.3 percent now considering themselves "locals" in their city of residence, up 1.6 percentage points from the previous year, while 86.3 percent of migrant

workers reported that they had adapted well or fairly well to local life, an increase of 1.1 percentage points, according to the National Bureau of Statistics. The school enrollment rate for the accompanying children of migrant workers during the compulsory education stage reached 99.7 percent, with the proportion attending public primary and secondary schools rising by 1.8 and 3.2 percentage points, respectively. Rapid progress was made in addressing infrastructure and public service deficiencies. Over 2 million units of government-subsidized rental housing have been either initiated or funded, and renovations have commenced on 53,700 old residential areas in urban towns, benefiting 8.97 million households. Additionally, more than 14,000 community service facilities have been created to cater to the needs of the elderly, children, and other community members.

(4) Improved supply of grain and other important agricultural products

In 2023, grain production hit a new high of 695 million tonnes, marking the ninth consecutive year above 650 million tonnes. The annual average per capita grain supply surpassed 490 kilograms, well above the global safety threshold of 400 kilograms. Significant strides were made in expanding the cultivation of soybeans and other oilseed crops, with soybean planting areas reaching 157 million *mu*, or about 10.47 million hectares, and remaining above 150 million *mu*, or about 10 million hectares, for the second consecutive year. Oilseed crop planting areas exceeded 200 million *mu*, or about 13.33 million hectares. Production of pork, beef, mutton, poultry, milk, and aquatic products all saw increases, and supplies of fruit and vegetables remained ample. Initial success was achieved in revitalizing China's seed industry with the timely completion of a crop germplasm resources survey that collected 530,000 new germplasm resources.

(5) Continued improvement in rural infrastructure and public services

Rural infrastructure networks expanded, and basic public service systems became more comprehensive. Civic virtue awareness deepened, rural governance became more effective, and village landscapes improved overall. Farmers' sense of gain, happiness, and security was also enhanced. By the end of 2023, the national rural sanitary toilet coverage exceeded 73 percent, and the rate of domestic sewage treatment rose by 3 percentage points from the previous year. More than 90 percent of administrative villages had their household garbage collected and treated, and 140,000 villages underwent additional greening and beautification efforts. Over 95 percent of villages conducted clean-up activities systematically, shifting focus from mere cleanliness towards beauty and livability.

(6) Continued consolidation and expansion of poverty alleviation gains

Significant progress was made in consolidating and expanding poverty alleviation achievements, with no large-scale relapse into poverty occurring. Characteristic industries were developed in counties that had been lifted out of poverty, and nearly 30,000 suppliers from 832 such countries entered the online sales platforms for agricultural by-products, selling over 400,000 local specialties and benefiting more than 3.2 million households that had overcome poverty. Employment for the population lifted out of poverty remained stable, with 33.97 million people from this group entering the workforce in 2023, surpassing the annual target by 3.78 million. In the same year, the per capita disposable income of rural residents in counties lifted out of poverty reached RMB16,396, a rise of 8.4 percent from the previous year, a rate higher than the national average for rural residents.

It's important to acknowledge that significant urban-rural segmentation and

imbalances in development persist, making the promotion of integrated urban-rural development a challenging task. Full integration of rural migrants into urban areas remains a work in progress, and rural construction still faces numerous gaps, particularly in new infrastructure like charging stations, cold-chain logistics, and express delivery services, which do not yet meet current needs. Many urban areas require urgent upgrades to their municipal pipe networks, and flood control and drainage systems are inadequate. Urban villages also present multiple safety hazards related to building and fire safety, and urban communities often lack sufficient barrier-free and elderly-friendly facilities.

III. Coordinated Development of Material Wellbeing and Cultural-Ethical Standards

Promoting material wellbeing and raising cultural-ethical standards is a crucial component of advancing Chinese modernization. The new ideas, perspectives, and insights put forward by General Secretary Xi Jinping on cultural development in the new era encapsulate the Party's practical experience in leading cultural work. These contributions have enriched and developed Marxist cultural theory, forming Xi Jinping Thought on Culture, which serves as a powerful ideological tool and scientific action guide for enhancing cultural-ethical standards. In October 2023, General Secretary Xi Jinping gave important instructions on publicity and cultural work, emphasizing the significance of preserving the Chinese cultural heritage, promoting the creative transformation and innovative development of fine traditional Chinese culture, and striving for the prosperity of cultural

endeavors and industries[1]. In 2023, under the guidance of Xi Jinping Thought on Culture, China continued to deepen its theoretical understanding of Chinese civilization, promote standardization of and equal access to public cultural services, foster the growth of digital cultural industries, enhance the supply of high-quality intellectual and cultural products, and advance the construction of a leading cultural nation. As a result, the cultural confidence of all ethnic groups across the country significantly increased, and both material wellbeing and cultural-ethical standards were further elevated.

1. Strengthening cultural-ethical standards with the aim of developing modern Chinese civilization

(1) Continuously strengthening the theoretical understanding of the Chinese civilization

In June 2023, President Xi Jinping emphasized at the meeting on cultural inheritance and development that given the rich foundations of China's more than 5,000-year-old civilization, the only path for pioneering and developing socialism with Chinese characteristics is to integrate the basic tenets of Marxism with the country's specific realities and with the best of its traditional culture. He stressed that the tasks of sustaining cultural prosperity, building the country's cultural strength, and developing a modern Chinese civilization constitute the new cultural mission for the new era. President Xi Jinping systematically elaborated on the five

[1] "Xi Jinping Gives Important Instructions on Publicity, Ideological and Cultural Work and Emphasizes: Have Strong Confidence in Our Culture, Uphold the Approach of Openness and Inclusiveness, and Innovate on the Basis of What Has Worked in the Past; Provide Solid Ideological Guarantees and Powerful Inspiration for Building a Modern Socialist Country in All Respects and Advancing National Rejuvenation on All Fronts", Chin. ed., Xinhua News Agency, October 9, 2023.

distinctive features of Chinese civilization, which are consistency, originality, unity, inclusiveness, and a peaceful nature, as well as the significance of integrating the basic tenets of Marxism with China's specific realities and fine traditional culture[1]. These important statements and observations provide fundamental guidance for promoting the creative transformation and innovative development of fine traditional Chinese culture and advancing the coordinated development of material wellbeing and cultural-ethical standards. They chart a clear course for developing modern Chinese civilization.

(2) Protecting and preserving cultural heritage

In 2023, China continued to advance such projects as the Chinese Civilization Origins Project, Archeological Finds in China, and research on the Xia and Shang civilizations. Efforts in underwater archaeology, deep-sea archaeology, and frontier archaeology were also intensified. China launched the fourth national survey of cultural artifacts, established national archaeological site parks, and protected and utilized the cultural relics of the Grand Canal and the Yangtze River. Protection programs for corridor bridges, murals, colorful sculptures, and revolutionary artifacts of the Northeast Anti-Japanese United Army were implemented, and the protection and utilization of revolutionary cultural relics were promoted. China strengthened the management of the establishment of national cultural relics protection and utilization demonstration zones, and standardized the thematic exhibitions and displays of revolutionary cultural relics. Conservation efforts for ancient Chinese books were enhanced, with guidelines issued for classifying ancient books as cultural relics. Protection of Shui scripts and oracle bones improved, and initiatives were launched to promote digitization and intelligent service platforms

[1] "Xi Jinping Emphasizes at the Meeting on Cultural Heritage: Shoulder Our New Cultural Mission, Strive to Develop Modern Chinese Civilization", Chin. ed., Xinhua News Agency, June 2, 2023.

for ancient books. Additionally, China advanced the recognition process for the sixth group of national-level intangible cultural heritage (ICH) representative inheritors, and protection initiatives for ICH along the Yellow River and the Grand Canal were implemented. The country also designated 10 national-level cultural ecosystem protection zones and 100 national-level ICH production-based protection demonstration bases.

(3) Promoting the standardization of and equal access to public cultural services

In 2023, China focused on standardization and equal access to improve the network of public cultural service facilities in both urban and rural areas, enhancing the integrated building of urban and rural public cultural service systems. Efforts were made to provide higher quality, more efficient, fairer, and more sustainable public cultural services. The seventh national assessment and grading of county-level and above public libraries were conducted, and the branch library system for county-level cultural centers and libraries was implemented nationwide, increasing the number of public cultural venues at the primary level. The country also improved supporting mechanisms, improved the "free or low-cost" access to public cultural venues, and promoted the opening of more traditional cultural facilities and institutions to the general public. Digital capabilities of public cultural services were enhanced, with the promotion of smart libraries and public cultural clouds. Public reading and arts popularization initiatives were fostered, and new types of public cultural spaces were created, offering diverse and flexible "cultural living rooms". New public benefit cultural programs were launched, and brands for mass cultural activities such as the "Our Village Evening Gala", "Song of the Earth", "Deep Love for the Earth", and square dance events were developed. These initiatives were designed to enhance the social self-creation, self-expression,

and self-service capabilities of public cultural services.

(4) Actively fostering the growth of digital cultural industries

The Overall Layout Plan for the Building of Digital China emphasized the importance of promoting the digital development of culture and implementing the national strategy for cultural digitalization. The digital transformation of China's cultural resources, including cultural relics, ancient texts, and various art works, accelerated throughout 2023, and efforts were made to enhance the development of original cultural capabilities and implement major cultural projects to drive sectoral growth. The country supported the application and promotion of digital technology in the production and creation of arts and culture, fostering the integration of online and offline platforms as well as performances and broadcasts. This increased the supply of digital cultural products and created new scenarios and spaces for digital cultural consumption. Additionally, China established a policy and legal framework tailored to the development of digital culture. This framework includes market access, regulatory oversight, product certification, intellectual property protection, and security measures, all designed to promote the healthy and sustainable development of new business models within the digital culture sector.

2. Significant achievements in cultural-ethical standards

(1) New achievements in protecting cultural heritage and keeping it alive

In 2023, the fifth phase of research of the Chinese Civilization Origins Project yielded new findings, providing clearer insights into the stages of the origins of Chinese civilization. Construction of national cultural parks, including the Great Wall, Grand Canal, Long March, Yellow River, and Yangtze River, continued

to make steady progress. One notable achievement in 2023 was the listing of the cultural landscape of old tea forests on Jingmai Mountain in Pu'er as China's 57th World Heritage Site. Efforts in the conservation and inheritance of intangible cultural heritage also continued to bear fruit, and as of the end of 2023, there were 1,557 national-level intangible cultural heritage projects, with 43 entries listed in UNESCO's List of Intangible Cultural Heritage. By preserving its rich cultural traditions, while simultaneously promoting contemporary culture, China has witnessed the transformation and innovative development of its excellent traditional culture.

(2) More abundant public cultural products and services

China's public cultural infrastructure further improved in 2023. As of the end of 2023, there were 3,246 public libraries nationwide, housing a total of 1.44 billion volumes, marking a 5.6-percent increase from the previous year. These libraries attracted 1.16 billion visits throughout the year, a 46.9-percent increase from 2022. Notable landmarks like the Beijing City Library opened, enhancing public engagement in cultural activities. As of the end of 2023, China had 6,833 registered museums and memorial halls, which hosted 30,000 exhibitions and welcomed 1.4 billion visitors, fostering a strong interest in traditional Chinese culture. The digitization of public cultural products and services deepened further, providing new platforms and channels for the public to explore Chinese cultural treasures digitally. Innovative development in the cultural and museum sector led to over 33,500 new types of public cultural spaces flourishing across the country. Mass cultural activities also reached unprecedented levels, with 44,000 cultural institutions nationwide organizing 4.12 million events that served 1.84 billion people, marking increases of 53.5 percent and 91.6 percent from the previous year, respectively.

(3) Continued expansion and quality improvement of the cultural industry

In 2023, China's cultural industry continued to expand, with cultural and related industrial enterprises above the designated size generating a business revenue of RMB13 trillion, a 7.0-percent increase from the previous year. Notably, the 16 sub-industries characterized by new cultural formats saw their business revenue rise to RMB5.24 trillion, a 15.3-percent year-on-year increase, outpacing the overall growth of large-scale cultural enterprises by 7.1 percentage points, creating a significant driving effect. This growth was particularly robust in sectors like wearable smart cultural device manufacturing, digital publishing, multimedia games, anime, and software development for digital publishing. Concurrently, the quality of China's cultural industry improved, with a surge in high-quality cultural works that offered international audiences a new window into understanding and experiencing China.

Some challenges still remain in the coordinated development of material wellbeing and cultural-ethical standards. There is a need for more high-quality intellectual products to further enrich cultural offerings, and the development of public cultural services remains uneven between urban and rural areas. The creative transformation and innovative development of traditional culture require further improvement, and the cultural industry's role in driving overall development needs to be strengthened. Moreover, the model and governance mechanisms for fostering the deep integration of culture and technology must be refined, and efforts to enhance the international communication capacity and influence of Chinese culture need to be intensified.

Chapter Four
Green Development

Harmony between humanity and nature is a hallmark of China's modernization, and promoting green and low-carbon economic and social development is crucial to its goal of high-quality development. In 2023, the first year to fully implement the guiding principles of the 20th CPC National Congress, China advanced its transition to green economic and social development, coordinating efforts to reduce carbon emissions, lower pollution, expand green development, and foster economic growth. In July, the National Conference on Ecological and Environmental Protection outlined a comprehensive plan for building a beautiful, modern China where humanity and nature coexist harmoniously, and throughout the year, the country continued its commitment to keeping its skies blue, waters clear, and lands clean, and advancing high-level ecological and environmental protection with a focus on enhancing the diversity, stability, and sustainability of the ecosystem. Steady progress was also made towards reaching peak carbon emissions and carbon neutrality, which led to new achievements in green development.

I. New Circumstances Facing China's Green Development

In 2023, the need to jointly address global warming became more urgent, leading to an acceleration in the development of global clean energy solutions. However, trade protectionism introduced complexities into the global pursuit of

low-carbon development. While China continued to solidify its foundation and enhance its capacity for green development, it still faced certain pressures.

1. Complex challenges facing the global green development landscape

Tackling climate change remains the most critical issue for global green development. In 2023, the world experienced its hottest year on record, underscoring the growing severity of the climate change challenge. Many regions faced record-breaking heat and drought, leading to significant losses from extreme weather events. The urgent need to combat climate change requires global consensus and enhanced cooperation. In 2023, the 28th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP28), held in the UAE, completed the first global stocktake under the Paris Agreement. The resulting UAE Consensus clearly outlined the necessity to drive the transition away from fossil fuels in energy systems and set goals to triple renewable energy capacity and double energy efficiency improvements by 2030.

In 2023, the development of global renewable energy significantly accelerated, with new installations reaching 5,100 gigawatts, and the share of global renewable energy generation exceeding 30 percent for the first time[1]. Despite the international community's concerted efforts to promote green and low-carbon development, competition and strategic rivalries among major countries over key low-carbon industries, zero-carbon technologies, and critical metal minerals have intensified. The European Commission introduced the Green Deal Industrial Plan, the

[1] Data from the International Energy Agency.

Net-Zero Industry Act, and the Carbon Border Adjustment Mechanism, while the United States enacted the Inflation Reduction Act, the largest climate investment policy in history, which supports the development of domestic photovoltaic (PV), electric vehicle, and other green and low-carbon industries. Developed economies like the United States and the EU, citing concerns over "anti-dumping" and "anti-unfair subsidy", have begun to erect more trade barriers against Chinese electric vehicles, lithium-ion batteries, and PV products, hindering the entry of Chinese clean energy products into the US and European markets. In October 2023, the European Commission initiated an anti-subsidy investigation into Chinese electric vehicles. These trade protectionist policies could affect the process of global climate governance.

Regarding pollution prevention and control, plastic pollution, a pressing global environmental issue, has gained increased attention. Starting in 2023, the international community began working towards the formulation of an internationally binding document to ultimately end plastic pollution[1].

2. Strengthening the foundations and capabilities of China's green development

Since the 18th National Congress of the CPC, China has been making remarkable progress in its efforts to build an ecological civilization, bringing about significant changes that have strengthened the foundations and capabilities supporting green development.

[1] The second and third meetings of the Intergovernmental Negotiating Committee on Plastic Pollution were held in May and November 2023, respectively. However, significant differences remained concerning the scope of the entire plastics lifecycle, the types of plastics to be banned, and attitudes towards plastics.

Years of sustained effort in pollution control in China have led to a significantly improved eco-environment and greater ecosystem quality. In 2023, the average concentration of PM2.5 in cities at or above the prefecture level was 30 micrograms per cubic meter, surpassing the annual target of 32.9 micrograms per cubic meter, marking a 16.7-percent decrease from 2019. The proportion of surface water at or above Grade III in the country's five-tier water quality system reached 84.9 percent[1].

The shift towards greener development paradigms and the fostering of new low-carbon dynamics have fortified the industrial base and enhanced the capacities for green development. China has long been a leader in global production and sales of wind power, PV, power batteries, and electric vehicles, providing robust underpinning for the economic and social transition towards greener and lower-carbon practices.

The initiatives aimed at reaching peak carbon emissions and carbon neutrality have become progressively more systematic and sophisticated, laying a firm foundation for the institutional framework supporting green development. Following the introduction of the peak carbon emissions and carbon neutrality goals three years ago, China has developed an integrated policy framework that encompasses national, sectoral, and provincial-level efforts towards reaching peak carbon emissions. This framework is complemented by a robust system of institutions and policies encompassing information disclosure, green finance, green technology, circular economy, standards, and guidelines.

The framework for ecological progress has been further refined, with continuous improvements to legislation and standards strengthening the institutional

[1] Ministry of Ecology and Environment: "Bulletin on the State of China's Ecological Environment in 2023", Chin. ed., Ministry of Ecology and Environment website, June 5, 2024.

basis, rule of law, and social environment for green development. Through ongoing reform for ecological progress, a robust institutional framework has been established. The creation and enforcement of the central inspection system for eco-environmental protection have ensured the effectiveness of various systems. The promulgation and enforcement of laws and regulations such as the Law of the People's Republic of China on Yellow River Protection, the Law of the People's Republic of China on Marine Environment Protection, and the Regulations on the Management of Substances That Deplete the Ozone Layer, have solidified the legal foundation for green development.

3. Green development still facing pressures

As a developing country striving to catch up the industrialized nations, China still faces structural, fundamental, and directional pressures in its ecological conservation and environmental protection. 2023 was a pivotal year for promoting a full economic recovery after the Covid-19 pandemic. However, new challenges emerged in the green transformation across all aspects of economic and social development.

In some localities, efforts to stimulate investment and boost the economy have led to the launch of energy intensive projects, such as coal-fired power plants, placing growing pressure on environmental protection and energy supply. With China's rapid development of renewable energy, the issue of accommodating new energy has become increasingly prominent in some regions. The environmental protection industry is characterized by significant fixed-cost investments and a prolonged period for capital recovery. In the wake of the Covid-19 pandemic, as some local governments grapple with constrained financial resources, the operational challenges faced by the environmental protection sector have become more

pronounced. At the same time, some developed countries and regions have engaged in decoupling and supply disruption activities vis-a-vis China, implementing trade protectionist policies and measures against Chinese enterprises. This has held back the export of China's green and low-carbon industries, particularly the "new trio" of electric vehicles, lithium-ion batteries, and PV products, impacting the full release of the driving force behind the development of China's green and low-carbon industries.

II. New Plans and Measures to Promote Green Development

At the end of 2022, the Central Economic Work Conference outlined tasks for promoting green development in 2023. The National Conference on Ecological and Environmental Protection, held in July 2023, underscored the importance of supporting high-quality development with a high-quality ecological environment and accelerating the modernization of harmony between humanity and nature (see Panel 4-1). At the end of 2023, the Guidelines of the CPC Central Committee and the State Council on Comprehensively Promoting the Building of a Beautiful China delineated phased goals and measures for deepening efforts in this area. These goals include tackling the difficult challenges during the 14th Five-year Plan period, consolidating and expanding the achievements during the 15th Five-year Plan period, and pursuing a further overall upgrade during the 16th Five-year Plan period. These initiatives herald a new chapter in the building of a Beautiful China.

Panel 4-1 National Conference on Ecological and Environmental Protection Held

At the National Conference on Ecological and Environmental Protection, President Xi Jinping emphasized the importance of advancing the building of a Beautiful China and accelerating the modernization of harmony between humanity and nature. Over the next five years, China will prioritize this initiative within the larger goal of building a strong country and achieving national rejuvenation. Key priorities will include driving significant improvements in the living environments in both urban and rural regions, as the country pursues high-quality development supported by a healthy environment.[1]

President Xi Jinping highlighted that by addressing prominent ecological and environmental issues, China has transitioned from merely remediating focus areas to implementing systematic governance in them. This shift has involved combining work on focus areas with that of more general work, and tackling both symptoms and root causes. By fostering a change of mindset and ensuring that responsibilities are fulfilled, China has strengthened the awareness and initiative among the entire Party and nation to promote ecological conservation, and as a result, the country has shifted from passively responding to ecological issues to taking proactive actions to address them. By staying abreast of the times,

[1] "Xi Jinping Emphasizes at the National Conference on Ecological and Environmental Protection the Need to Comprehensively Promote the Building of a Beautiful China and Accelerate the Modernization Featuring Harmonious Coexistence Between Humanity and Nature", Chin. ed., *People's Daily*, July 19, 2023, p. 1.

adopting a global perspective, and shouldering its responsibilities as a major country, China has evolved from a participant to a leader in global environmental governance. By deepening the understanding of the laws governing ecological conservation, China has developed the thought on socialist ecological civilization with Chinese characteristics for a new era, achieving a significant shift from practical exploration to conservation guided by sound theory.

The conference underscored the need to properly handle five key relationships: the relationship between high-quality development and high-level protection; the relationship between tackling key challenges and coordinated governance; the relationship between natural rehabilitation and artificial restoration; the relationship between external pressure and internal motivating power; and the relationship between the commitment to the peak carbon emissions and carbon neutrality goals and China's independent decisions.

Source: Compiled from publicly available information.

1. Improving an economic system featuring green, low-carbon, and circular development

In 2023, China focused on establishing and improving an economic system featuring green, low-carbon, and circular development. The country promoted a faster transformation towards green development and fostered eco-friendly work and lifestyles to achieve high-quality economic development through green development.

(1) Improving policies and standards for efficient resource utilization

China continued to implement its comprehensive conservation strategy and established innovative systems to enhance the conservation, recycling, and efficient use of resources such as energy, water, land, and minerals. To drive industrial upgrades and green, low-carbon transformation in industries and manufacturing, China released the Benchmark Level of Energy Efficiency in Key Industries (2023 Edition), which enforces stringent energy efficiency standards. Nationwide water-saving initiatives were launched, with policies aimed at enhancing water resource efficiency, promoting the use of alternative water sources, and reducing leaks in public water supply networks. The Control Indicators for Construction Land in Industrial Projects, Oil and Gas Engineering Projects, and Photovoltaic Power Station Engineering Projects have been updated, and new standards for the economical and intensive use of sea areas in maritime ports and for warm drainage have also been published. These measures contribute to a comprehensive standards system that also covers all active mines and over a hundred types of minerals, promoting the economical and intensive use of land, sea areas, and mining resources. Additionally, there was a strong push for the circular economy throughout 2023, with the improvement of policies and systems for recycling decommissioned wind power and PV equipment and efforts to boost the recycling of waste household appliances, automobiles, electronic products, steel, and non-ferrous metals.

(2) Promoting a green technology innovation system

In 2023, China rolled out the Plan for Further Improving the Market-Oriented Green Technology Innovation System (2023-2025), which aims to boost the role of green technology innovation in supporting green and low-carbon development. The National Development and Reform Commission (NDRC) issued the Implementation Plan for Advanced Green and Low-Carbon Technology Demonstration

Projects, in collaboration with other relevant departments. This initiative features projects characterized by cutting-edge technologies, notable emission reduction effects, and significant co-benefits in pollution and carbon reduction. Its goal is to promote the demonstration and application of advanced and applicable green and low-carbon technologies, while exploring supportive policies, business models, and regulatory frameworks that can facilitate the widespread adoption of these technologies. China enhanced the building of a green technology patent classification system[1] to establish clear criteria for the statistical monitoring of green technology patents. This initiative is designed to boost green technological innovation and patent commercialization, facilitate international exchange and transfer of green technology patents, and spur the green transformation of production and lifestyle.

(3) Advancing the green finance standards system

China sped up the revision of green finance industry standards, issuing the draft Green Industries Guidance Catalogue (2023 Edition) for public comment. This update refines the classification structure and specific green sub-industries in the green industries catalog, driving a new round of revisions to classification standards for green credit, green bonds, and more. To broaden the scope of green finance classification standards, China released several guidelines, including the Guidelines for Credit Rating of Green Bonds, the Guidelines for Information Disclosure During the Tenure of Green Bonds, and the Classification Guidelines for Green Insurance (2023 Edition). These documents set classification standards for green bonds and green insurance, promoting the standardization of green financial products. Additionally, China accelerated mutual recognition of domestic and international standards. It implemented the Common Ground Taxonomy (CGT)

[1] Office of the China National Intellectual Property Administration: "Green Technology Patent Classification System", Chin. ed., August 23, 2023.

labeling for green bonds and updates the list of existing Chinese green bonds that meet CGT standards in the China Foreign Exchange Trade System each month to draw the attention of foreign capital funds, international investment institutions, and overseas exchanges to China's green bond market.

(4) Fostering green, low-carbon consumption patterns

China continued to carry out the Implementation Plan for Promoting Green Consumption in 2023, positioning green consumption as a vital tool for expanding domestic demand and unlocking consumption potential while accelerating the development of green, low-carbon consumption markets and driving a comprehensive green transformation in key consumption areas. The review for the first and second batches of three-star green building certification projects was completed, and events such as the Green Travel Promotion Month and Public Transport Promotion Week were organized under the theme "Green Travel for a Better Life", highlighting the achievements and practices of various regions in developing green transportation systems and green travel initiatives and encouraging broad social participation in green travel. To support the adoption of new energy vehicles (NEVs) in rural areas and to advance rural revitalization, China expedited the construction of charging infrastructure in these areas in order to stimulate the rural NEV market and promote green travel among rural residents[1]. 61 key projects in the sanitation sector were also announced in 2023, focusing on the garbage sorting system, integrated urban sanitation, and comprehensive rectification of waste disposal facilities. These projects seek to attract private investment in the

[1] National Development and Reform Commission and National Energy Administration: "Implementation Guidelines on Accelerating the Construction of Charging Infrastructure to Better Support New Energy Vehicles to the Countryside and Rural Revitalization", Chin. ed., May 14, 2023.

construction and operation of green living initiatives[1]. Additionally, the consumption of green and smart home appliances was promoted throughout the year, and measures to boost their use and encourage their adoption in rural areas were implemented. An Action Plan for Advancing the Green Transformation of Express Packaging was developed to drive sustainable changes in the packaging sector.

2. Continuously advancing high-level environmental protection

In 2023, despite the complexities in economic recovery and eco-environmental protection, China remained steadfast in its commitment to promoting high-level environmental protection alongside high-quality economic development.

(1) Intensifying the campaign against pollution

China curbed pollution in a law-based, scientific, and targeted way, and implemented the Guidelines of the CPC Central Committee and the State Council on Further Promoting the Nationwide Battle to Prevent and Control Pollution. Measures were taken to keep skies blue, waters clear, and land pollution-free. To keep skies blue, China advanced clean heating in northern regions, carried out whole-process, ultra-low emission retrofitting for crude steel capacity, and promoted the establishment of joint prevention and control mechanisms for air pollution in the urban clusters of the north slope of the Tianshan Mountains, the northeastern region, and the middle reaches of the Yangtze River. At the end of 2023, the State Council issued the Action Plan for Continuous Improvement of Air Quality, which provides clear direction for the next phase of air pollution control. To keep waters clear, China issued the Key Basin Water Ecological Protection

[1] National Development and Reform Commission: "Circular on Further Strengthening Efforts to Promote Private Investment and Enhancing the Enthusiasm of Private Investors", Chin. ed., July 14, 2023.

Plan and the Scoring Rules for Water Ecological Assessment Indicators in the Yangtze River Basin (Trial). These documents offer guidance for water ecology assessment in the Yangtze River Basin. The country also made significant strides in treating black, malodorous water bodies across various regions, and issued the Circular on Further Improving Black, Malodorous Water Body Treatment and Environmental Protection. The state conducted spot checks on the effectiveness of city-level black, malodorous water body treatment and worked to establish a national county-level list of such water bodies. To keep lands clean, China made efforts to prevent and treat agricultural land soil pollution from cadmium and other heavy metals at the source, and launched 124 major engineering projects for soil pollution source control. The Guidelines on Promoting Green, Low-Carbon Risk Management and Soil Remediation of Contaminated Land was introduced to establish a list of contaminated sites for risk management and remediation, alongside a priority supervision list. Additionally, pilot programs for new pollutant governance were initiated, alongside inter-ministerial special actions to tackle plastic pollution. The launch of the System for Statistical Investigation of Environmental Information on Chemical Substances also bolstered capabilities in managing new pollutants[1].

(2) Focusing on building a modern environmental governance system

The Plan on Environmental Protection Inspection (2023-2027) was developed, and the central authorities conducted inspections in five provinces – namely Fujian, Henan, Hainan, Gansu, and Qinghai – as part of the third round of central environmental protection assessments. The Guidelines on Further Optimizing

[1] Huang Runqiu: "Studying and Implementing the Guiding Principles of the National Conference on Ecological and Environmental Protection, and Promoting the Modernization Featuring Harmonious Coexistence Between Humanity and Nature with the Building of a Beautiful China – Work Report to the National Conference on Ecological and Environmental Protection in 2024", Chin. ed., Ministry of Ecology and Environment website, January 23, 2024.

Environmental Impact Assessment Work was also released in 2023, as the country continued to improve its system of eco-environmental zoning control and began exploring the integration of environment impact assessment (EIA) with discharge permit approvals, incorporating greenhouse gas emissions management into EIA administration. To boost national ecological security, China expedited efforts to enhance coordination mechanisms, completed the "One River, One Policy, One Map" emergency response plans for 2,266 key rivers, and strengthened ecological security defenses. Additionally, ecological monitoring was enhanced by linking local monitoring stations with national ones where feasible, initiating the construction of the first batch of 55 national ecological quality comprehensive monitoring stations, and accelerating the development of a national agricultural non-point source monitoring network across 175 monitoring zones. The responsibility for drafting science and technology policies to advance ecological and environmental protection, formerly held by the Ministry of Science and Technology, was officially transferred to the Ministry of Ecology and Environment, and the ministry's list of Powers and Responsibilities was published. A total of 100 environmental protection standards were released, and a zero-tolerance policy was enforced against malicious environmental violations, such as hazardous waste-related crimes and the falsification of automatic monitoring data by major polluters.

(3) Vigorously promoting environmental protection throughout the society

China released the White Paper titled China's Green Development in the New Era in January, which encapsulates the nation's philosophy, practices, and achievements in green development during the new era[1]. The country also

[1] State Council Information Office: "China's Green Development in the New Era", Chin. ed., State Council website, January 19, 2023.

hosted several major home-ground events, including Environment Day, National Low-Carbon Day, and National Ecology Day. The Ministry of Ecology and Environment bolstered public engagement through its regular press briefings and by conducting environmental education programs, and environmental facilities continued to be made accessible to the public, actively promoting ecological conservation awareness and fostering an ethos of ecological progress. The Ten Codes of Conducts for Citizens in Ecological and Environmental Protection were introduced, which encourage public engagement in environmental protection across ten dimensions, including care for the ecological environment, green consumption habits, the proper disposal of waste, and participation in environmental practices[1]. An action plan for enhancing ecological awareness was implemented under the theme "Beautiful China, I Am a Doer". This plan recognizes exemplary figures such as dedicated environmental volunteers to encourage citizens to embrace the values and conducts that underpin ecological progress, rallying collective support and energy towards fostering a modern China with harmony between humanity and nature.

3. Focusing on enhancing the diversity, stability, and sustainability of ecosystems

President Xi Jinping underscored at the National Conference on Ecological and Environmental Protection the need to enhance the diversity, stability, and sustainability of ecosystems, intensify efforts to protect ecosystems, and effectively

[1] Ministry of Ecology and Environment et al.: "Ten Codes of Conducts for Citizens in Ecological and Environmental Protection", Chin. ed., June 5, 2023.

bolster oversight over ecological conservation and restoration[1].

(1) Reinforcing the legal framework and standardization for ecosystem protection

On the legislative front, the Standing Committee of the National People's Congress designated August 15 as National Ecology Day. Important laws were enacted, including the Yellow River Protection Law of the People's Republic of China, the Qinghai-Tibet Plateau Ecological Protection Law of the People's Republic of China, and the revised Wildlife Protection Law of the People's Republic of China and Marine Environmental Protection Law of the People's Republic of China. In terms of judicial and enforcement actions, the Supreme People's Court published landmark cases concerning the judicial protection of national parks, ecological conservation in the Qinghai-Tibet Plateau, and wetland protection. Guidelines were introduced on the legal application in criminal cases involving the destruction of forest resources, and the Ministry of Water Resources issued the Work Plan for Special Law Enforcement Actions for River and Lake Safety Protection[2] in collaboration with other relevant departments. In terms of standards, technical guidelines for ecological and environmental investigation and observation were issued for various levels and types of nature conservation areas to enhance ecosystem monitoring and evaluation. Relevant standards and norms were formulated to assess the effectiveness and implement adaptive management of territorial spatial ecological protection and restoration projects. Additionally, national standards for greenhouse gas emissions accounting and reporting were established, with a

[1] "Xi Jinping Emphasizes at the National Conference on Ecological and Environmental Protection the Need to Comprehensively Promote the Building of a Beautiful China and Accelerate the Modernization Featuring Harmonious Coexistence Between Humanity and Nature", Chin. ed., *People's Daily*, July 19, 2023, p. 1.

[2] Ministry of Water Resources et al.: "Work Plan for Special Law Enforcement Actions for River and Lake Safety Protection", Chin. ed., June 16, 2023.

specific focus on carbon sink monitoring technologies[1].

(2) Accelerating the construction of a protected area system with national parks as the mainstay

In 2023, the first batch of master plans for national parks was officially released, outlining 49 candidate areas for national parks that would join the five parks already established. Alongside the national park system, China has established over 9,000 nature reserves, ensuring comprehensive protection of natural ecosystems[2]. To strengthen the supervision of nature reserves, the Ministry of Ecology and Environment worked with six other departments to roll out the Green Shield Action 2023. This initiative identified 179 key issues for rectification, and conducted remote sensing monitoring of human activities within ecological red lines, verifying and identifying 225 cases of ecological damage[3].

(3) Intensified efforts in ecological conservation and restoration

China continued with its efforts in ecological conservation and restoration projects, implementing the third batch of integrated conservation and restoration projects for mountains, rivers, forests, farmland, lakes, grasslands, and deserts during the 14th Five-year Plan period. Support was also provided for 18 additional demonstration projects for ecological restoration in abandoned mining areas, along

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[1] Ministry of Natural Resources: "Natural Resources Work Report 2023: Adhere to Green Development, Promote Harmony Between Humanity and Nature", Chin. ed., Ministry of Natural Resources website, January 9, 2024.

[2] Ministry of Natural Resources: "Natural Resources Work Report 2023: Adhere to Green Development, Promote Harmony Between Humanity and Nature", Chin. ed., Ministry of Natural Resources website, January 9, 2024.

[3] Huang Runqiu: "Studying and Implementing the Guiding Principles of the National Conference on Ecological and Environmental Protection, and Promoting the Modernization Featuring Harmonious Coexistence Between Humanity and Nature with the Building of a Beautiful China – Work Report to the National Conference on Ecological and Environmental Protection in 2024", Chin. ed., Ministry of Ecology and Environment website, January 23, 2024.

with 16 new marine ecological protection and restoration projects[1]. Intensive campaigns were launched to advance the Three-North Shelterbelt Forest Program, with the General Office of the CPC Central Committee and the General Office of the State Council issuing the Guidelines on Strengthening Comprehensive Desertification Prevention and Control and Developing Major Ecological Projects, which includes the Three-North Shelterbelt Forest Program. The State Council also established a coordination mechanism for strengthening comprehensive prevention and control of desertification and promoting key ecological projects, including the Three-North Shelterbelt Forest Program, and convened its first plenary meeting, issuing the "1+N+X" work plan. The overall plan for the Three-North Shelterbelt Forest Program was revised, and the Plan for the Sixth Phase of the Three-North Shelterbelt Forest Project was published, outlining 68 key projects[2]. Solid steps were taken to advance science-based afforestation, which saw the country organize 25 pilot demonstration projects for land greening and launch pilot demonstration province construction for scientific greening in six regions: Liaoning, Shandong, Henan, Chongqing, Sichuan, and Ningxia[3]. Oversight and regulation of ecological protection and restoration was strengthened with the issuing of the Plan on Environmental Protection Inspection (2023-2027) and the National Ecological Quality Supervision and Monitoring Work Plan (2023-2025), among other initiatives. For the first time, the implementation of ecological red lines was included in the national natural resources inspection, and an evaluation was conducted on the

[1] Ministry of Natural Resources: "China Natural Resources Bulletin 2023", Chin. ed., Ministry of Natural Resources website, February 28, 2024.

[2] Office of the National Greening Commission: "Bulletin on the Status of China's Land Greening in 2023", Chin. ed., State Council website, March 12, 2024.

[3] Office of the National Greening Commission: "Bulletin on the Status of China's Land Greening in 2023", Chin. ed., State Council website, March 12, 2024.

outcomes of pilot projects for the integrated protection and restoration of mountains, rivers, forests, farmland, lakes, grasslands, and deserts under the 13th Five-year Plan[1]. 2023 also saw the selection of the first batch of 55 national ecological quality comprehensive monitoring stations, marking a significant step forward in establishing the national ecological quality monitoring network.

(4) Enhancing the carbon sink capacity of ecosystems

The Ministry of Natural Resources, along with three other departments, issued the Implementation Plan for Consolidating and Enhancing Ecosystem Carbon Sink Capacity, rolling out effective measures to boost the nation's ecosystem carbon sink capacity. China also undertook top-level design for ocean carbon sinks and developed an action plan to consolidate and enhance ocean carbon sink capacity. Efforts were made to increase the scope of forest and grassland carbon sinks, accelerate the development of a market-oriented and diversified compensation mechanism for these carbon sinks, and promote their participation in the national carbon emissions trading system. Through completing surveys on carbon storage in over 40 typical distribution areas of mangroves, coastal salt marshes, and seagrass beds nationwide, China has gradually gained insight into the baseline conditions of blue carbon ecosystems[2]. Pilot work on carbon storage surveys and carbon sink monitoring were also carried out.

(5) Enhancing biodiversity conservation

The Ministry of Ecology and Environment released the China National

[1] Huang Runqiu: "Studying and Implementing the Guiding Principles of the National Conference on Ecological and Environmental Protection, and Promoting the Modernization Featuring Harmonious Coexistence Between Humanity and Nature with the Building of a Beautiful China – Work Report to the National Conference on Ecological and Environmental Protection in 2024", Chin. ed., Ministry of Ecology and Environment website, January 23, 2024.

[2] Ministry of Natural Resources: "China Natural Resources Bulletin 2023", Chin. ed., Ministry of Natural Resources website, February 28, 2024.

Biodiversity Conservation Strategy and Action Plan (2023-2030) and, in collaboration with relevant departments, developed the Implementation Plan for Major Projects on Biodiversity Conservation[1]. Additionally, the Ministry of Natural Resources, along with four other departments, issued the National Botanical Garden System Layout Plan, which proposes establishing an ex-situ plant conservation system with national botanical gardens at its core[2].

(6) Realizing the value of ecological products

In 2023, China designated the seventh list of 53 Green Economy Innovation Bases, and the pilot program for delegating ownership over public-owned natural resource assets was successfully completed, leading to the compilation of more than 200 exemplary cases nationwide. Efforts were intensified to promote pilot projects, with research focused on realizing the value of ecological products in the natural resources sector, culminating in the publication of the fourth batch of exemplary cases on the realization of ecological product value[3]. Reforms in collective forest tenure were deepened, alongside the launch of precision forest quality enhancement initiatives and the development of national strategic forest reserves[4]. Forestry carbon sink pilots were initiated, and a sustainable forest management

[1] Huang Runqiu: "Studying and Implementing the Guiding Principles of the National Conference on Ecological and Environmental Protection, and Promoting the Modernization Featuring Harmonious Coexistence Between Humanity and Nature with the Building of a Beautiful China – Work Report to the National Conference on Ecological and Environmental Protection in 2024", Chin. ed., Ministry of Ecology and Environment website, January 23, 2024.

[2] Ministry of Natural Resources: "Natural Resources Work Report 2023: Adhere to Green Development, Promote Harmony Between Humanity and Nature", Chin. ed., Ministry of Natural Resources website, January 9, 2024.

[3] Ministry of Natural Resources: "China Natural Resources Bulletin 2023", Chin. ed., Ministry of Natural Resources website, February 28, 2024.

[4] Ministry of Natural Resources: "Natural Resources Work Report 2023: Adhere to Green Development, Promote Harmony Between Humanity and Nature", Chin. ed., Ministry of Natural Resources website, January 9, 2024.

pilot project was implemented across a total area of 181,000 hectares. By the end of the year, the outstanding balance of forestland mortgage loans had reached RMB153.3 billion[1].

4. Advancing efforts towards peak carbon emissions and carbon neutrality

In 2023, China shifted its focus from controlling the total amount and intensity of energy consumption to controlling the total amount and intensity of carbon emissions. This involved refining the national carbon trading system, launching pilot programs aimed at achieving peak carbon emissions, and demonstrating innovative green and low-carbon technologies. Furthermore, the groundwork was laid for a comprehensive policy framework to manage carbon footprints, advancing progress towards peak carbon emissions and carbon neutrality goals.

(1) A shift from controlling the total amount and intensity of energy consumption to controlling the total amount and intensity of carbon emissions

The second meeting of the Commission for Further Reform under the CPC Central Committee reviewed and endorsed the Guidelines on Promoting the Gradual Transition from Controlling the Total Amount and Intensity of Energy Consumption to Controlling the Total Amount and Intensity of Carbon Emissions. This document outlines a systematic plan for transitioning from energy consumption controls to carbon emission controls, and sets forth a phased approach for this shift, enhancing the current energy consumption control system

[1] Office of the National Greening Commission: "Bulletin on the Status of China's Land Greening in 2023", Chin. ed., State Council website, March 12, 2024.

while strengthening the necessary infrastructure and regulatory framework for carbon emission controls. The document further defines the policy to curb carbon emissions and reliance on high-carbon energy sources, signaling a greater focus on developing and utilizing renewable energy. In the long term, the document will provide institutional guarantees to foster coordinated progress in carbon reduction, energy transition, and economic growth, ensuring a measured approach towards achieving peak carbon emissions and carbon neutrality.

(2) Improving the national carbon trading system

Efforts to refine the national carbon emissions trading market system continued throughout 2023, with a focus on supervising and enhancing the quality of carbon emissions reporting data. The second phase of carbon monitoring and evaluation pilots was launched, improving the technical guidelines and standards for carbon monitoring and thereby enhancing the scientific accuracy of using monitoring data to verify accounting data. Carbon emissions reporting and verification activities were advanced in key sectors, including petrochemicals, chemicals, construction materials, steel, non-ferrous metals, papermaking, and civil aviation, to set the stage for expanding the sectoral coverage of the carbon market.

Progress was made in developing a national voluntary carbon market, marked by the issuance of the Management Measures for Voluntary Greenhouse Gas Emission Reduction Trading (For Trial Implementation)[1] and the Notice on the Arrangement of Work in the National Greenhouse Gas Voluntary Emission Reduction Trading Market[2]. Methodologies for voluntary carbon emission reduction projects, such as afforestation carbon sinks, grid-connected solar-thermal power

[1] Ministry of Ecology and Environment et al.: "Management Measures for Voluntary Greenhouse Gas Emission Reduction Trading (For Trial Implementation)", Chin. ed., October 19, 2023.

[2] Ministry of Ecology and Environment: "Notice on the Arrangement of Work in the National Greenhouse Gas Voluntary Emission Reduction Trading Market", Chin. ed., October 24, 2023.

generation, grid-connected offshore wind power generation, and mangrove planting, as well as rules for voluntary carbon emissions trading, settlement, registration, and recordation, were released. These developments pave the way for the official launch of the national voluntary carbon emissions trading market.

(3) Launching pilot programs for reaching peak carbon emissions and demonstrating green low-carbon technologies

The National Peak Carbon Emissions Pilot Construction Plan was issued in November, proposing 100 representative cities and industrial parks nationwide to act as pilot zones for reaching peak carbon emissions. This plan is designed to explore feasible pathways for cities and parks with varying resource endowments and developmental bases, offering operable, replicable, and scalable models for the rest of the country. In November 2023, after an NDRC evaluation, Zhangjiakou was selected as one of 25 peak carbon emissions pilot cities, and Changzhi High-Tech Industrial Development Zone was chosen as one of 10 peak carbon emissions pilot parks in the first batch of pilot zones.

The Implementation Plan for Demonstration Projects of Advanced Green and Low-Carbon Technologies was also released, opening the application process for the initial set of demonstration projects and expediting the demonstration and application of advanced and applicable green and low-carbon technologies. The key technological directions were categorized into source carbon reduction, process carbon reduction, and end-of-pipe carbon fixation. Focusing on the frontiers of green and low-carbon science and technology innovation in sectors such as energy, industry, construction, and transportation, the plan includes advanced and applicable technologies that are close to maturity but have not yet been commercially deployed. This approach provides a pathway for their commercialization, facilitating the transition from research to practical application.

(4) Refining the policy framework for managing carbon footprints

The Guidelines for the Establishment of a Standard System for Peak Carbon Emissions and Carbon Neutrality was issued in April, emphasizing the development needs in areas such as carbon reduction, carbon removal, and carbon market mechanisms. These guidelines propose establishing a comprehensive standard system for reaching peak carbon emissions and carbon neutrality across key sectors, including energy, industry, transportation, urban and rural development, water resources, agriculture, forestry, and finance. Furthermore, the Guidelines on Accelerating the Establishment of a Product Carbon Footprint Management System was introduced, which advocate for creating standards to calculate product carbon footprints, developing a comprehensive carbon footprint database, establishing a product carbon labeling certification system, expanding the application scenarios of product carbon footprints, and aligning carbon footprint practices internationally for mutual recognition. These measures aim to foster a product carbon footprint management system that is suited to national conditions, guiding the transition towards greener and more sustainable production and lifestyle choices.

(5) Introducing policies for methane management

The Action Plan for Methane Emissions Control was unveiled in November, which set methane emission control goals for key sectors by 2030. The action plan highlights the importance of enhancing the framework for methane emissions monitoring, reporting, and verification, and calls for expediting methane emission control actions in sectors such as coal mining, oil and gas production, agriculture, and waste management. It lays out a systematic plan for China's efforts to control methane emissions over the upcoming period.

III. New Achievements in Green Development

The pace of green transformation in China's economic and social development continued to accelerate throughout 2023, with new progress seen in areas such as environmental pollution control, ecosystem quality, low-carbon development, and international cooperation.

1. Accelerating green development in economic and social sectors

The economical and intensive utilization of resources in China has continued to increase, and the rapid development of green finance has further facilitated the country's green transformation. Green consumption has continued to expand, and the "green content" of economic and social development has continued to grow.

(1) A continuous green transformation of the industrial structure

The recovery of the services sector and the strong growth of modern services have both bolstered the green transition. In 2023, the value-added of the services sector increased by 5.8 percent year on year, accounting for an increase of 1.2 percentage points in its share of GDP. This raised the contribution rate to national economic growth to 60.2 percent. The construction of green factories, green industrial parks, and green supply chains accelerated, unleashing a new driving force for green growth. At the national level, a total of 5,095 green factories, 371 green industrial parks, 605 enterprises engaged in green supply chain management, and

nearly 35,000 green products have been developed[1].

(2) More economical and intensive utilization of resources

According to the National Bureau of Statistics and the Ministry of Water Resources, China's total water consumption in 2023 was 590.7 billion cubic meters, a decrease of 1.5 percent from the previous year; the water consumption per RMB10,000 of GDP and the water consumption per RMB10,000 of industrial value-added decreased by 6.4 percent and 3.9 percent, respectively. The effective utilization coefficient of irrigation water in farmland rose to 0.576, and the efficiency and benefits of water use continued to improve. The comprehensive energy consumption per unit calcium carbide by key energy-intensive industrial enterprises fell by 0.8 percent, and per unit electrolytic aluminum was down by 0.1 percent on the previous year. The standard coal consumption per kilowatt-hour of thermal power generation decreased by 0.2 percent. The national energy consumption per RMB10,000 of GDP decreased by 0.5 percent. Data from the Ministry of Natural Resources shows that in 2023, over 8 million *mu*, or about 533,000 hectares of unused and idle land, was revitalized. The first batch of 258 demonstration counties or cities for the economical and intensive use of natural resources was announced, including 183 for land resources, 57 for mineral resources, and 18 for marine resources. In addition, China continued to increase the recycling and utilization of renewable resources, with the amount of scrap steel reused in China in 2023 increasing to 260 million tonnes, meeting more than 20 percent of crude steel

[1] Office of the Ministry of Industry and Information Technology: "Notice on Publishing the List of Green Manufacturing for 2023 and the Pilot Implementation of 'Green Codes' for Enterprises", Chin. ed., December 29, 2023.

production needs[1].

(3) Rapid development of green finance

As the world's largest market for green credit, China maintained strong growth momentum in its green credit sector in 2023, underscoring its leadership in global green finance. According to the People's Bank of China, as of the end of 2023, the balance of domestic and foreign currency green loans rose by RMB8.48 trillion to reach RMB30.08 trillion, representing a year-on-year increase of 36.5 percent, 26.4 percentage points higher than the growth rate of all other types of loans. Among these loans, those for projects with direct and indirect carbon emission reduction benefits amounted to RMB10.43 trillion and RMB9.81 trillion, respectively, accounting for a total of 67.3 percent of all green loans. The amount of green bonds issued remained at a high level. According to the Report on the Operation of the Green Bond Market in 2023, a total of 1,310 "green investment" bonds were issued during the year, with a total issuance volume of RMB1,675.5 billion. Of this total, RMB844.8 billion were labeled green bonds, and RMB830.7 billion were unlabeled green bonds[2]. The green insurance market also experienced growth. According to the State Administration for Market Regulation, China's green insurance premium income reached RMB229.7 billion in 2023, with claims payouts totaling RMB121.46 billion.

(4) Significant results in the green transformation of key consumption areas

In 2023, China's green consumer market experienced rapid growth. The

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[1] "Zheng Shanjie Takes Reporters' Questions at the Press Conference on Economic Issues at the Second Session of the 14th NPC", Chin. ed., National Development and Reform Commission website, March 6, 2024.

[2] Shang Jin, Wei Yujia, Zhang Jintao: "Report on the Operation of the Green Bond Market in 2023", Chin. ed., *China Bond*, 2024 (2), pp. 57-65.

market penetration rate for NEVs in both urban and rural areas rose to 31.6 percent, an increase of 5.9 percentage points from 2022, marking the ninth consecutive year that China has led the world in NEV market penetration. During the May Day holiday period, sales of energy-saving appliances and smart home appliances at the physical stores of an enterprise increased by more than 50 percent nationwide. Green logistics also improved in 2023, with data from the State Post Bureau showing that the proportion of e-commerce parcels not requiring secondary packaging exceeded 95 percent, with over 1 billion reusable packages used for mail and express items, and more than 820 million high-quality corrugated cardboard boxes being reused or recycled, surpassing the annual targets. Additionally, the trading of second-hand items continued to develop, with statistics from a major second-hand trading platform showing that over 100 million people listed second-hand goods on the platform in 2023, with daily transaction volumes exceeding RMB1 billion.

2. New achievements in environmental pollution control

In 2023, despite facing compounded pressures from increased pollutant emissions due to economic recovery and adverse meteorological conditions, China managed to overcome numerous challenges and achieved notable progress in stabilizing and enhancing environmental quality.

(1) Annual air quality targets achieved

The average proportion of days with good air quality in 339 cities at or above the prefecture level in 2023 was 85.5 percent, with this figure rising to 86.8 percent when adjusting for days impacted by dust storms, exceeding the annual target by 0.6 percentage points. The annual average concentration of PM2.5 was 30 micrograms per cubic meter, nearly 3 micrograms per cubic meter below the annual

target. The average concentration of ozone was 144 micrograms per cubic meter, a decrease of 0.7 percent from the previous year. The average concentration of sulfur dioxide remained steady at 9 micrograms per cubic meter, consistent with levels seen in 2022[1]. Over the past decade, concentrations of primary air pollutants (excluding ozone) in cities at or above the prefecture level have seen significant reductions (see Figure 4-1), indicative of a sustained improvement in air quality.

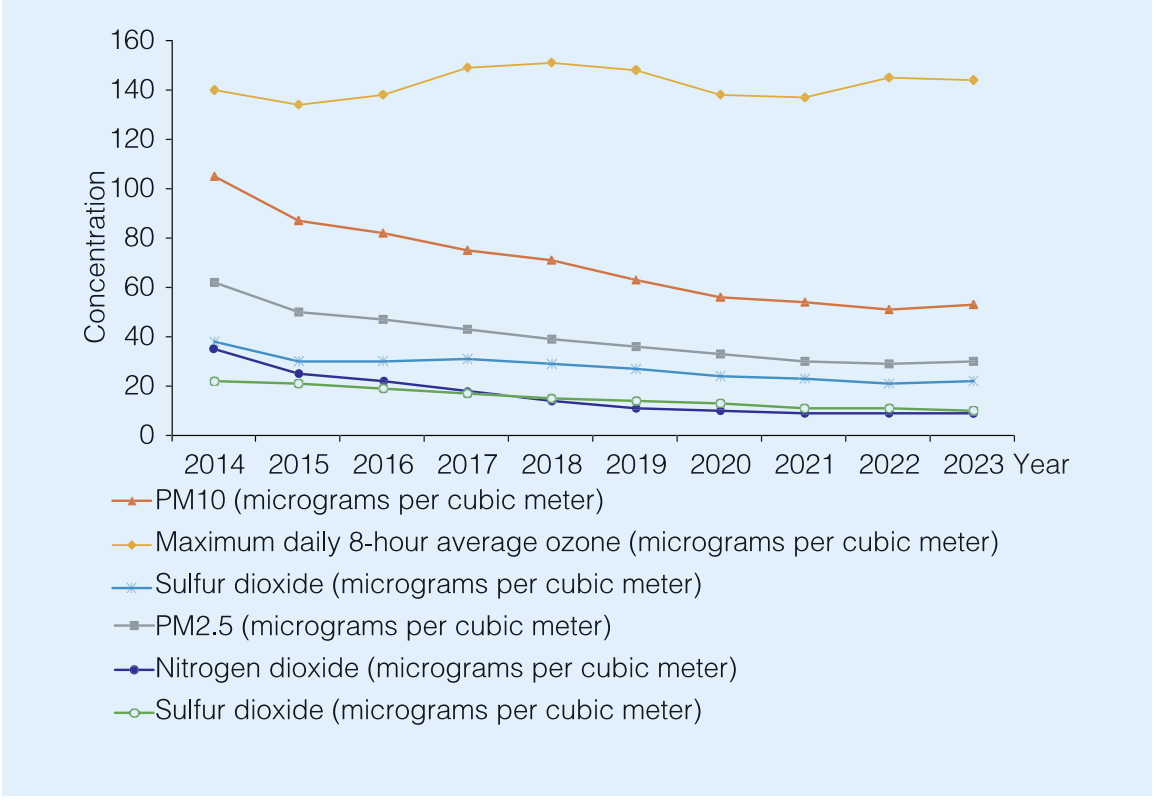

Figure 4-1 Concentrations of Major Air Pollutants (Excluding Ozone) in Prefecture-Level and Above Cities Nationwide, 2014-2023

Source: Bulletins on the State of China's Ecological Environment, 2014-2023.

[1] Ministry of Ecology and Environment: "Ministry of Ecology and Environment Releases National Ambient Air Quality Conditions for December and January-December 2023", Chin. ed., Ministry of Ecology and Environment website, January 25, 2024.

(2) Improved water environment quality

The proportion of water sections with good to excellent surface water quality (Grade I, II, and III) nationwide reached 89.4 percent, an increase of 1.5 percentage points year on year. The proportion of sections with very poor water quality (inferior Grade V) stood at 0.7 percent, unchanged from 2022. For major rivers, the proportion of sections with good to excellent water quality (Grade I, II, and III) was 91.7 percent, up 1.5 percentage points. The proportion of sections with very poor water quality (inferior Grade V) was 0.4 percent, the same as in 2022. For lakes (reservoirs), the proportion of good to excellent water quality (Grade I, II, and III) reached 74.6 percent, up 0.8 percentage points. The proportion of very poor water quality (inferior Grade V) was 4.8 percent, unchanged from 2022[1]. Up to 96.5 percent of drinking water sources serving urban communities in cities at the prefecture level and above and 94.8 percent in county-level towns met the required standards, marking year-on-year increases of 0.6 and 0.9 percentage points, respectively. The overall water quality of nearshore sea areas nationwide continued to improve, with the proportion of areas with good to excellent water quality (Grade I and II) reaching 85.0 percent, an increase of 3.1 percentage points. The proportion of areas with worse than Grade IV water quality was 7.9 percent, a decrease of 1.0 percentage points[2]. Over the past decade, the quality of surface water in China has significantly improved (see Figure 4-2), with steady rises observed in the water quality of major rivers, lakes (reservoirs), and coastal seas.

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[1] Ministry of Ecology and Environment: "Ministry of Ecology and Environment Announces the National Environmental Quality of Surface Water for the Fourth Quarter and January-December 2023", Chin. ed., Ministry of Ecology and Environment website, January 25, 2024.

[2] National Bureau of Statistics: "Statistical Bulletin on the National Economic and Social Development of the People's Republic of China in 2023", Chin. ed., National Bureau of Statistics website, February 29, 2024.

(3) Soil environmental risks essentially under control

Soil environmental risks have largely been brought under control, and the trend of soil pollution has been curbed. The safe utilization rate of agricultural land has now reached 91 percent, and the soil environment status of agricultural lands is now generally stable, with heavy metal content at key risk monitoring points for soil showing an overall downward trend[1].

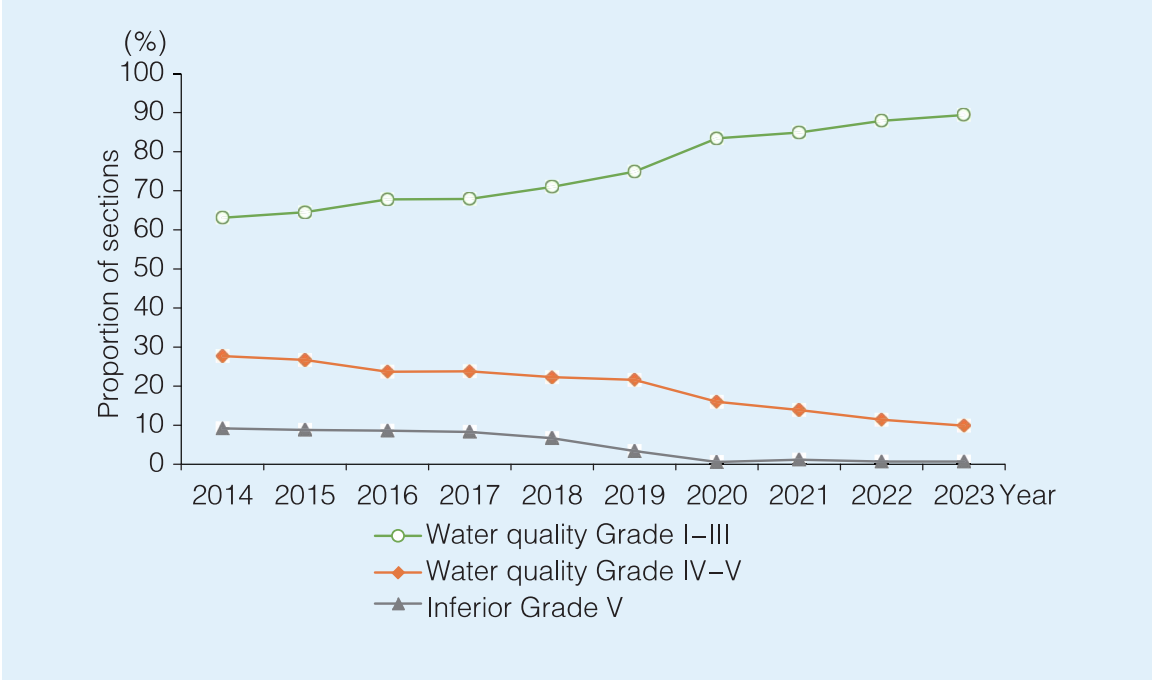

Figure 4-2 Surface Water Quality Nationwide, 2014-2023

Note: China began recording surface water environment quality in 2014.
Source: Bulletins on the State of China's Ecological Environment, 2014-2023.

(4) Steady improvement in rural living environments

The rural living environment in China has continued to improve, with the national penetration rate of sanitary toilets in rural areas surpassing 73 percent,

[1] Ministry of Ecology and Environment: "Bulletin on the State of China's Ecological Environment in 2023", Chin. ed., Ministry of Ecology and Environment website, June 5, 2024.

and the sanitary sewage treatment rate rising above 40 percent[1]. Over 2,200 large black, malodorous water bodies in rural areas have been remediated, and the proportion of villages where household waste is collected and treated has reached 91 percent. The safety of drinking water in rural areas steadily improved in 2023, with access to tap water in rural areas now standing at 87 percent. The rate of clean-energy heating in the rural areas of north China has also grown, now exceeding 62 percent[2].

3. Steady improvement in ecosystem quality

In 2023, substantial progress was made in protecting and restoring ecosystems, contributing to a steady increase in their diversity, stability, and sustainability.

(1) Further optimization of national ecological security dynamics

China has made progress in setting ecological conservation red lines (ECRLs) and integrating and optimizing nature reserves, incorporating critical and exceedingly fragile functional areas into the ECRL system. More than half of these areas have been designated as nature reserves, reinforcing the country's ecological security barrier, which is structured around Three Eco-Zones and Four Shelterbelts[3].

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[1] Huang Runqiu: "Studying and Implementing the Guiding Principles of the National Conference on Ecological and Environmental Protection, and Promoting the Modernization Featuring Harmonious Coexistence Between Humanity and Nature with the Building of a Beautiful China – Work Report to the National Conference on Ecological and Environmental Protection in 2024", Chin. ed., Ministry of Ecology and Environment website, January 23, 2024.

[2] Zheng Shanjie: "Mid-Term Evaluation Report on the Implementation of the Outline of the 14th Five-Year Plan for National Economic and Social Development and Long-Range Objectives Through the Year 2035", Chin. ed., National People's Congress website, December 27, 2023.

[3] Ministry of Natural Resources: "Natural Resources Work Report 2023: Adhere to Green Development, Promote Harmony Between Humanity and Nature", Chin. ed., Ministry of Natural Resources website, January 9, 2024.

The ECRL area has stabilized at over 3.15 million square kilometers, with a slight increase of about 7 square kilometers following adjustments, to ensure that 99 percent of mangrove forests are now protected under the ECRL framework[1].

(2) New achievements in ecological protection and restoration

In 2023, a total of 63,000 square kilometers of land was saved from soil erosion, and 505 ecologically clean small watersheds were built. About 1.81 million hectares of land that had undergone desertification was sealed off for protection[2]. Plans were made to improve and restore 125 kilometers of coastline and 198,000 *mu*, or about 13,200 hectares of coastal wetlands[3]. Since the 13th Five-year Plan, China has supported a total of 175 marine ecological protection and restoration projects in coastal cities, restoring 1,680 kilometers of coastlines and over 50,000 hectares of coastal wetlands. The area of mangrove forests in the country has expanded to 29,000 hectares, making China one of the few countries globally with a net increase in mangrove forest area[4]. By the end of 2023, through the implementation of 52 projects for the integrated protection and restoration of mountains, rivers, forests, farmland, lakes, grasslands, and deserts under the 13th Five-year Plan, China had completed the protection and restoration of more than 7.7 million hectares of land[5].

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[1] Ministry of Natural Resources: "China Natural Resources Bulletin 2023", Chin. ed., Ministry of Natural Resources website, February 28, 2024.

[2] Office of the National Greening Commission: "Bulletin on the Status of China's Land Greening in 2023", Chin. ed., State Council website, March 12, 2024.

[3] Ministry of Natural Resources: "Natural Resources Work Report 2023: Adhere to Green Development, Promote Harmony Between Humanity and Nature", Chin. ed., Ministry of Natural Resources website, January 9, 2024.

[4] Ministry of Natural Resources: "Bulletin of China's Natural Resources in 2023", Chin. ed., Ministry of Natural Resources website, February 28, 2024.

[5] Ministry of Natural Resources: "Bulletin of China's Natural Resources in 2023", Chin. ed., Ministry of Natural Resources website, February 28, 2024.

(3) Notable achievements in afforestation

Almost 4 million hectares of trees were planted across China in 2023, including 1.33 million hectares of man-made forests and 66,000 hectares through aerial seeding. The country also closed off around 1 million hectares of forests for regeneration and restored around 1.5 million hectares of degraded forests. Approximately 1.06 million hectares of forests were tended, 172 million hectares of natural forests were effectively protected, and an additional 564,000 hectares of national reserve forests were developed. Also in 2023, 4.379 million hectares of land was enhanced through sowing grass, with 1.054 million hectares of artificial grass planting and 3.325 million hectares of grassland improvement. Plans were made for the construction of 20,000 hectares of grass seed breeding bases, and the assessment of grassland health and degradation was completed for the first group of 11 provinces and regions[1].

(4) Effective strengthening of biodiversity conservation

As of the end of 2023, 74 percent of nationally protected terrestrial wildlife species, 65 percent of higher plant communities, and 90 percent of terrestrial ecosystem types were under effective protection, with the populations of more than 300 rare and endangered wild species, including giant pandas, pangolins, and cycads, showing steady growth[2] as a result of rescue efforts[3]. The List of Key Terrestrial Wildlife Habitats (First Batch) has been implemented, covering 789 key habitats for terrestrial wildlife across 31 provinces and regions and encompassing

[1] Office of the National Greening Commission: "Bulletin on the Status of China's Land Greening in 2023", Chin. ed., State Council website, March 12, 2024.

[2] Ministry of Natural Resources: "Natural Resources Work Report 2023: Adhere to Green Development, Promote Harmony Between Humanity and Nature", Chin. ed., Ministry of Natural Resources website, January 9, 2024.

[3] Ministry of Natural Resources: "Bulletin of China's Natural Resources in 2023", Chin. ed., Ministry of Natural Resources website, February 28, 2024.

127 mammal species, 339 bird species, 62 amphibian and reptile species, and 37 insect species[1]. These habitats include breeding grounds and migratory routes for 565 terrestrial wildlife species under national Grade I and Grade II protection[2].

4. New achievements in low-carbon development

In 2023, China saw an acceleration in the development of low-carbon industries. The green and low-carbon attributes of energy became increasingly evident, and the development of carbon markets achieved notable progress.

(1) Accelerated development of green and low-carbon industries

The NEV sector experienced robust growth in 2023, with the production and sales of NEVs reaching 9.587 million and 9.495 million units, respectively, marking year-on-year increases of 35.8 percent and 37.9 percent, with a market share of 31.6 percent[3]. For the ninth consecutive year, China's NEV production and sales led the world, accounting for more than 60 percent of the global market[4], with NEV exports reaching 1.2 million units, setting a record high as a percentage of total domestic exports. The wind power and PV industries also demonstrated a strong competitive edge, with the output of key components such as wind turbine

[1] National Forestry and Grassland Administration: "National Forestry and Grassland Administration Announcement No. 23 of 2023 (List of Key Terrestrial Wildlife Habitats (First Batch))", Chin. ed., December 20, 2023.

[2] National Forestry and Grassland Administration: "National Forestry and Grassland Administration Announcement No. 23 of 2023 (List of Key Terrestrial Wildlife Habitats (First Batch))", Chin. ed., December 20, 2023.

[3] Gao Kang, Wang Yueyang: "China's Automobile Production and Sales Volume Exceeded 30 Million Units for the First Time in 2023", Chin. ed., Xinhua News Agency, January 11, 2024.

[4] Zhang Juanjuan: "China's New Energy Vehicles Enjoy a Significant Lead, Accounting for More Than 60 Percent of Global Output", Chin. ed., *Securities Times* website, March 6, 2024.

generators accounting for over 70 percent of the global market, while the output of PV materials like polysilicon, silicon wafers, cells, and modules all exceeded 80 percent of the global market. In 2023, the output of polysilicon, silicon wafers, cells, and modules reached 1.43 million tonnes, 622 GW, 545 GW, and 499 GW, respectively, representing year-on-year growth rates of 66.9 percent, 67.5 percent, 64.9 percent, and 69.3 percent, and achieving a total industrial output value of over RMB1.7 trillion. Silicon wafer exports reached 70.3 GW, up more than 93.6 percent year on year; cell exports reached 39.3 GW, up 65.5 percent; and module exports reached 211.7 GW, up 37.9 percent[1]. The robust green industry has significantly contributed to the steady growth of China's economy and the transformation and upgrading of its industries.

(2) More pronounced green and low-carbon characteristics in the energy system

Positive outcomes were achieved in adjusting the energy mix. Non-fossil energy sources have rapidly become the primary increment in China's energy supply, accounting for over 40 percent of the total increase in energy production in 2023. A diversified and clean energy consumption system is now rapidly taking shape, with the number of charging facilities for NEVs reaching approximately 8.6 million nationwide by the end of 2023, more than five times the number in 2020. During the 14th Five-year Plan period, the electrification rate of society-wide final energy consumption rose by about 1 percentage point annually, and renewable energy development continued to see new breakthroughs. As of the end of 2023, the installed capacity of renewable energy generation exceeded 150 gigawatts, surpassing 50 percent of the total installed capacity of power generation. For the

[1] Liu Yuying: "China's Photovoltaic Industry Total Output Value Exceeded RMB1.7 Trillion in 2023", Chin. ed., China News, February 28, 2024.

first time in history, this capacity overtook that of thermal power, accounting for nearly 40 percent of the global total installed capacity of renewable energy power generation. Specifically, the installed capacity of wind and PV exceeded 100 gigawatts, representing more than one-third of the total installed capacity of power generation. The annual additions in wind and PV capacity doubled, approaching 60 percent of global annual additions[1].

(3) Notable achievements in developing a national carbon market

The national carbon emissions trading market experienced steady and orderly development, with improvements made to the allocation method of carbon emission allowances and orderly settlement processes during the second compliance period. This led to a gradual increase in market maturity. The price discovery mechanism of the market also began to take effect, alongside progress in market expansion, data management, evaluation and verification systems, and legislation on carbon emissions trading. Increased business participation and activity resulted in rising volumes and prices in the national carbon market transactions. As of the end of 2023, the volume and value of carbon emission allowances (CEA) traded reached 212 million tonnes and RMB14.444 billion, respectively, with the closing price of CEA at 79.42 yuan per tonne. The market's role in promoting greenhouse gas emission reduction and low-carbon transition has started to become evident. According to China Electricity Council, the carbon dioxide emissions intensity per unit of power generation decreased by 0.2 percent (approximately 540 grams per kilowatt-hour) in 2023 compared to the previous year, while the carbon dioxide emissions intensity per unit of thermal power generation decreased by 0.4 percent (approximately 821 grams per kilowatt-hour). There was a major breakthrough

[1] China Renewable Energy Engineering Institute: "China Renewable Energy Development Report 2023", Chin. ed., June 28, 2024.

in the resumption of registration and issuance of China Certified Emission Reductions (CCER), with improvements in the basic systems for registration, trading settlement, and other important mechanisms and infrastructure. Demand for CCER surged in the fourth quarter of 2023, driving the total transaction volume to 15.3 million tonnes, a substantial increase of 92 percent compared to 2022.

5. New achievements in international cooperation

In 2023, China made significant strides in international cooperation on environmental protection, especially in biodiversity conservation and climate change mitigation. As the chair of the 15th Conference of the Parties to the Convention on Biological Diversity (COP15), China maintained a strong commitment throughout the year to implementing the Kunming-Montreal Global Biodiversity Framework. The principle of green development was integrated into all facets of the Belt and Road Initiative, solidifying the initiative's commitment to sustainability. Bilateral engagements between China, Germany, and France in green industries and climate matters deepened, highlighted by the establishment of the Sino-French Center for Carbon Neutrality, which underscores reinforced Sino-European climate collaboration. China also signed memoranda of understanding on South-South cooperation on climate change with several developing countries, implementing 25 South-South cooperation initiatives, including the "African Light Belt" initiative, along with collaborative efforts to build low-carbon demonstration zones, implement mitigation and adaptation projects, and provide capacity-building training programs for fellow developing countries. In July and November 2023, China's Special Envoy for Climate Change and the US Special Presidential Envoy for

Climate convened twice, jointly issuing statements that underscored enhanced cooperation in addressing the climate crisis. These meetings led to the launch of the US-China Working Group on Enhancing Climate Action in the 2020s. The Sunnylands Statement on Enhancing Cooperation to Address the Climate Crisis, released by China and the United States, conveyed a positive signal of climate cooperation between the two major countries. This statement marked another significant milestone in China-US climate cooperation, following the Joint Glasgow Declaration on Enhancing Climate Action in the 2020s. Subsequently, the heads of state of China and the United States convened in San Francisco, reaching a consensus on climate change cooperation. Both countries agreed to initiate the Working Group on Enhancing Climate Action to expedite cooperation in areas such as energy transition, methane and other non-CO2 greenhouse gas emissions, circular economy and resource utilization efficiency, local cooperation, forest conservation, synergies in reducing greenhouse gases and air pollutants, nationally determined contributions for 2035, and COP28. During COP28, the Chinese delegation hosted or attended 75 bilateral meetings, 15 multilateral events, and over 100 side events at the China Pavilion, playing a pivotal role in the conference's success.

Chapter Five
Open Development

Opening up is a fundamental aspect of China's new development philosophy and a defining feature of Chinese modernization, as well as the only path for the country to achieve prosperity. In 2023, the world faced an increasing number of serious and complex international challenges, driven in part by the sluggish recovery of the world economy. Intertwined economic and non-economic factors resulted in reductions in the global goods trade and weak cross-border direct investment. In this context, China launched a number of major measures to stabilize foreign trade and attract foreign investment, in pursuit of high-standard opening up and broader international economic and trade cooperation. By ensuring stable inward and outward investment performance and enlarging the country's network of friends under the Belt and Road Initiative (BRI), China has continued to move towards the goal of becoming a strong trading nation, as it endeavors to build a new development dynamic, pursue high-quality development, and inject fresh impetus into world economic recovery.

I. Foreign Trade Remained Resilient

Foreign trade is a crucial driver of China's economic growth. In 2023, slow global economic growth, international supply chain reconfiguration, and intensified geopolitical competition contributed to increased external complexity and uncertainty. Under the impact of intertwined dynamics, global trade contracted, with trade in goods decreasing by 1.2 percent in volume and 4.6 percent in value.

Facing numerous challenges, China worked to stabilize the volume of foreign trade and improve its mix through stronger policy support. Throughout the year, China's foreign trade withstood the pressure, with its share in the international market remaining steady, and its new business forms and models growing at a faster pace. This allowed the country to meet its goals of increasing both the volume and quality of foreign trade as it continued its progress in building a strong trading nation.

1. Strengthening policy support for stabilizing the volume and improving the mix of foreign trade

(1) Strengthening policy support for greater trade liberalization and facilitation

Throughout the year, China worked to increase both the volume and quality of foreign trade. Trade facilitation was made a priority in fostering the coordinated development of domestic and foreign trade, as reflected in documents issued by the General Office of the State Council, such as the Guidelines on Stabilizing the Volume and Improving the Mix of Foreign Trade and Several Measures for Accelerating the Integration of Domestic and Foreign Trade. These documents outline actions designed to explore a broader marketplace, accelerate innovation-driven development, harmonize domestic and foreign trade rules and systems, and integrate domestic and foreign trade markets and channels.

China continued to lower tariffs on its own initiative. Starting from January 1, 2023, provisional import tax rates lower than the most-favored-nation tariff rates were implemented for 1,020 tariff lines, an increase of 66 commodities from the

previous year[1], reducing the country's overall tariff level to 7.3 percent.

Customs clearance was also further facilitated, with the General Administration of Customs launching 16 measures for optimizing the business environment and the Plan for Implementing the Integrated Reform for High-Quality Development of Integrated Bonded Areas, while further progress was made in building single windows for international trade with the addition of 77 new services. China's accession to the Convention Abolishing the Requirement of Legalization for Foreign Public Documents, which significantly reduces the costs for cross-border use of public documents, is expected to benefit more than 70 percent of China's export trade. By the end of 2023, China had entered into mutual recognition arrangements of Authorized Economic Operators with 52 countries and regions, the highest number in the world.

China continued to upgrade its processing trade. The Ministry of Commerce (MOFCOM) and other departments jointly issued the Guidelines on Enhancing Processing Trade, which encourages processing trade of high-added-value products, promotes the development of bonded maintenance business, and creates channels for the relocation of processing trade, to accommodate the dynamics of China's engagement in the international division of labor.

Efforts were also stepped up to make cross-border trade settlement easier by supporting cross-border Renminbi settlement for trade in goods, trade in services, and new forms of trade under the current account, as well as for facilitating the receipt and payment of foreign exchange funds under the current account (see Table 5-1).

[1] Customs Tariff Commission of the State Council: "Tariff Adjustment Plan for 2023", Chin. ed., December 28, 2022.

Table 5-1 Policy Documents on Trade Issued by China in 2023

Objective	Issued by	Document	Main measures	Time issued
Steady increases in foreign trade volume and quality	General Office of the State Council	Guidelines on Stabilizing the Volume and Improving the Mix of Foreign Trade	(1) Enhancing trade promotion to explore markets (2) Stabilizing and expanding import and export of key products (3) Intensifying fiscal and financial support, and working on establishing a phase-2 guide fund for innovation-driven development of trade in services (4) Speeding up innovation-driven development of foreign trade, with support for foreign trade enterprises in opening up new sales channels and growing their own brands with the help of cross-border e-commerce and other new business types and models (5) Improving the environment for foreign trade development	April 2023

Objective	Issued by	Document	Main measures	Time issued
Steady increases in foreign trade volume and quality	General Office of the State Council	Several Measures for Accelerating the Integration of Domestic and Foreign Trade	(1) Harmonizing domestic and foreign trade rules and systems (2) Integrating domestic and foreign trade markets and channels (3) Improving the environment for integrating domestic and foreign trade (4) Accelerating integration in key sectors (5) Increasing fiscal and financial support	December 2023
	Ministry of Commerce and nine other departments	Guidelines on Enhancing Processing Trade	(1) Encouraging processing trade of high-added-value products (2) Promoting the development of bonded maintenance business in integrated bonded areas and pilot free trade zones (3) Building channels for the relocation of processing trade (4) Increasing support for border areas (5) Strengthening fiscal, taxation and financial policy support (6) Ensuring transportation, logistics, and energy supply	December 2023

Objective	Issued by	Document	Main measures	Time issued
Trade facilitation	Ministry of Finance, General Administration of Customs, State Administration of Taxation	Announcement on Tax Policies for Return Goods Exported via Cross-Border E-Commerce	Exempting import tariffs, value-added tax, and consumption tax for goods (excluding food) that are declared for export under cross-border e-commerce supervision codes 1210, 9610, 9710, and 9810 within one year from the date of issuance of the announcement, and are returned to China in their original forms within six months from the date of export due to sluggish sales and return of goods	January 2023
	General Administration of Customs	Sixteen Measures for Optimizing the Business Environment	(1) Facilitating import and export logistics (2) Facilitating cross-border trade (3) Reducing burdens on businesses for better performance (4) Promoting innovation-driven development of foreign trade	June 2023
	Ministry of Finance, General Administration of Customs, State Administration of Taxation	Announcement on Extending Tax Policies for Return Goods Exported via Cross-Border E-Commerce	Extending the policy time frame to December 31, 2025	August 2023

Objective	Issued by	Document	Main measures	Time issued
Trade facilitation	General Administration of Customs	Plan for Implementing the Integrated Reform for High-Quality Development of Integrated Bonded Areas	Putting forward 23 reforms in five aspects related to customs authority	August 2023
	General Administration of Customs	Announcement on Handling Matters Related to Voluntary Disclosure of Violations	Further incentivizing businesses to voluntarily disclose violations, expanding the scope of immunity from punishment, and extending the time limit for voluntary disclosure	October 2023
	General Administration of Customs	Announcement on Removing Registration Requirements for Enterprises of Origin of Goods for Export	Removing registration requirements for enterprises of origin of goods for export, and allowing application for certificates of origin directly via single windows for international trade, Internet Plus Customs, or the application system of the China Council for the Promotion of International Trade	October 2023

Objective	Issued by	Document	Main measures	Time issued
Foreign exchange facilitation	Ministry of Commerce, People's Bank of China	Circular on Further Supporting Foreign Trade Enterprises in Cross-Border Use of Renminbi to Facilitate Trade and Investment	(1) Facilitating Renminbi-denominated settlement in cross-border trade and investment (2) Supporting cross-border Renminbi settlement for trade in goods, trade in services and new forms of trade under the current account (3) Supporting Renminbi-denominated settlement of trade in bulk commodities	January 2023
	State Administration of Foreign Exchange	Circular on Further Deepening Reform to Facilitate Cross-Border Trade and Investment	Putting forward nine new policies and measures, including four for the current account: (1) Improving foreign exchange administration for market procurement trade (2) Relaxing conditions for netting settlement of processing trade receipts and expenditures (3) Refining receipts and payments for principals and agents in cross-border trade (4) Facilitating foreign exchange settlement of operating lease for domestic agencies	December 2023

Objective	Issued by	Document	Main measures	Time issued
Foreign exchange facilitation	State Administration of Foreign Exchange	Circular on Expanding the Pilot Program for High-Standard Opening Up of Cross-Border Trade and Investment	(1) Facilitating foreign exchange receipts and payments under the current account (2) Allowing ex post verification of taxation registration forms for single foreign exchange expenditures exceeding US$ 50,000 on trade in services and other categories (3) Granting piloting authorities autonomy to process new-type international trade receipt and payment business for high-quality companies within the jurisdiction of the pilot program	December 2023

Source: compiled based on publicly available information.

(2) Speeding up pilot programs for innovation-driven development of trade in services and digital trade

China supported its qualified pilot free trade zones (pilot FTZs) and the Hainan Free Trade Port to liberalize and facilitate services trade and promote the sound development of digital trade throughout 2023, implementing measures such as allowing the cross-border purchase of overseas financial services by individuals in pilot regions and prohibiting the forced transfer of source code. The 28 regions undertaking the trial for all-round, innovative development of trade in services introduced a total of 2,883 tasks and measures in the three-year trial period and produced a number of successful and innovative practices. The pilot zone for Silk

Road e-commerce cooperation in Shanghai expanded e-commerce opening up for aspects including international cooperation in data flow standards and cross-border interoperability of digital identity and electronic certification. For returned cross-border e-commerce exports that meet certain conditions, import tariffs, value-added tax (VAT), and consumption tax are exempted.

(3) Making full use of national exhibitions as key platforms for facilitating domestic and international economic flows and promoting high-quality trade development

In 2023, in-person trade fairs fully resumed in China. The China International Fair for Trade in Services (CIFTIS) grew in influence, with 83 countries and international organizations in attendance, 12 more than at the previous edition. The 133rd China Import and Export Fair (Canton Fair) broke records in terms of exhibition area, the number of exhibition booths, and the number of exhibitors. In November, the Sixth China International Import Expo (CIIE) was held in Shanghai, under the theme of "New Era, Shared Future". The CIIE serves as a platform for cooperation and exchanges among developed, developing, and least-developed economies, and 34 countries made their debut at the sixth edition, which featured a record 289 Fortune 500 companies and industry leaders in attendance. (see Table 5-2).

Table 5-2 Major International Trade Exhibitions Hosted by China in 2023

Exhibition	Number of participating countries (regions)	Number of participating businesses (brands)	Number of visitors	Transactions (outcomes)
The Third China International Consumer Products Expo	65	3,382 (brands)	320,000	—

Exhibition	Number of participating countries (regions)	Number of participating businesses (brands)	Number of visitors	Transactions (outcomes)
The 133rd Canton Fair	213	35,000	2.9 million	US$21.69 billion in exports (on-site), US$3.42 billion in exports (online)
The 134th Canton Fair	229	28,000	2.75 million	US$22.3 billion in exports (on-site)
CIFTIS 2023	83	Over 2,400 (on-site), over 6,700 (online)	280,000	Over 1,100 outcomes
The Sixth CIIE	128	3,486	410,000 (registrations)	US$78.41 billion worth of intended contracts
The Second China International Big Data Industry Expo	25	1,018 (on-site), 367 (online)	100,000	RMB155.85 billion worth of signed contracts
The First China International Supply Chain Expo	55	515	150,000	Over 200 cooperation agreements and intended contracts, worth over RMB150 billion

Source: compiled based on news reports.

2. China's trade in goods withstood the pressure and ensured stable performance

(1) A steady share in the international market

According to the United Nations Conference on Trade and Development (UNCTAD), the global trade in goods (measured by exports) in 2023 declined, despite starting strongly. Throughout the year, the overall growth rates of major

developed economies declined by about 6 percent, and by around 4 percent among developing economies. In this context, China's foreign trade remained largely stable. According to the General Administration of Customs, China's total imports and exports reached a record RMB41.8 trillion in 2023, representing a 0.2-percent growth; in US dollar terms, China's total trade amounted to US$5.94 trillion, including US$3.38 trillion in export, down by 4.6 percent year on year, and US$2.56 trillion in import, down by 5.5 percent year on year. According to the World Trade Organization (WTO), China made up 14.2 percent of global goods exports in 2023, unchanged from the previous year, the highest in the world for the 15th consecutive year (see Figure 5-1).

Figure 5-1 China's Total Trade in Goods and Share of Export in Global Total from 2005 to 2023

Source: UNCTADstat.

(2) An upgraded foreign trade mix

General trade and trade in mechanical and electrical products took up a larger share of China's total trade in 2023, rising to 64.8 percent, according to the General Administration of Customs. Trade in mechanical and electrical products accounted for 58.6 percent of the total export, an increase of approximately 1.5 percentage points over the previous year, and outstanding performance was recorded in the trade of new energy products, where the combined exports of electric passenger vehicles, photovoltaic products, and lithium-ion batteries grew by 29.9 percent to RMB1.06 trillion. Data from the Ministry of Agriculture and Rural Affairs highlights China's deep engagement in the international agricultural products market as the world's largest agricultural importer. In 2023, China imported 160 million tonnes of grain, an increase of 11.7 percent on the previous year. Its export value of US$98.93 billion, a year-on-year increase of 0.9 percent, made it the world's fifth largest agricultural exporter. Trade in intermediate goods also grew rapidly, with its volume reaching RMB25.5 trillion, 61.1 percent of the total trade, setting new records by volume and by share.

3. Trade in services recovered rapidly

(1) Marked increase in services import

As the impact of the Covid-19 pandemic began to recede, China's trade in services experienced further recovery in 2023. According to data from MOFCOM, the total value of service imports and exports for the year reached RMB6.6 trillion, a 10-percent increase over the previous year, outpacing the global average of 8 percent. In US dollar terms, the services trade amounted to US$933.12 billion, representing a 4.9-percent increase (see Figure 5-2). Specifically, the value

of service exports stood at RMB2.7 trillion, marking a 5.8-percent decline, while the value of service imports grew by 24.4 percent to RMB3.9 trillion, producing a deficit of RMB1.2 trillion.

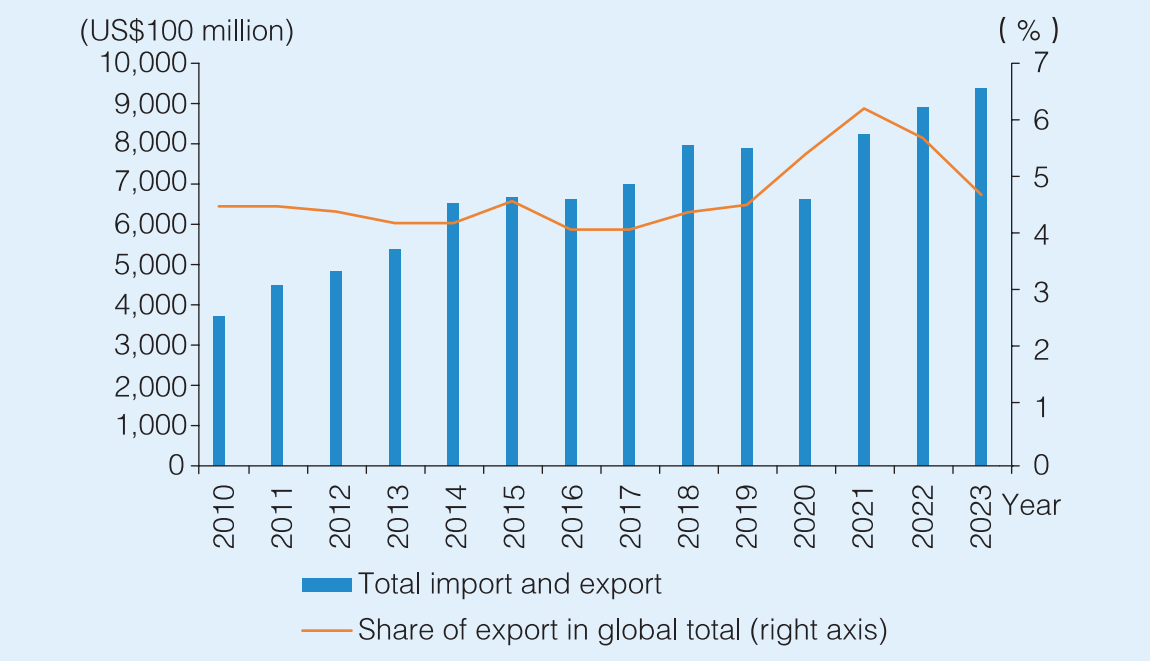

Figure 5-2 China's Total Trade in Services and Share of Export in Global Total from 2010 to 2023

Source: UNCTADstat.

(2) Swift recovery of travel-related services

Tourism import and export amounted to RMB1.5 trillion in 2023, a year-on-year increase of 73.6 percent. Export grew by 59.2 percent, while import grew by 74.7 percent, compared to 2022, reflecting the fast resumption of two-way cross-border movement of people.

(3) Higher growth rate of trade in knowledge-intensive services

In 2023, the total trade in knowledge-intensive services in China was RMB2.7 trillion, representing an increase of 8.5 percent year on year, faster than the year

before. This segment accounted for 41 percent of the total services trade, which was roughly the same as the previous year. Specifically, the export value was RMB1.5 trillion, representing a 9-percent growth, with insurance services surging by 67 percent, the fastest of all subcategories. The import value was RMB1.2 trillion, increasing by 7.8 percent, where personnel, cultural, and recreational services saw the fastest growth, at 61.7 percent.

(4) Notable progress in trade in digital services

With concerted efforts of both central and local authorities and endeavors by businesses, China's digital trade maintained robust development. According to UNCTAD, between 2019 and 2023, China's digitally deliverable services trade grew from US$271.8 billion to US$397.3 billion, an average annual growth rate of 10 percent. The share of such trade in the total services trade increased from 34.7 percent to 42.6 percent.

(5) Growth in overseas contracted projects despite headwinds

Despite the slowdown in the global infrastructure industry in 2023, the turnover of China's overseas contracted projects reached US$160.9 billion, up 3.8 percent year on year. Specifically, the turnover in countries participating in the BRI was US$132.1 billion, increasing by 4.8 percent and accounting for 82.1 percent of the total turnover[1], while construction services achieved a positive growth of 11.3 percent. In Engineering News-Record (ENR)'s 2023 Top 250 International Contractors, 81 of the companies listed came from the Chinese mainland[2], two more from the previous year. With that, the Chinese mainland maintained its global lead in terms of the number of companies and their market share.

[1] National Bureau of Statistics: "Statistical Bulletin on the National Economic and Social Development of the People's Republic of China in 2023", Chin. ed., National Bureau of Statistics website, February 29, 2024.

[2] "ENR's 2023 Top 250 International Contractors, Engineering News-Record", Chin. ed., China International Contractors Association, August 24, 2023.

4. New trade types and models grew at a faster pace

(1) Strong momentum of cross-border e-commerce with platforms featuring notable driving force

China's cross-border e-commerce showed greater vitality in 2023, represented by platforms like Temu, TikTok, and SHEIN. Many cross-border e-commerce platform businesses saw rapidly increasing sales revenue as they moved faster with their presence overseas, and their mobile applications ranked high in multiple countries, gaining popularity for their high-quality, affordable goods and shopping experience. According to the General Administration of Customs, China's cross-border e-commerce import and export reached RMB2.38 trillion in 2023, with an export of RMB1.83 trillion, up 19.6 percent, and an import of RMB548.3 billion, up 3.9 percent. Cross-border e-commerce export growth was faster than the overall growth rate of trade in goods, significantly outpacing the 2022 growth rate of 10.1 percent. It accounted for 7.7 percent of the total export, 1.3 percentage points higher than the previous year.

(2) Growing attraction of market procurement trade

The city of Yiwu is considered the birthplace of the market procurement trade in China, and is often regarded as the bellwether of the global small commodity trade. In 2023, it remained a powerhouse in terms of market procurement trade. The robust performance of export, which stood at RMB338.37 billion, an increase of 19 percent, provided crucial support for a greater number of medium-sized, small, and micro market entities in exploring the international market.

(3) Rapidly expanding bonded maintenance business

In guiding and supporting the development of bonded maintenance business,

more regions integrated manufacturing with services to promote industrial upgrading, make products more competitive internationally, and meet the new requirements of multinational companies for upgrading supply chains.

II. Two-Way Investment Developed Steadily

In 2023, global cross-border investment lacked steam, as geopolitical risks continued to emerge and investment protectionism strengthened. Certain countries stepped up foreign investment reviews, and the United States introduced an outward investment review regime, further complicating the already challenging global cross-border investment environment. This coincided with a new round of intense competition for investment, in a bid to accelerate post-pandemic economic recovery. In light of these new conditions, China rolled out a package of opening-up policies to expand market access, enhance investment facilitation, optimize the business environment, improve investment services, and ensure stable business investment expectations. These efforts to stabilize foreign investment and guide Chinese companies to "go global" in an orderly manner contributed to the steady and sound development of two-way investment.

1. China intensified efforts to open up its market and boost investment

(1) Expanding market access to create a broader market for foreign-invested enterprises

The Central Economic Work Conference, held at the end of 2022, listed

"intensifying efforts to attract and utilize foreign investment" as one of the priorities for 2023. To address the core concerns of multinational corporations, the State Council issued the Guidelines on Further Optimizing the Foreign Investment Environment and Increasing Efforts to Attract Foreign Investment in July, which set out 24 policies and measures in six areas, including improving the quality of foreign investment utilization, ensuring equal treatment, and continuously strengthening investment protection. Most of these measures were implemented or showed positive progress within the year. China pressed ahead with greater openness in the manufacturing industry and continued its gradual liberalization of restrictions on foreign investment access, with a view towards complete removal, to turn the industry into a key attraction of foreign investment. At the opening ceremony of the Third Belt and Road Forum for International Cooperation, President Xi Jinping announced that China would "remove all restrictions on foreign investment access in the manufacturing sector"[1]. China also pursued high-standard opening up in key areas of the services sector, based on the expansion of its comprehensive opening-up trial programs. In November, the State Council approved the Work Plan for Supporting Beijing in Deepening the Development of the National Comprehensive Demonstration Zone for Expanding Opening Up of the Service Sector, rolling out more than 170 new trial measures. They include breakthroughs in market access to value-added telecommunications, with the removal of foreign equity caps for internet information and internet access services, and endeavors to explore the opening up of healthcare, finance, culture, education, and professional services. China also accelerated the opening up of financial services by piloting harmonization with international high-standard economic and trade rules in

[1] "Full Text of Xi Jinping's Keynote Speech at Third Belt and Road Forum for Int'l Cooperation", Chin. ed., Xinhua News Agency, October 18, 2023.

qualified pilot FTZs and the Hainan Free Trade Port.

(2) Facilitating investment and flows of production factors and resources

To encourage personnel exchanges, China launched a new version of the foreign permanent resident ID card, facilitated the entry, stay, and exit of foreign senior executives, technical personnel, and their families, and introduced various measures to improve the policy environment that addresses the bottlenecks for foreigners coming to China. With regard to extending tax support, the policies of tax exemption for allowances and subsidies of foreigners and tax refunds for domestic equipment purchases by foreign-funded research and development institutions were extended until the end of 2027. Regarding foreign exchange administration, in December 2023, the State Administration of Foreign Exchange issued the Circular on Further Deepening Reform to Facilitate Cross-Border Trade and Investment, introducing regulatory measures such as wide adoption of pilot policies for cross-border financing facilitation and relaxed supervision over fund use, including reinvestment of foreign direct investment (FDI) in China.

(3) Encouraging foreign investment to participate in China's innovation and development and tap into China's high-quality development

In January, MOFCOM and the Ministry of Science and Technology issued Several Measures for Further Encouraging Foreign Investment in Setting Up Research and Development Centers, which extends greater support across 16 aspects of research, development, and innovation, including improving financial support for scientific and technological innovation, streamlining channels for government projects, facilitating the cross-border flow of research and development (R&D) data in accordance with the law, and strengthening intellectual property law enforcement. In response to the need to protect innovative entities such as

foreign-invested enterprises (FIEs), China released the Guidelines on Improving Administrative Adjudication in the New Era Regarding Patent Infringement Disputes in September (see Table 5-3). To accommodate the rapid development of the digital economy and facilitate cross-border R&D data flow and data exchange with headquarters, the draft Provisions for Regulating and Promoting Data Cross-Border Flow was published for comment from all sectors and types of market entities.

(4) Holding regular roundtables for FIEs and addressing concerns

China has adopted a problem-oriented approach to communication and exchanges with FIEs and foreign chambers of commerce, launching a special task force for key foreign investment projects and holding regular roundtables with all involved parties. An online system was launched to collect and process the requests of FIEs, which serves as an open channel for enterprises to file complaints, regardless of their size.

(5) Building pragmatic public service platforms and deepening international two-way investment cooperation

The "Invest in China" brand was strengthened throughout 2023 via a series of thematic investment promotion activities, including 20 major events hosted by MOFCOM and more than 600 supporting activities held across the country. Chinese businesses were advised to better participate in global green development with newly compiled country- and region-specific guidelines for outward green investment cooperation. China also updated the general guidelines for outward investment and economic cooperation for different countries and regions, launched the "Going Global" Comprehensive Service Center for Chinese Enterprises, and continued to refine the liaison and service platform for overseas Chinese enterprises and outward investment. The 23rd China International Fair for Investment and Trade was held in Xiamen in September, with a focus on two-way investment.

This exhibition also saw the debut of the Global Cooperation Area.

Table 5-3 Policy Documents on Two-Way Investment Issued by China in 2023

Issued by	Document	Main measures	Time issued
State Council	Several Measures for Piloting the Harmonization with High International Standards to Advance Institutional Opening Up in Qualified Pilot FTZs and the Free Trade Port	Facilitating trade in services, including finance	June 2023
State Council	Guidelines on Further Optimizing the Foreign Investment Environment and Increasing Efforts to Attract Foreign Investment	Introducing 24 policies and measures in six aspects, namely improving the quality of foreign investment utilization, ensuring equal treatment, strengthening investment protection, facilitating investment and operations, stepping up fiscal and tax support, and refining ways to promote foreign investment	August 2023
State Council	Work Plan for Supporting Beijing in Deepening the Development of the National Comprehensive Demonstration Zone for Expanding Opening Up of the Services Sector	Setting out six main tasks, namely deepening reform and expanding opening up in key areas of the services sector (including telecommunications, healthcare, finance, culture, education, and professional services), exploring new rules and standards for emerging business types, optimizing trade and investment institutions and arrangements, improving public services and the policy environment, enhancing policy protection, and strengthening risk prevention and control	November 2023

Issued by	Document	Main measures	Time issued
State Council	Master Plan for Full Harmonization with High-Standard Economic and Trade Rules to Advance High-Standard Institutional Opening Up in China (Shanghai) Pilot Free Trade Zone	Expanding opening up in finance, telecommunications, and other services sectors at a faster pace	November 2023
Ministry of Commerce, Ministry of Science and Technology	Several Measures for Further Encouraging Foreign Investment in Setting Up Research and Development Centers	Increasing support for FIEs in establishing R&D centers in China and conducting scientific and technological R&D and innovation activities	January 2023
Ministry of Commerce	Guidelines for Green Outward Investment Cooperation by Country (Region)	Offering a systematic account of investment partner countries and regions with regard to the development of the green economy, as well as related plans, policies, laws, regulations, and investment cooperation with China in green development	January 2023
Ministry of Commerce	Guidelines for Outward Investment Cooperation by Country (Region)	Providing an overview of the basic situations, economic conditions, policies, laws, regulations, and risks and opportunities of investment destinations	March 2023
State Administration for Market Regulation, National Development and Reform Commission, Ministry of Finance, Ministry of Commerce	Circular on Abolishing Policies and Measures Hindering the Unified Market and Fair Competition	Straightening out policies and measures impeding the unified market and fair competition, such as barriers to market access and exit and obstacles to the free flow of commodities and factors of production	June 2023

Issued by	Document	Main measures	Time issued
Ministry of Finance, State Taxation Administration	Circular on Continuing Individual Income Tax Policies for Allowances and Subsidies of Foreign Individuals	Extending tax-free policies for allowances and subsidies of foreigners until the end of 2027	August 2023
Ministry of Finance, Ministry of Commerce, State Taxation Administration	Announcement on VAT Policies for Equipment Procurement by R&D Institutions	Issuing tax refunds for the procurement of domestically made equipment by foreign-funded R&D institutions until the end of 2027	August 2023
China National Intellectual Property Administration, Ministry of Justice	Guidelines on Improving Administrative Adjudication in the New Era Regarding Patent Infringement Disputes	Actively responding to the need for protection of FIEs and other innovative entities	September 2023
State Administration of Foreign Exchange	Circular on Further Deepening Reform to Facilitate Cross-Border Trade and Investment	Introducing measures such as wide adoption of pilot policies for cross-border financing facilitation and relaxed supervision over fund use, including FDI reinvestment in China	December 2023

Source: compiled based on publicly available information.

2. FDI remained at a high level

In 2023, global cross-border investment encountered a challenging landscape featuring a complex interplay of economic and non-economic factors, including slow global trade growth, increasing trade disruptions, and heightened geopolitical tension. According to UNCTAD, global FDI fell by 2 percent compared to the previous year, with the decline exceeding 10 percent when excluding the

large swings in investment flows in conduit economies (investment transit hubs)[1]. Navigating this difficult and complex environment, China despite fluctuations in FDI flows remained one of the world's top FDI destinations, which reflected commendable achievements in its FDI-stabilizing efforts.

(1) Inward FDI flows remained the second-largest globally

According to MOFCOM, China's actual utilization of FDI in 2023 reached US$163.3 billion, representing a decrease of 13.7 percent year on year, driven largely by external factors such as interest rate hikes of the US dollar and an already high FDI aggregate. Despite this decrease, the 2023 FDI figure remains second only to the historical highs of 2022 and 2021, and is 21.2 percent higher than the pre-pandemic 2017-2019 average of US$134.7 billion. Globally, China's FDI inflow remained the second largest, trailing only the United States.

(2) Stable and improved FDI showed new highlights

The number of newly established FIEs is considered a key indicator of foreign investors' willingness to invest in a country. According to MOFCOM, 53,766 new FIEs were set up in China in 2023, an increase of 39.7 percent year on year.

China's high-tech sector acted as a crucial FDI magnet in 2023. In Renminbi terms, the amount of utilized FDI in high-tech manufacturing increased by 6.5 percent year on year, and the FDI in technology transfer services and research and design services grew by 8.9 percent and 4.1 percent, respectively. The high-tech sectors attracted RMB423.34 billion worth of FDI, accounting for a record 37.3 percent of the national total.

FDI from some developed economies grew fast. In Renminbi terms, the actual FDI from France, the United Kingdom, the Netherlands, Switzerland, and

[1] UNCTAD: "World Investment Report 2024", June 2024.

Australia (including data through free ports) increased by 84.1 percent, 81.0 percent, 31.5 percent, 21.4 percent, and 17.1 percent, respectively.

(3) China's digital and green transformation brought new opportunities for multinational corporations

China's innovation chain and innovation market are a key reason that many FIEs choose to invest in the Chinese market. China has a massive market for digital transformation, with a world-leading compound annual growth rate of 17.4 percent of spending on digital transformation between 2022 and 2027, according to the latest IDC analysis[1].

Multinational companies accelerated their digital transformation and innovation efforts in China throughout 2023, with Schneider Electric completing the third phase of its new digital, automated "carbon-neutral factory" in Shanghai to advance its smart manufacturing initiative, and HP launching a research center in Chongqing to support its research and analytical capabilities.

China's green transformation offers new development space for foreign enterprises. Audi FAW NEV opened the Test Center Changchun in September, with a total investment of RMB30 billion, while Volkswagen Group's investment in China exceeded RMB52.9 billion in 2023. Tesla's Shanghai Gigafactory delivered 947,000 cars across the year, accounting for over half of its global production capacity, and several foreign automakers now plan to establish new R&D centers and battery factories in the country to meet its rapidly growing new energy vehicle demand. Major multinational energy and chemical companies BASF and ExxonMobil have also both invested over US$10 billion in the country.

[1] IDC: "Worldwide Digital Transformation Spending Guide", May 2024.

3. China's outward direct investment contributed to mutual benefits and win-win outcomes

Facing weak global cross-border investment and increasingly restrictive barriers in some economies, Chinese enterprises have continued to deepen cooperation with host countries, achieving new progress in outward investment.

(1) Rising outward direct investment with the third-largest flow and stock

According to MOFCOM[1], China's industry-wide outward direct investment (ODI) reached US$177.29 billion in 2023, an increase of 8.7 percent year on year. Specifically, non-financial ODI amounted to US$159.07 billion, growing by 12.8 percent. At the end of 2023, the stock of ODI stood at US$2.96 trillion. According to UNCTAD, China's ODI flow and stock accounted for 11.4 percent and 6.7 percent of the global totals, respectively, in 2023, both ranking third globally.

(2) Double-digit growth in key industries

In 2023, as the impact of the pandemic began to recede, the recovery of the global supply chain and market demand brought new investment opportunities, driving faster development in China's manufacturing sector and services industries. According to the National Bureau of Statistics, in terms of scale, the country's top three sectors each with over US$20 billion in ODI in 2023 were leasing and business services, wholesale and retail trade, and manufacturing. In terms of growth rates, wholesale and retail trade, manufacturing, and mining saw increases

[1] Ministry of Commerce, National Bureau of Statistics, State Administration of Foreign Exchange: "2023 Statistical Bulletin on China's Outward Direct Investment", Chin. ed., State Council website, September 24, 2024.

of 38.6 percent, 29 percent, and 39 percent, respectively, while transportation, storage, and postal services grew by 42.3 percent.

(3) New trends in international business operations

According to the 2023 Survey on the Current Situation and Intention of Chinese Enterprises to Invest in Foreign Countries, released by the China Council for the Promotion of International Trade, an increased willingness to invest abroad was seen across the year among Chinese enterprises. Over 80 percent of enterprises surveyed expressed plans to expand or maintain their outward investment, an increase of nearly 10 percent from the previous year, while over 90 percent expressed optimism about their outward investment prospects. The need to expand markets and enhance brand awareness was a prominent issue, according to the survey, with 62.9 percent, 43.6 percent, and 37.0 percent of respondents citing opening overseas markets, enhancing international brand awareness, and serving domestic industrial upgrades as their main purposes for investing abroad, respectively. Overall, overseas investment performed well, with over half of the enterprises reporting increased or stable returns and an improvement in their overseas asset allocation capabilities.

(4) Driver for global cross-border investment, and contributor to host countries' economic development and industrial transformation

In recent years, despite the sluggish state of global cross-border investment, Chinese enterprises have continuously deepened international cooperation in capital, technology, industry, infrastructure, environmental protection, talent, and industrial parks. This collaboration has contributed to economic growth, industrial development, and job creation in host countries and injected new impetus into global investment. According to MOFCOM, in 2023, Chinese enterprises operating abroad paid US$75.3 billion in taxes to their host countries and regions, up

0.3 percent from the previous year. These enterprises employed 2.57 million local employees, an increase of 77,000 from 2022[1]. As green development continues to accelerate globally, many countries are looking to grow their NEV industry and attract FDI in this industry. Multiple Chinese NEV enterprises have, therefore, accelerated their overseas expansion, to assist host countries in green transformation. For example, at the end of 2023, BYD announced the establishment of an NEV production base in Hungary. This facility will be the first greenfield investment passenger car factory built by a Chinese automaker in Europe, and is expected to create thousands of local jobs.

III. High-Standard Financial Opening Up Progressed Steadfastly

The Central Financial Work Conference, held in October 2023, highlighted efforts to promote high-standard financial opening up and ensure national financial and economic security. It emphasized the importance of balancing "bringing in" and "going global" and called for steadily expanding opening up in the financial sector and facilitating cross-border investment financing so as to attract more foreign financial institutions and long-term capital to invest and operate in China. The conference also focused on the need to boost the competitiveness and influence of Shanghai in becoming an international financial center and reinforce Hong Kong's position as a well-established international financial center. Despite multiple

[1] Ministry of Commerce, National Bureau of Statistics, and State Administration of Foreign Exchange: "Statistical Bulletin on China's Outbound Direct Investment in 2023", Chin. ed., State Council website, September 24, 2024.

challenges, including the aftermath of the Covid-19 pandemic, the Ukraine crisis, monetary policy divergence among major economies, and inverted yield spread between China and the United States, China's commitment to high-level financial openness continued in 2023, resulting in significant achievements.

1. New institutional opening up measures in the financial sector

(1) Optimized market rules

Capital markets. In February 2023, the China Securities Regulatory Commission and the Hong Kong Securities and Futures Commission reopened trading days that had been previously suspended due to settlement arrangement issues, thereby optimizing the trading calendars for the Shanghai-Hong Kong Stock Connect and Shenzhen-Hong Kong Stock Connect programs. The China Securities Regulatory Commission also issued the Pilot Measures for the Administration of Overseas Issuance of Securities and Listing by Domestic Enterprises, accompanied by five supporting guidelines, to support companies in listing overseas in a legal and compliant manner.

Foreign exchange administration. In November 2023, the People's Bank of China (PBOC) and the State Administration of Foreign Exchange revised the Regulations on the Administration of Funds for Domestic Securities and Futures Investment by Qualified Foreign Institutional Investors and released a draft for public comment. The revision aims to simplify registration procedures, optimize account management, streamline foreign exchange administration, and facilitate foreign exchange risk management, and proposes to remove the administrative approval requirement for Qualified Foreign Institutional Investors and Renminbi Qualified Foreign Institutional Investors to register with the State Administration

of Foreign Exchange.

Cross-border use of the Renminbi. In January 2023, the PBOC and MOFCOM jointly issued the Circular on Further Supporting Foreign Trade and Economic Enterprises to Expand Cross-Border Use of the Renminbi for Trade and Investment Facilitation. This document is designed to better address the needs of foreign trade and economic enterprises for transaction settlement, investment and financing, and risk management.

(2) Greater opening up and innovation efforts in certain regions

To harmonize with the financial rules in high-standard international economic and trade agreements, China introduced a financial innovation policy package for key regions. In February 2023, the PBOC, the former China Banking and Insurance Regulatory Commission, the China Securities Regulatory Commission, the State Administration of Foreign Exchange, and the Guangdong Provincial Government jointly issued the Guidelines on Financial Support for the Development of the Guangdong-Macao Intensive Cooperation Zone in Hengqin and the Guidelines on Financial Support for Deepening of Reform and Opening Up Comprehensively in the Qianhai Shenzhen-Hong Kong Modern Service Industry Cooperation Zone. These documents each outline 30 financial reform and innovation measures, with the new policies for Hengqin designed to encourage the development of cross-border financial services to provide more accessible financial support for economic cooperation between Guangdong and Macao, and the new policies for Qianhai designed to encourage financial institutions within the cooperation zone to roll out innovative products and services to meet the diverse financial needs of the modern services industry.

(3) Explorations of financial market interconnectivity

To assist offshore investors in better managing interest rate risks, the mutual

access between the Mainland and Hong Kong interest rate swap markets (Swap Connect) was officially launched in May 2023. Through Swap Connect, both domestic and offshore investors can leverage the interconnected mechanisms of financial market infrastructure institutions in the Chinese mainland and Hong Kong for trading, clearing, and settlement. This enables them to conveniently complete Renminbi interest rate swap transactions and centralized clearing without altering their trading habits, while effectively complying with the laws and regulations of both markets.

2. "Bringing in" and "going global" of financial institutions

(1) Increased market access for foreign-funded institutions

In January 2023, Standard Chartered Securities (China) Limited received approval for establishment, marking it the first wholly foreign-owned securities firm to gain approval after the foreign equity ratio restrictions for securities companies were lifted on April 1, 2020. By the end of 2023, there were a total of 17 securities firms with foreign participation or control in China, with their total assets exceeding RMB650 billion and revenues surpassing RMB27.5 billion. In November 2023, Mastercard Netsunion, Mastercard's joint venture bank card clearing institution, received approval to commence operations in China.

(2) Expanded scope of business for foreign-funded institutions

In January 2023, Standard Chartered Bank (China) received approval to participate in treasury futures trading, becoming the first foreign bank in China to be granted such permission. When conducting new business pilots, China's financial regulatory authorities treat domestic and foreign institutions equally, as exemplified by the inclusion of 13 foreign banks, including Deutsche Bank, Société

Générale, and HSBC, in the PBOC's tools for supporting carbon emissions reduction.

(3) Global business expansion by Chinese-funded institutions

In 2023, Chinese financial institutions sped up their overseas business expansion. The banking sector played a pivotal role as a window and bridge for international economic and trade exchanges with the establishment of new overseas branches. In July, the Bank of China opened a new branch in Islamabad, Pakistan. This was followed in September by a branch in Riyadh, Saudi Arabia. In November, China Construction Bank opened a new branch in Penang, Malaysia.

3. Deepening financial market interconnectivity

(1) Deeper and broader bond market connections

By the end of 2023, a total of 1,124 offshore investors had entered the Chinese bond market, encompassing sovereign and commercial investors from over 70 countries and regions holding RMB3.7 trillion in Chinese bonds. As of the end of December 2023, offshore investors had been net buyers of Chinese bonds for 11 consecutive months, with net purchases of approximately RMB360 billion in November 2023, increasing their holdings by a record RMB250 billion. According to data from the PBOC, by the end of 2023, offshore investors had held interbank market bonds valued at nearly RMB3.67 trillion. Additionally, the issuance volume of panda bonds in 2023 reached a historic high, surpassing RMB150 billion in a single year for the first time.

(2) A strong start for interest rate swap market connectivity

By the end of 2023, there were 20 domestic market makers and 51 offshore investors participating in the Chinese market. Together, they completed more than

2,000 transactions, with a total notional principal amount exceeding RMB900 billion, providing effective risk management tools for both domestic and offshore investors engaging in Renminbi asset allocation.

(3) Diverse ETF connectivity products

Since exchange-traded funds (ETFs) began to be included in the mainland-Hong Kong Stock Connect mechanisms in 2022, the number of ETFs included in the Shenzhen-Hong Kong Stock Connect has continued to expand. In 2023, 25 additional ETFs were added to the Shenzhen-Hong Kong Stock Connect list, which further enriched the A-share investment tools available to offshore investors. By the end of 2023, there were 76 Shanghai-Hong Kong Stock Connect ETFs, 55 Shenzhen-Hong Kong Stock Connect ETFs, and 8 Hong Kong Stock Connect ETFs, totaling 139 ETFs under the connectivity mechanism, 60 percent more than the initial list of ETFs under the Shanghai-Hong Kong Stock Connect and Shenzhen-Hong Kong Stock Connect. Cooperation in the Shenzhen Stock Exchange-Singapore Exchange ETF Connect also deepened, and in November 2023, the CGS Fullgoal CSI 1000 ETF was listed on the Singapore Exchange, providing Singaporean investors with a new tool for their A-share portfolio.

4. Greater role of the Renminbi as an international currency

(1) Increased use in international trade

The amount of cross-border Renminbi settlement made by banks on behalf of clients in 2023 stood at RMB52.3 trillion, an increase of 24.2 percent year on year, making the Renminbi the primary currency for cross-border settlement in China. Among these settlements, the amount of cross-border Renminbi transactions for goods trade totaled RMB10.7 trillion, accounting for 25 percent of the total

cross-border receipts and payments for goods trade in both Renminbi and foreign currencies, representing a rise of 7 percentage points from the previous year. According to data from the Society for Worldwide Interbank Financial Telecommunication, in November 2023, the Renminbi accounted for 4.61 percent of global currency payments, surpassing the Japanese yen to become the fourth most used payment currency globally. According to the PBOC, the amount of cross-border Renminbi settlements under current account transactions in 2023 was RMB14.03 trillion, of which RMB10.69 trillion was related to goods trade, and RMB3.34 trillion was related to services trade. The amount of cross-border Renminbi settlement for direct investment was RMB7.6 trillion, with RMB2.6 trillion for ODI and RMB5 trillion for FDI.

(2) Easier cross-border payment in the Renminbi

It became significantly more convenient for foreign visitors and sojourners in China to use cross-border payments in 2023. The General Office of the State Council issued the Several Measures for Tapping the Potential of Tourism Consumption and Advancing High-Quality Development of the Tourism Sector, which makes it easier for inbound tourists to use foreign bank cards and various electronic payment methods and to exchange foreign currencies. Alipay and Tenpay have collaborated with commercial banks, clearing institutions, and card organizations to optimize their service for foreigners in China, and foreign bank cards can now be connected to Alipay or WeChat Pay for domestic use. The number of foreign e-wallets that can now be used in China has also increased, and according to the PBOC, nearly 4 million inbound visitors used mobile payments in 2023, resulting in 70 million transactions that totaled over RMB10 billion.

(3) A broader CIPS network with better services

By the end of 2023, the Cross-Border Interbank Payment System (CIPS) had

139 direct participants and 1,345 indirect participants, an increase of 124 participants compared to 2022. Its business scope was extended to cover 4,442 banking institutions across 182 countries and regions. During the Mid-Autumn Festival and National Day holidays of China in 2023, CIPS, for the first time, delivered non-stop cross-border Renminbi payment and clearing services to domestic and international clients throughout the extended holiday period, fulfilling its role as the primary cross-border payment channel.

(4) A more refined network for international Renminbi use

In 2023, the PBOC signed or renewed bilateral currency swap agreements with central banks in a number of countries, including Saudi Arabia and the United Arab Emirates, bringing the total number of bilateral currency swap agreements in effect to 31. Newly appointed Renminbi clearing banks in countries such as Brazil, Cambodia, and Serbia brought the number of banks that the PBOC has authorized to conduct Renminbi clearing business to 33, in 31 countries and regions, covering all major international financial centers.

5. Prudent progress in building international financial centers

Shanghai demonstrated stronger resource agglomeration capacity as an international financial center in 2023. Publicly available data indicate that, as of the end of the year, a total of 1,771 licensed financial institutions had been founded in Shanghai, nearly one-third of which had foreign investment. Shanghai was the base for approximately half of all foreign-funded banks, fund management joint ventures, and foreign-funded insurance companies on the Chinese mainland, and the city ranked among the world's top five in various sub-sectors, including banking, investment, and insurance. In terms of asset management, Shanghai accounted

for nearly 30 percent of the national total, volume-wise, topping the country in publicly offered funds, privately offered funds, and insurance asset management. In terms of financial talent, there were approximately 500,000 financial professionals in Shanghai in 2023, and financial professionals accounted for nearly 9 percent of the total employment in the Pudong New Area, one of the highest levels in the world.

The status of Hong Kong as an international financial center was also enhanced in 2023. Hong Kong has long served as a world-leading international financial center, as the Asian headquarters for many well-known banks, insurance companies, securities firms, and other financial institutions, and as an important global wealth management market. According to the Asset and Wealth Management Activity Survey 2023, conducted by the Hong Kong Securities and Futures Commission, the scale of asset and wealth management activities in Hong Kong was approximately HK$31.19 trillion as of the end of the year, representing a year-on-year growth of 2.1 percent.

IV. Platforms for High-Standard Opening Up Played a Bigger Leading Role

It was proposed in the 2023 Government Work Report that China would improve planning for regional opening up, upgrade pilot FTZs, and give play to the role of platforms for opening up, such as the Hainan Free Trade Port and various development zones, as testing grounds. Throughout the year, pilot FTZs, the Hainan Free Trade Port, and other platforms were able to play a greater leading role, owing to their pursuit of high-standard international economic and trade rules

and institutional innovation efforts.

1. Leaders in adopting high-standard international economic and trade rules

(1) New explorations for institutional opening up by pilot FTZs and the Hainan Free Trade Port

In June 2023, the State Council promulgated the Several Measures on Piloting High-Standard International Standards in Qualified Pilot Free Trade Zones and the Free Trade Port to Promote Institutional Opening Up, which includes measures to boost innovation in the trade of goods, liberalize and facilitate trade in services, facilitate temporary entries for business personnel, pursue the healthy development of digital trade, and improve the business environment. In December, the State Council issued a document supporting the China (Shanghai) Pilot FTZ (including Lingang Special Area) in advancing high-standard institutional opening up by promoting alignment with high-standard international economic and trade rules. Actions include opening up trade in services at a faster pace, liberalizing and facilitating trade in goods, pioneering high-standard digital trade rules, strengthening intellectual property protection, and advancing reforms in government procurement and "behind-the-border" regulation.

In June 2023, MOFCOM, in collaboration with relevant local governments and government departments, delineated 164 key tasks for pilot FTZs to carry forth on their own initiative between 2023 and 2025. They encompass major institutional innovations, key industries, crucial platforms, and major projects and events.

(2) Optimizing core policies of the Hainan Free Trade Port

Based on an established foundational framework, the Hainan Free Trade Port

moved forward with policy refinements and optimizations throughout 2023. Improvements were made to the duty-free shopping policy for travelers departing from Hainan, with "guaranteed pick-up" and "buy and pick-up" systems introduced as new ways for collecting duty-free purchases, which have enhanced the shopping experience for travelers leaving the island. Adjustments were made to the zero-tariff policy for transport vehicles and yachts, with import tariffs, VAT on imports, and consumption taxes being waived for 22 items, including tractor units for road-going semi-trailers, apron buses, all-terrain vehicles, and plug-in hybrid electric passenger vehicles with nine or fewer seats. Policies concerning cruise ships were also clarified, ensuring that Chinese flag-of-convenience cruise ships must complete import customs clearance according to actual trade rules and imported cruise ships no longer operating on sea sightseeing routes at Hainan's cruise ports must complete necessary export procedures in accordance with the law (see Table 5-4).

Table 5-4 Policies Introduced by Government Departments for the Hainan Free Trade Port in 2023

Issued by	Document	Main measures	Time issued
State Council	Several Measures on Piloting High International Standards in Qualified Pilot Free Trade Zones and the Free Trade Port to Promote Institutional Opening Up	· Boosting innovation in the trade of goods · Liberalizing and facilitating trade in services · Facilitating temporary entries for business personnel · Pursuing healthy development of digital trade · Increasing efforts to improve the business environment	June 2023

Issued by	Document	Main measures	Time issued
Ministry of Transport, Ministry of Commerce, General Administration of Customs	Circular on Implementing the Pilot Program of Sea Sightseeing Routes at Cruise Ports in Hainan	· Where the operator of a Chinese flag-of-convenience cruise ship uses its own or leased cruise ship under a flag-of-convenience bare-boat charter to engage in the pilot program of sea sightseeing routes at cruise ports in Hainan, the life cycle of the cruise ship shall not exceed 30 years. · A Chinese flag-of-convenience cruise ship shall undergo the customs declaration formalities for the import of the goods on the cruise ship under the rules of actual trade. · Imported cruise ship no longer engaged in sea sightseeing routes at cruise ports in Hainan shall undergo the export-related formalities in accordance with the law.	February 2023
General Administration of Customs, Ministry of Finance, State Taxation Administration	Announcement on Adding "Guaranteed Pick-Up" and "Buy and Pick-Up" Methods for Picking Up Duty-Free Goods Purchased by Tourists Leaving Hainan Island	Tourists may choose the "guaranteed pick-up" method to pick up duty-free goods with a unit price of RMB50,000 or more, or choose the "buy and pick-up" method for duty-free goods with a unit price of less than RMB20,000.	March 2023
Ministry of Finance, General Administration of Customs, State Taxation Administration	Circular on Adjusting Zero-Tariff Policies for Transport Vehicles and Yachts in the Hainan Free Trade Port	Import tariffs, VAT on imports, and consumption taxes are exempted for 22 items, including tractor units for road-going semi-trailers, apron buses, all-terrain vehicles, and plug-in hybrid electric passenger vehicles with nine or fewer seats.	August 2023

Source: compiled based on publicly available information.

Additionally, the Hainan Free Trade Port made new progress in institutional innovation, with six such cases being published during the year, bringing the

total number of institutional innovation outcomes up to 140 across 16 batches. Eleven of these outcomes have been applied nationwide. With these institutional outcomes derived from real practices, the Hainan Free Trade Port made sustained progress in trade and investment liberalization and facilitation.

(3) Advancing pilot programs for innovation-driven services trade and greater openness of the service sector

In 2023, the Office of the Interministerial Joint Meeting for the Development of Trade in Services under the State Council selected practices from pilot regions that exemplified robust institutional innovation, received positive feedback from market entities, and had value for larger-scale application. These practices were then rolled out as 25 "best practice cases" nationwide to maximize the leading role of the pilot and demonstration projects and tap into their institutional benefits. The cases include:

- Expanding opening up: "Exploring new pathways for international research collaboration through scientific and technological opening up pilots";
- Enhancing facilitation: "Exploring new methods for cross-border Renminbi receipt and payment";
- Creating new development models: "Pioneering an interprovincial consultation and cooperation mechanism for the China-Europe railway express"; and
- Optimizing policies: "Finding new integrated financing models for intellectual property rights".

The comprehensive pilot program for expanding openness in the service sector made further progress in 2023, with the State Council issuing the Work Plan for Supporting Beijing in Deepening the Development of the National Comprehensive Demonstration Zone for Expanding Opening Up of the Service Sector in November, calling for deeper reform and expanded openness in key areas of the service

sector, including telecommunications, healthcare, finance, culture, and education, and for efforts to explore rules and regulations for emerging business types, with the aim of fostering high-standard opening up and high-quality development of the service sector.

2. Pioneers of reform and innovation

(1) Pilot FTZs led the country in building an open national economy

In November 2023, the China (Xinjiang) Pilot FTZ was established, bringing the total number of China's Pilot FTZs to 22. According to the General Administration of Customs, the aggregate import and export volume of China's pilot FTZs reached RMB7.7 trillion in 2023, marking a year-on-year growth of 2.7 percent, surpassing the national average rate. Capitalizing on their distinctive features and industrial foundations, the pilot FTZs accelerated the exploration and formation of clusters of industries with robust competitiveness and world-leading capabilities. The Shanghai Pilot FTZ, for example, established modern industrial systems for homegrown chipmaking, innovative medicine, smart manufacturing, aerospace, future vehicles, and data. Tianjin Pilot FTZ saw the development of a cluster of financing leasing enterprises.

(2) The Hainan Free Trade Port made new achievements of open development

The Hainan Free Trade Port has garnered an international reputation as a meeting place for market players. At the end of 2023, the island province hosted 3.78 million business entities, and the number of newly registered entities having a tax record increased to 230,000, representing a 2.1-fold increase since 2019. Hainan's export-oriented economy saw rapid growth throughout the year, with its trade in

goods growing by 15.3 percent, the fastest in China. Hainan's utilized FDI reached RMB22.7 billion, and ODI neared US$3.9 billion. The value-added by the four leading industries – tourism, modern services, high-tech industries, and tropical agriculture – accounted for 62.4 percent of Hainan's GDP, a 10-percentage-point increase compared to 2018.

(3) Services trade pilots contributed to open and innovation-driven development

The all-round and sustained efforts to deepen the pilot program for innovative development of trade in services have yielded new results. Throughout 2023, the 28 pilot regions thoroughly explored systems, mechanisms, policies, measures, and pathways conducive to the innovation-driven development of the services trade. Each region tailored its approach based on its unique, competitive industries, thus enabling rapid development of trade in services and pursuit of higher-standard opening up. The services trade in the hosting provinces, autonomous regions, and municipalities of the pilot programs accounted for over 90 percent of the national total, and made significant contributions to stable foreign trade and foreign investment performance. The pilot programs also produced institutional innovations that could be applied elsewhere, paving new paths and offering valuable experience for China to expand high-standard and institutional opening up.

3. Drivers of local open economy

According to the General Administration of Customs, in 2023, China's 22 pilot FTZs contributed to 18.4 percent of the country's total foreign trade, despite only inhabiting less than 0.4 percent of the country's land area. The combined import and export volume of the 165 special customs regulation zones with recorded

business transactions reached RMB8.18 trillion, or 19.6 percent of the national total, an increase of 4 percentage points from the previous year.

In central and western China, the special economic zones and other opening-up platforms became increasingly significant in 2023. Among them, Zhengzhou Xinzheng Comprehensive Bonded Zone and Chengdu Hi-Tech Comprehensive Bonded Zone ranked first and second in terms of import and export volume in the central and western region, accounting for 50.2 percent and 50.3 percent of the trade volume of Henan Province and Sichuan Province, respectively.

While fostering regional development, these opening-up platforms also supported national strategies. In line with the requirements of President Xi Jinping and the plans of the central government, the pilot FTZs have intensified their pioneering efforts in deepening reforms and expanding opening up, and made new progress in implementing national strategies. During an inspection in Guangdong in April, General Secretary Xi emphasized that the Guangdong-Hong Kong-Macao Greater Bay Area should be made a strategic pivot for the new development dynamic, a demonstration area for high-quality development, and a pioneering area for Chinese modernization[1]. In 2023, MOFCOM issued the List of Key Tasks for Pilot Free Trade Zones (2023-2025), requiring Guangdong Pilot FTZ to harmonize rules and mechanisms with Hong Kong and Macao, deepen cooperation with Hong Kong and Macao in areas such as trade, investment, finance, and law, and enhance alignment of laws and regulations for domestic and foreign trade. This list also calls for the development of the Guangzhou Futures Exchange, Greater Bay Area Bond Platform, Nansha International Financial Island, and Shenzhen-Hong Kong International Financial City, the exploration of using

[1] "Xi Jinping Calls for Further Reform, Opening Up to Drive Chinese Modernization in Guangdong", Chin. ed., Xinhua News Agency, April 13, 2023.

existing trading venues for agricultural commodity trade, and the building of new financial platforms to contribute to high-quality economic development and the development of the Guangdong-Hong Kong-Macao Greater Bay Area.

V. China Boosted World Economic Recovery with Open Cooperation

China is committed to forging an open world economy and advancing high-quality development through high-standard opening up. As such, the country regularly offers new impetus and opportunities to the world with its new solutions and development achievements. In 2023, China became the first country to put forward a Global Civilization Initiative, which, joining the previously proposed Global Development Initiative and Global Security Initiative, provides three-dimensional support and strategic guidance for global governance and efforts to build a global community of shared future.

1. Participating in and leading global cooperation and governance

(1) Pushing for significant progress in multilateral trade negotiations

Investment remains a challenging aspect in international economic and trade rulemaking. Seizing the opportunity presented by the adoption of the G20 Guiding Principles for Global Investment Policymaking at the G20 Hangzhou Summit in 2016, China, along with other WTO members, proposed an initiative for

investment facilitation for development at the WTO, and initiated negotiations for the Agreement on Investment Facilitation for Development[1], the first multilateral investment agreement initiated by China. The negotiations for the text of the agreement successfully concluded on July 6, 2023[2]. A study by the German Institute of Development and Sustainability indicated that the entry into effect of this agreement would bring direct benefits to the global economy of between US$250 billion and US$1 trillion and would benefit the majority of middle- and low-income developing countries.

As digital trade becomes a new engine of global trade growth, there is a global consensus on the need to agree on high-standard, balanced, and inclusive digital trade rules. In December 2023, a substantial conclusion of negotiations on a number of global digital trade rules was reached under the negotiation on e-commerce, involving 90 WTO members, including China, the United States, and the European Union. As an essential participant and a major sponsor in the negotiations, China took a positive and constructive stance in discussions on all topics and submitted nine proposals covering over 20 specific issues, most of which were incorporated into the agreed outcomes.

On the sidelines of the Annual Meeting of the New Champions 2023, WTO Director-General Ngozi Okonjo-Iweala stated in an exclusive interview with the *People's Daily* that China, as a significant global economy, served as a model in safeguarding the global multilateral trading system.

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[1] Negotiations on Investment Facilitation were launched in December 2017 at the 11th Ministerial Conference of the WTO. Text-based negotiations began in September 2020.

[2] On February 25, 2024, 123 WTO members announced at a ministerial meeting on investment facilitation for development in Abu Dhabi, UAE, the finalization of the Agreement on Investment Facilitation for Development, and recommended the incorporation of the agreement into Annex 4 of the Marrakesh Agreement Establishing the WTO.

(2) Achieving new success in building a network of high-standard free trade areas

2023 marked a milestone for China in terms of free trade agreements (FTAs), with four being signed – new agreements with Ecuador, Nicaragua, and Serbia and an upgrade protocol to the FTA with Singapore – and FTA early harvest negotiations being completed with Honduras. The China-Nicaragua FTA and the upgrade protocol to the China-Singapore FTA incorporated commitments to high-level liberalization of cross-border services trade and mutual investment access under a negative list approach. By the end of 2023, China had signed 22 FTAs with 29 countries and regions. China's trade with its FTA partners accounted for about one-third of its total foreign trade.

China worked with other members of the Regional Comprehensive Economic Partnership (RCEP) to fully implement the agreement. In January and June, RCEP took effect for Indonesia and the Philippines, respectively, meaning that RCEP is now fully operational for all 15 of its members. The total trade volume between China and the other 14 RCEP members in 2023 stood at RMB12.6 trillion. RCEP tariff reduction measures and preferences delivered mutual benefits, saving RMB2.36 billion for Chinese importers, and RMB4.05 billion for importers from RCEP member countries. ASEAN was China's largest trading partner for the fourth year in a row, and China has been ASEAN's largest trading partner for 15 consecutive years.

2023 also saw continued progress in China's applications to join the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) and the Digital Economy Partnership Agreement (DEPA). Throughout the year, it engaged in communication and consultations with CPTPP member states, as per the partnership's accession procedures, while the working group for China's accession

to DEPA has conducted more than ten rounds of ministerial and director-general-level consultations and technical negotiations and completed preliminary discussions on all DEPA clauses since it was founded in August 2022.

(3) Receiving new BRICS and SCO members

BRICS is an important force in shaping the international landscape. The past 15 years have seen the global influence and appeal of the BRICS cooperation mechanism continue to grow. At the 15th BRICS Summit, held in Johannesburg in August 2023, President Xi Jinping delivered an important speech in which he proposed a "Chinese solution" to strengthen BRICS cooperation. He stressed that BRICS countries, who choose their development paths independently, should jointly defend their right to development and march in tandem towards modernization, as this represents the direction of the advancement of human society and will profoundly impact the development process of the world[1]. At the summit, it was announced that the BRICS cooperation mechanism would invite a number of new countries to join, including Saudi Arabia and Egypt.

The Shanghai Cooperation Organization (SCO) is a force for maintaining world peace and driving global development. At the 23rd Meeting of the Council of SCO Heads of State in July 2023, resolutions were adopted to grant Iran full SCO membership, and a memorandum of obligations was signed on the membership of Belarus. In his video statement, President Xi Jinping made five recommendations for the organization, namely that it should keep moving in the right direction and enhance solidarity and mutual trust; maintain regional peace and safeguard common security; focus on practical cooperation and expediting economic recovery; strengthen exchanges and mutual learning and forge closer

[1] "Full text: Remarks by Chinese President Xi Jinping at the 15th BRICS Summit", Chin. ed., Xinhua News Agency, August 27, 2023.

bonds between each member country's peoples; and practice multilateralism and improve global governance[1]. In 2023, the trade volume between China and other SCO member states reached US$490.5 billion, increasing by 14.7 percent compared to the previous year.

(4) Reaching agreements at the G20 Summit

The 18th G20 Summit, held in September 2023, adopted the G20 New Delhi Leaders' Declaration, reaffirming the commitment to revitalizing multilateralism, reform, and international cooperation to address global challenges. China played a constructive role in negotiating and implementing the outcome documents, supporting the African Union's membership, and promoting global cooperation in climate change. In November 2023, the G20 leaders convened a virtual summit, where China helped forge a key consensus that G20 members should practice multilateralism, advance reform of the global economic governance system, and strengthen support for and assistance to developing countries.

(5) Engaging in global governance of new fields

Digital technology and artificial intelligence (AI) can benefit the world, but challenges in the digital realm still need to be addressed in regard to imbalanced development, incomplete rules, and unreasonable order. The potential risks associated with AI are by no means negligible, and the deficit in global digital governance is continuing to grow. In April 2023, China submitted to the United Nations a position paper titled China's Position on Global Digital Governance, which lays out four basic principles: upholding unity and cooperation, focusing on development, promoting fairness and justice, and facilitating effective governance.

[1] "Full Text of Xi Jinping's Address at SCO Summit", Chin. ed., Xinhua News Agency, July 4, 2023.

Alongside these four principles, the paper outlines seven specific proposals[1]. In October 2023, China presented the Global AI Governance Initiative, calling for collective efforts to develop AI governance frameworks, norms, and standards. In November, China, the United States, the United Kingdom, the EU, and 26 other countries and regions co-hosted the first Global AI Summit. The participating parties signed the Bletchley Declaration, the world's first international statement on AI, in which they agreed to establish a regulatory approach for AI through international cooperation.

China is an active advocate for international cooperation and global governance in climate response and green development. On a bilateral level, in 2023, the country issued joint statements with France, Brazil, and the United States on the topic. On a multilateral level, China worked together with other attendees at the Conference of the Parties (COP28) to the United Nations Framework Convention on Climate Change to reach the UAE Consensus, which covered for the first time issues such as the global stocktake of the Paris Agreement, mitigation and adaptation, finance, loss and damage, and just transition.

2. Promoting high-quality cooperation under the Belt and Road Initiative (BRI)

(1) The BRI has entered a golden era

Since President Xi Jinping proposed the BRI a decade ago, China has continued to adhere to the principles of extensive consultation, joint contribution and

[1] The seven proposals are: (1) connecting all people to the internet; (2) avoiding internet fragmentation; (3) protecting data; (4) applying human rights online; (5) introducing accountability criteria for discrimination and misleading content; (6) promoting regulation of AI; and (7) digital public goods.

shared benefits, advanced practical cooperation in all respects, and strengthened institutional and physical connectivity and people-to-people bonds with other BRI countries. In that spirit, the BRI has earned widespread recognition and appreciation from the international community, and has led to China growing a larger "circle of friends". By the end of 2023, China had signed over 200 cooperation documents for Belt and Road cooperation with more than 150 countries and over 30 international organizations. Through the concerted efforts of all parties, Belt and Road cooperation has progressed from "sketching the outline" to "filling in the details". At the third Belt and Road Forum for International Cooperation, President Xi Jinping announced eight major steps China would take to support the joint pursuit of high-quality Belt and Road cooperation, namely: building a multi-dimensional Belt and Road connectivity network; supporting an open world economy; carrying out practical cooperation; promoting green development; advancing scientific and technological innovation; supporting people-to-people exchanges; promoting integrity-based Belt and Road cooperation; and strengthening institutional building for international Belt and Road cooperation[1].

(2) China's trade and investment ties with BRI partner countries strengthened

In 2023, the trade in goods between China and countries participating in the BRI broke records in terms of both size and proportion. Trade volume stood at RMB19.5 trillion, an increase of 2.8 percent year on year, accounting for 46.6 percent of China's total foreign trade, 1.2 percentage points higher than in 2022. Non-financial direct investment by China in BRI partner countries was US$31.8 billion, growing by 22.6 percent from the previous year and representing nearly

[1] "Full Text of Xi Jinping's Keynote Speech at Third Belt and Road Forum for Int'l Cooperation", Chin. ed., Xinhua News Agency, October 18, 2023.

one-quarter of the total for the same period. The total value of mergers and acquisitions announced by Chinese companies in BRI partner countries was US$17.34 billion, up 32.4 percent compared to the previous year, accounting for 44 percent of the total value of overseas mergers and acquisitions by Chinese companies, 4 percentage points higher than in 2022. The expanding "Silk Road Maritime" network encompassed 131 ports in 43 countries and 317 alliance members by the end of the year, and the China-Europe freight train service had a larger coverage and set new records in the number of train services and freight volume. Across the year, 17,000 freight trains carried 1.9 million twenty-foot equivalent units (TEUs), increasing by 6 percent and 18 percent, respectively, compared to the previous year, and helping to build a supply chain lifeline for a turbulent world.

(3) Landmark projects such as the China-Laos Railway and Jakarta-Bandung High-Speed Railway benefited local people

The China-Laos Railway opened in April, turning Laos into a truly land-linked country and enabling higher-quality passenger and cargo transport for its people. This "golden corridor" has boosted local employment and created indirect jobs in logistics, transportation, commerce, tourism, and other sectors.

The Jakarta-Bandung High-Speed Railway, the first overseas Chinese high-speed railway project, officially began service in October 2023. A total of 45,000 training opportunities were offered, preparing a contingent of skilled high-speed railway builders and operators for Indonesia. This project is a shining example of China-Indonesia Belt and Road cooperation.

Piraeus Port saw its cargo throughput capacity increase to over 5 million TEUs a year, becoming the fourth largest container port in Europe and a leading container port in the Mediterranean.

(4) Digital Silk Road proved to be fruitful and promising

To implement President Xi Jinping's initiative of a digital Silk Road, at the third Belt and Road Forum for International Cooperation, China, along with Argentina, Cambodia, Comoros, and others, jointly launched the Beijing Initiative on Belt and Road International Digital Economy Cooperation, which proposes 20 initiatives, including strengthening digital interconnection, promoting the digital transformation of industry, supporting digital innovation and entrepreneurship, and encouraging transparent policies for the digital economy. The State Council approved the Plan for Establishing a Pilot Zone for Silk Road E-commerce Cooperation in Shanghai, which is designed to expand the opening up of the e-commerce sector and create a pacesetter for international cooperation in the digital economy. Flourishing new forms and models of international trade, exemplified by cross-border e-commerce, inject new momentum into and open new horizons for Belt and Road economic and trade cooperation.

(5) Belt and Road cooperation became greener

To build a green Silk Road, China has continued to advance green development. As of November 2023, the country has signed 48 South-South cooperation documents on climate change with 39 BRI partner countries, and worked with more than 30 BRI partner countries – including Ethiopia, Pakistan, Chile, and Egypt – on over 70 climate mitigation and adaptation projects and low-carbon demonstration zones. China has also intensified its investment in BRI clean energy engineering projects, which have brought hydropower, wind power, photovoltaic power, and other forms of clean energy to countless households. According to forecasts by the International Energy Agency, the newly added annual installed capacity in BRI partner countries will surpass 80 million kilowatts by 2040. This will create the world's fastest-growing region in terms of power generation.

Additionally, China has implemented the Green Silk Road Envoys Program to train tens of thousands of environmental and climate professionals from over 100 countries.

3. Contributing to global win-win development

Humankind is a community with a shared future. China's development benefits the world, and China cannot develop itself in isolation from the world. In the face of sluggish global economic growth, rising protectionism, and impediments to economic globalization, China has actively expanded opening up, moved faster to create a new development dynamic, and fostered a business environment that is market-oriented, law-based, and up to international standards. It takes pragmatic actions to pursue international economic and trade cooperation, promote mutual benefit and win-win outcomes with countries around the world, and drive global economic recovery.

(1) A stabilizer of world economic growth

China remained a powerhouse for global economic growth in 2023. In spite of weak global economic growth, the country withstood external pressures, overcame internal challenges, and deepened reform and opening up on all fronts. As a result, China's economy showed signs of recovery, and progress was achieved in high-quality development. Across the year, China's economy grew by 5.2 percent. In comparable prices, this growth generated over RMB6 trillion, equivalent to the annual GDP of a medium-sized country, and contributed 32 percent to global economic growth[1].

[1] International Financial Forum: "Global Finance and Development Report 2023", Chin. ed., October 2023.

Throughout 2023, China was a significant driving force for the development of the global value chain, an important hallmark of economic globalization. The country had the world's largest manufacturing value-added for the 14th consecutive year, and continued to be the largest goods trader, with intermediate goods accounting for 61.1 percent of China's total imports and exports. Research by the International Monetary Fund indicates that a 1-percentage point increase in Chinese growth leads to a 0.3-percentage point increase of other economies on average. China is not only a participant and beneficiary of global industrial and supply chain cooperation, but also a staunch defender and builder. As an advocate for stronger cooperation in global industrial and supply chains, China remains ready to work with all parties at this critical juncture of global industrial and supply chain reshaping to build more efficient, resilient, and dynamic global supply chains through wide participation and complementary strengths.

China's supersize market played a more prominent role in 2023, and this is likely to continue. While there are already 400 million people in the middle-income bracket in China, this number is expected to reach 800 million in the next decade or so, which reflects the potential for greater aggregate demand. The expansion of domestic demand drove China's imports, with the country importing US$2.56 trillion worth of goods, or 10.6 percent of the global total, retaining second place for the 15th year in a row. This offered a vast market for the economic development of the rest of the world. China was also a fertile ground for multinational corporations. Over the past five years, the average return on FDI in China has been a globally competitive 9 percent.

(2) Stronger, greater economic and trade cooperation with developing countries

For 15 years straight, China has remained Africa's largest trading partner,

with bilateral trade hitting a record US$282.1 billion in 2023, marking a 1.5-percent increase. Trade between China and Latin America also hit a record high of US$489 billion. In May, China hosted the inaugural China-Central Asia Summit, where the Xi'an Declaration of the China-Central Asia Summit was signed, and the List of Outcomes of the China-Central Asia Summit was adopted. Bilateral trade between China and the five Central Asian countries surged by 27.25 percent year on year to US$89.37 billion. In September 2023, the Summit of the Group of 77 and China, the world's largest cooperation mechanism with over 130 members, was held in Havana, Cuba. Multiple concepts and propositions proposed by China were included in the Havana Declaration adopted at the summit, which calls for global development and win-win cooperation on the basis of extensive consultations, joint contributions, and shared benefits, and for the building of a global community of shared future.

(3) Foreign aid and international cooperation in development

In 2023, under the framework of the Global Development Initiative, China hosted the first High-Level Conference of the Forum on Global Action for Shared Development, the second Anti-Corruption Forum on Global Development Cooperation, the second China-Indian Ocean Region Forum on Development and Cooperation, and a series of related activities. China set up the Global Development Project Pool and Global Development Capital Pool, implemented more than 200 "small yet smart" projects, and mobilized US$12 billion in special funds from Chinese and foreign financial institutions. Major landmark foreign aid projects, such as the African Center for Disease Control, the New Parliament Building Project in Zimbabwe, and the Gwadar Seawater Desalination Project in Pakistan, were completed. "Small yet smart" aid programs, like the treatment of cataracts, heart disease, and dental defects, mobile hospitals, and the use of artemisinin, all

continued to expand, have a greater impact, and win global acclaim.

Promoting reform and development through openness is a powerful instrument through which China has achieved continuing progress in its pursuit of Chinese modernization. In a complex and volatile world, and in response to the demands of high-quality development and Chinese modernization, China has stayed resolute in comprehensively deepening reform and advancing high-standard opening up. It is committed to expanding areas of shared interest with other countries, fostering deeper economic globalization, and providing the world with more opportunities and benefits through win-win cooperation and peaceful development, thereby making greater contributions to global prosperity and development.

Chapter Six

Shared Development

Chinese modernization is characterized by the common prosperity of all, and shared development is an essential requirement of socialism with Chinese characteristics. Throughout 2023, the country continued its efforts to ensure that development is for the people, by the people, and that its fruits are shared among all the people. It has worked to resolve the pressing issues and challenges that matter most to the people, advancing the development of social programs, improving public services, and making social governance more effective. These efforts have ensured people's wellbeing and contributed to new strides in shared development.

I. China Made New Progress in Modernization of Education

Modernizing education at a faster rate provides strategic support for building China into a great modern socialist country in all respects. China made solid progress in reforming and developing education that meets the people's expectations.

1. Putting education front and center

(1) Increasing the budget for education

In 2023, the national spending on education reached RMB6,132.9 billion, representing a growth of 5.97 percent compared to the previous year. Of this amount,

RMB40 billion was allocated to ongoing major initiatives aimed at shoring up weak links and boosting the capacity of compulsory education, including expanding school building areas and meeting teaching facilities and equipment standards. The central government also raised the minimum public expenditure per student for compulsory education schools, with the annual public expenditure per student for primary schools increasing from RMB650 to RMB720, and for junior high schools from RMB850 to RMB940[1]. Policies for government-subsidized student loans were improved, with the annual cap for full-time undergraduate students raised from RMB12,000 to RMB16,000, and for full-time graduate students, from RMB16,000 to RMB20,000[2]. Throughout the year, China waived an estimated RMB2.33 billion in government-subsidized student loan interest payments and extended principal repayments worth approximately RMB5.5 billion, benefiting around 4 million college graduates[3].

(2) Training high-caliber teachers

China has pressed ahead with the National Training Program[4] to strengthen the training and development of teachers in primary and secondary schools. It has

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[1] "Ministry of Education Press Conference Presents China's Educational Achievements in 2023", Chin. ed., Ministry of Education website, March 1, 2024.

[2] Ministry of Education, Ministry of Finance, People's Bank of China, and National Financial Regulatory Administration: "Circular on Adjusting and Optimizing Policies Related to Government-Subsidized Student Loans", Chin. ed., September 11, 2023.

[3] "Interest Waiver for a Second Year: Highlights of Government-Subsidized Student Loan Policies in 2023", Chin. ed., *Guangming Daily*, April 22, 2023, p. 4.

[4] The National Training Program, or the National Training Program for Primary and Secondary School Teachers in full, was launched by the Ministry of Education and the Ministry of Finance in 2010, as an important campaign to improve the competency of primary and secondary school teachers, especially those in rural areas. It incorporates a demonstration training program for primary and secondary school teachers and a training program for core teachers in rural areas in the central and western regions.

implemented the National Excellence Program[1], which supports higher education facilities aiming to become first-rate universities or develop first-class disciplines in training outstanding graduates as primary and secondary school teachers, and has refined the mechanism for adjusting the salaries of compulsory education teachers in accordance with those of local civil servants. The country has also furthered its reform of the professional title assessment system for teachers and bolstered oversight of academic title evaluations in universities. To promote a more equitable distribution of educational resources, it has conducted orderly exchanges and rotations of teachers and head teachers, and amplified the support and incentives available for those involved. Additionally, it has ensured that all teachers working in public compulsory education in county-level regions are regulated by county authorities and employed by schools.

(3) Promoting digitalization in education

China closely follows new global trends in the digital transformation of education and has enhanced the digital and scientific literacy of students in response to the evolving demands of the digital economy and digital development. In 2023, the country released the industry standard "Digital Literacy of Teachers", along with an action plan for digital empowerment of teachers' development. It established a digital education advisory board, and formed a special task force for the adoption of the Smart Education of China platform. Additionally, it organized the 2024 World Digital Education Conference, with a view to increasing the influence of China's digital education endeavors.

[1] The National Excellence Program, or the National Program for Training Primary and Secondary School Teachers of Excellence in full, was launched in September 2023. Under this program, China supports high-quality institutions of higher education, particularly those aiming to become first-rate universities or develop first-class disciplines, to select and enroll students of distinction who are interested in and fit for teaching as graduates of the National Excellence Program, which prepares them for primary and secondary schools.

(4) Refining education-related laws, regulations and policies

The sixth session of the Standing Committee of the 14th National People's Congress reviewed and approved the Patriotic Education Law of the People's Republic of China, which integrates patriotic education into the national education system. The General Office of the CPC Central Committee and the General Office of the State Council jointly issued the Guidelines on Building a High-Quality and Balanced Basic Public Education Service System, setting out requirements to ensure the comprehensive, high-quality, and balanced development of compulsory education, significantly enhance support for students from economically disadvantaged backgrounds, and coordinate efforts to address student health, public cultural and sports activities, and employment and entrepreneurship support for college graduates. The 15th executive meeting of the State Council adopted the Regulations on the Protection of Minors in Cyberspace, which focuses on fostering healthy cyberspace for minors with strong protection by enhancing internet literacy, regulating online information and content, strengthening the protection of personal information online, and preventing internet addiction. Relevant departments, including the Ministry of Education, made institutional arrangements to strengthen science education in primary and secondary schools for the new era, improve the mechanism where schools, families, and the whole society work together to advance education and implement the action plan for upgrading basic education for the new era.

2. Pursuing equal, high-quality education

In 2023, China ranked 21st in the Strong Education Country Index, rising by

28 places since 2012 – faster than any other country[1].

(1) More inclusive basic education

The coverage of basic education stages in China has reached or surpassed the levels found in upper- and middle-income countries belonging to the Organisation for Economic Co-operation and Development, with the level of coverage of pre-school and compulsory education now on a par with the average levels of high-income nations[2]. In 2023, China's gross enrollment rate for preschool education reached 91.1 percent, marking a 1.4-percentage point increase from the previous year and exceeding the 14th Five-year Plan target ahead of schedule. The completion rate for nine-year compulsory education stood at 95.7 percent, a 0.2-percentage point increase from the previous year. Nationally, 18.78 million students were enrolled in primary education in 2023, a 10.37-percent increase over the previous year; junior secondary education enrolled 17.55 million students, a 1.34-percent increase from the previous year; and the gross enrollment rate for senior secondary education was 91.8 percent, a 0.2-percentage point increase from the previous year[3]. The Nutrition Improvement Program for Rural Compulsory Education Students benefits over 37 million rural students annually, and an average height increase of 4.2 cm for boys and 4.1 cm for girls has been seen in regions covered by the program since 2012[4].

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[1] Gao Yizhe: "Latest Strong Education Country Index Released", Chin. ed., *Education Daily*, May 30, 2024, p. 3.

[2] "Press Conference on People's Livelihood for Second Session of 14th National People's Congress", Chin. ed., Xinhua News Agency, March 9, 2024.

[3] "Ministry of Education Press Conference Presents China's Educational Achievements in 2023", Ministry of Education website, March 1, 2024.

[4] "State Council Information Office Briefing on Speeding Up Work to Build a Strong Educational System, Developing Education That Meets the People's Expectations", Chin. ed., State Council website, July 6, 2023.

(2) Improving higher education

In 2023, 250 million Chinese people received higher education, and the average length of schooling for new entrants to the workforce rose from 13.5 years to 14 years, reflecting a steady enhancement in human capital. China became the world's largest provider of higher education, with the gross enrollment rate growing by 0.6 percentage points from 2022 to 60.2 percent, meeting the 14th Five-year Plan target ahead of schedule. Nationally, there were 3,074 higher education institutions, an increase of 61 from the previous year. The total enrollment in higher education of all forms reached 47.63 million students, climbing by 2.32 percent from the previous year. Total enrollment in undergraduate programs in regular and vocational higher education institutes was 10.42 million students, a 2.73-percent increase from the previous year. Graduate institutes enrolled 1.30 million students, a 4.76-percent increase from the previous year. Among them, there were 153,300 doctoral students, a 10.29-percent increase from the previous year, and 1.15 million master's students, a 4.07-percent increase[1] (see Figure 6-1). A total of 75,200 students graduated from doctoral programs, and the number of academic doctoral programs doubled in the last decade. The share of professional degree programs in all degree programs rose from 37.6 percent ten years ago to 44.2 percent in 2023, with the number of doctoral programs increasing by three times over the same period[2].

[1] "Ministry of Education Press Conference Presents China's Educational Achievements in 2023", Chin. ed., Ministry of Education website, March 1, 2024.

[2] Ministry of Education: "Briefing on the Guidelines of the Ministry of Education on Categorized Development of Academic and Professional Degree Programs", Chin. ed., Ministry of Education website, December 19, 2023.

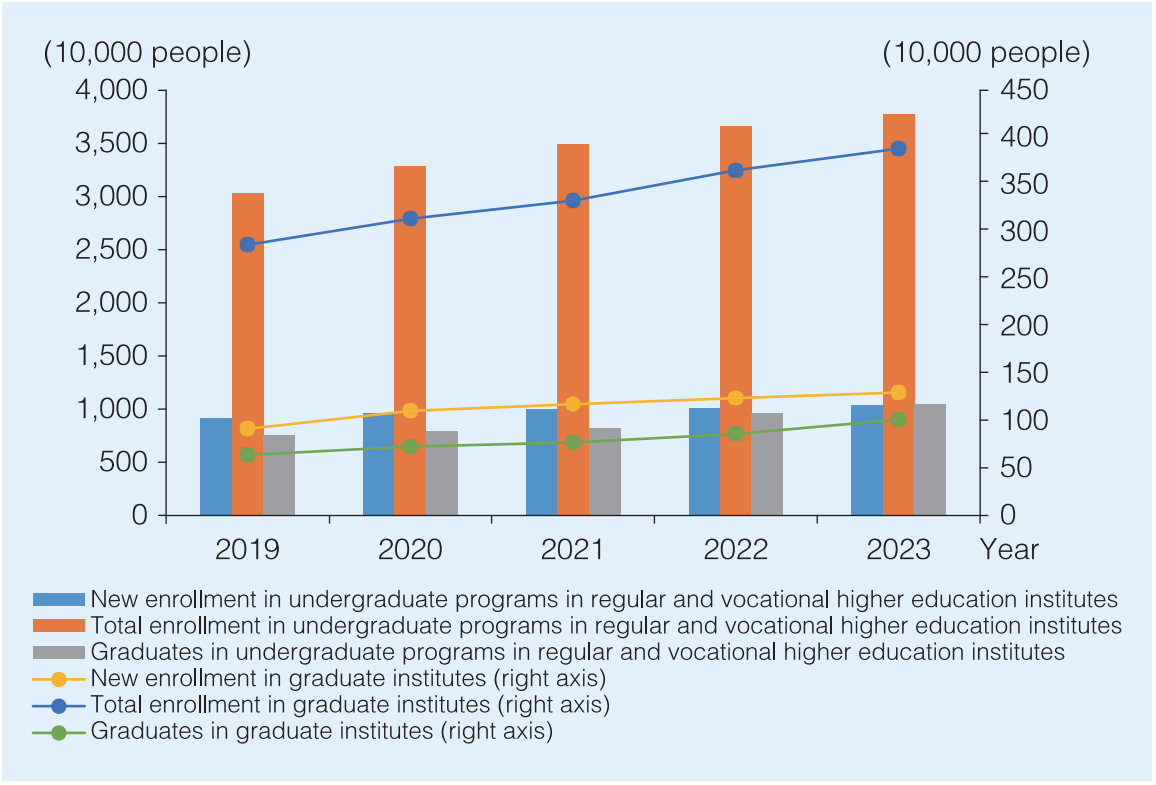

Figure 6-1 Number of Students Receiving Higher Education in China from 2019 to 2023

Source: "Statistical Communiqués of the People's Republic of China on the National Economic and Social Development".

(3) Strengthened vocational education

In 2023, the 7,085 secondary vocational education[1] schools across the country enrolled a total of 12.98 million students, with 4.54 million new entrants. There were 33 undergraduate-level vocational schools and 1,547 higher vocational colleges. Undergraduate-level vocational schools enrolled 89,900 students, a 17.82-percent increase from the previous year, and higher vocational colleges enrolled 5.55 million students, a 2.99-percent increase from the previous year. The

[1] This does not include technician schools managed by human resource and social security departments.

proportion of teachers qualified both in delivering theoretical knowledge and guiding practice in secondary vocational education reached 56.71 percent, an increase of 0.53 percentage points from the previous year. Overseas vocational education cooperation projects like Luban Workshops, Zheng He Colleges, and Silk Road Schools saw new advancements. Secondary and higher vocational schools now produce around 10 million high-caliber technicians annually.

(4) Expanding opening up of education

In 2023, the 42nd session of the UNESCO General Conference adopted the resolution to establish the UNESCO International Institute for STEM Education (IISTEM) as a UNESCO Category-1 Institute in Shanghai, China. It is the tenth Category-1 Institute established by UNESCO globally. In February, China hosted the inaugural World Digital Education Conference in Beijing, where a number of key documents were unveiled, including the China Smart Education Bluebook 2022 and the 2022 Smart Education Development Index Report. Smart Education of China was awarded the UNESCO ICT Prize[1].

To date, China has signed mutual recognition agreements on academic qualifications and degrees with 58 countries and regions. Chinese language instruction is offered in over 180 countries and regions, with nearly 200 million people having learned and used Chinese, while more than 1.3 million Chinese students are pursuing their studies abroad in over 100 countries[2].

[1] The UNESCO King Hamad Bin Isa Al-Khalifa Prize for the Use of Information and Communication Technologies (ICTs) in Education is the top United Nations prize for the use of ICT in education.

[2] "State Council Information Office Briefing on Speeding Up Work to Build a Strong Educational System, Developing Education That Meets the People's Expectations", Chin. ed., State Council website, July 6, 2023.

II. Employment Remained Stable in General

As the cornerstone of people's livelihood, employment has a direct bearing on the people's immediate interests, sound social and economic progress, and China's stability and security over the long term. China prioritizes high-quality and full employment, with steps taken to stabilize and improve employment.

1. Stepping up efforts to stabilize employment

(1) Adopting policies to support enterprises in stabilizing and expanding employment

In response to employment pressure, China introduced policies to support enterprises in maintaining and expanding their workforce. These measures both alleviate the financial burden on businesses and ensure job stability and creation through earmarked funds and employment stabilization subsidies.

A comprehensive policy package was adopted to ease the burden on businesses. The complex and uncertain market dynamics in the global and domestic contexts pose significant challenges for businesses in the post-Covid-19 era, and to alleviate the pressure and invigorate business activities, the State Council extended the provisional policy of lowering the ratio of contributions to unemployment insurance to 1 percent and reducing the ratio of contributions to work injury insurance. The scope of companies eligible for job creation subsidies was broadened, and the policies on unemployment insurance premium refunds were improved.

Financial institutions were encouraged to offer services that stabilize and increase employment, and to offer loans to entities in the real economy – including small and micro enterprises – that comply with labor standards and are good job stabilizers and creators, thus supporting them in these endeavors. The policy of one-off wage subsidies was reinstated, and the handling process was streamlined, with the swift adoption of online processing and enhanced efficiency via big data-based comparison and recognition, resulting in a greater sense of fulfillment and satisfaction among enterprises. Throughout the year, unemployment and work injury insurance schemes for employment stability saved businesses more than RMB200 billion, while the spending on employment subsidies surpassed RMB100 billion[1].

China is fostering the growth of micro, small, and medium-sized enterprises (MSMEs) and private enterprises to harness the role of innovation and entrepreneurship in stimulating employment. Innovation and entrepreneurship inject new dynamism into economic development, providing workers with employment opportunities and broader prospects for career advancement. MSMEs and private businesses, as the backbone of job creation, contribute significantly to stable, well-structured employment and high-quality economic development. The Central Economic Work Conference, convened at the end of 2022, underscored the need to devote significant efforts to developing the digital economy, strengthening regular oversight, and supporting platform enterprises to fully harness their potential to drive development, create employment, and increase international competitiveness. In 2023, a full pro-business package combining fiscal subsidies, tax incentives, and employment and entrepreneurship policies was employed to strengthen innovative sectors, MSMEs, and private enterprises. Support for

[1] "Press Briefing of the Ministry of Human Resources and Social Security on Human Resources and Social Security Work in 2023", Chin. ed., State Council website, January 25, 2024.

business incubation programs was also enhanced, and services to address enterprise recruitment issues were improved. Initiatives such as deepening the integration between vocational education and industry and establishing "fast-track" and "through train" schemes for professional title evaluations have helped private enterprises hire a skilled workforce.

(2) Boosting employment for key groups

To accommodate key groups such as college graduates, migrant workers, and individuals facing employment difficulties, several initiatives for policy promotion, career introduction, vocational guidance, and employment training were launched in 2023. These initiatives included the "Spring Breeze Action", which focuses on rural workers and employers with labor demands, and the "Employment Assistance Month", for those with employment challenges and unemployed individuals with disabilities.

Promoting youth employment is a top priority for stabilizing the job market. In 2023, 11.58 million people graduated from colleges, an 8-percent increase compared to the previous year[1]. This increase has created significant pressure on employment opportunities. To counteract this, efforts were made to expand the capacity of employers to recruit young people. Employment subsidies and other incentives were provided to encourage enterprises to hire college graduates, and additional staffing and funding were provided for state-owned enterprises to increase recruitment. Party and government agencies and public institutions tapped their staffing margins to maintain the number of college graduate recruits, and primary-level service programs, such as the "Three Supports and One Assistance"

[1] Liu Bochao: "Move Faster to Build China into a Leading Country in Education and Develop a Strong Educational Sector That Satisfies the People", Chin. ed., *Guangming Daily*, July 7, 2023, p. 4.

initiative[1], the volunteer service program in western China for college students, and the special program recruiting medical school graduates as rural doctors, provided more job opportunities. All types of enterprises, public institutions, and social organizations were encouraged to provide over 1 million new internship opportunities for young people. Meanwhile, employment services were improved, and employment information distribution channels were enhanced, alongside special employment promotion assistance for graduates facing difficulties, and real-name-based follow-up support for those who remain unemployed after leaving school. Education on employment knowledge and career outlook was strengthened, and students were provided with more personalized, precise, and accessible career guidance.

For migrant workers, particularly those who have escaped poverty, regional labor collaboration alliances and conferences on brand building on the labor market were organized to help them find jobs either in their hometowns or further afield. By the end of 2023, 33.97 million people who had been lifted out of poverty joined the workforce[2].

(3) Stepping up vocational training

Strengthening skills training is a critical pathway to enhancing employment for the aforementioned key groups. In 2023, over 18 million subsidized vocational training opportunities were provided, and more than 12 million vocational qualification certificates and skill level certifications were granted[3]. A total of

[1] This refers to the service program selecting college graduates for community-level posts in supporting education, agriculture and healthcare, and providing assistance to rural revitalization. – *Tr.*

[2] "Press Briefing of the Ministry of Human Resources and Social Security on Human Resources and Social Security Work in 2023", Chin. ed., State Council website, January 25, 2024.

[3] "Press Briefing of the Ministry of Human Resources and Social Security on Human Resources and Social Security Work in 2023", Chin. ed., State Council website, January 25, 2024.

115 national bases for training highly-skilled personnel and 139 master craftsman studios were opened, focusing on advanced manufacturing, modern services, and digital skills. Increased efforts were made to provide vocational skills training to key groups such as migrant workers, veterans, and people with disabilities, aiding them in enhancing their employability and securing stable jobs.

Vocational skills training for migrant workers was significantly expanded. In 2023, the number of migrant workers reached 297.53 million, marking an increase of 1.91 million, or 0.6 percent, compared to the previous year[1]. The Central Document No. 1 of 2023 clearly outlined requirements for stabilizing employment for these workers, improving their vocational skills, protecting the employment rights of older individuals, and granting permanent urban residency to migrant workers working in counties. Through various forms of free vocational skills training and entrepreneurship training opportunities, migrant workers were given the opportunity to improve their skills.

Efforts were also made to facilitate veterans' access to education and training. Following the principle of participation for all discharged military personnel, adaptive training and vocational skills training were conducted through political education, mental counseling, career planning, preference surveys, and policy promotion to make sure that training aligned with labor demand. Pilot programs for inter-provincial training were launched, including the establishment of a system for self-employed veterans in the Yangtze River Delta region that addressed the challenge of inter-provincial training and enhanced training effectiveness. Throughout the year, 267,000 veterans participated in academic education,

[1] National Bureau of Statistics: "Report on the Monitoring and Survey of Rural Migrant Workers in 2023", Chin. ed., National Bureau of Statistics website, April 30, 2024.

275,000 underwent adaptive training, and 148,000 received skills training[1].

The Three-Year Action Plan for Promoting Employment of People with Disabilities (2022-2024) was further implemented throughout 2023, with policies supporting employment and entrepreneurship, vocational skills training opportunities, and greater employment assistance in rural areas. The number of people with disabilities holding a disability certificate employed in urban and rural areas in China in 2023 stood at 9.06 million, and 461,000 people with disabilities received real-name-based training. Practical skills training empowered 259,000 rural people with disabilities. Health massage training was given to 11,393 blind individuals, and medical massage to 9,970. Of those trained, 558 individuals obtained junior-level professional technical qualifications for medical massage, and 148 acquired mid-level qualifications[2].

2. Ensuring overall stability of employment

(1) Balanced demand and supply in the labor market

Overall, employment remained stable. In 2023, a total of 12.44 million urban jobs were added, and the average surveyed urban unemployment rate stood at 5.2 percent, showing a downward trend and notably lower than the 2022 average of 5.6 percent. The surveyed unemployment rate for the employed population with non-local household registration decreased from 5.6 percent at the beginning of the year to 4.7 percent by the end of the year. The surveyed unemployment rate

[1] Department of Employment and Entrepreneurship, Ministry of Veteran Affairs: "Special Feature No. 4 of Veteran Affairs in 2023: Multiple Measures Ensuring High-Quality, Adequate Employment of Veterans", Chin. ed., Ministry of Veteran Affairs website, January 18, 2024.

[2] China Disabled Persons' Federation: "2023 Statistical Bulletin on the Development of Disabled Persons", Chin. ed., China Disabled Persons' Federation website, April 17, 2024.

for the employed population with local household registration experienced minor fluctuations around 5.2 percent (see Figure 6-2).

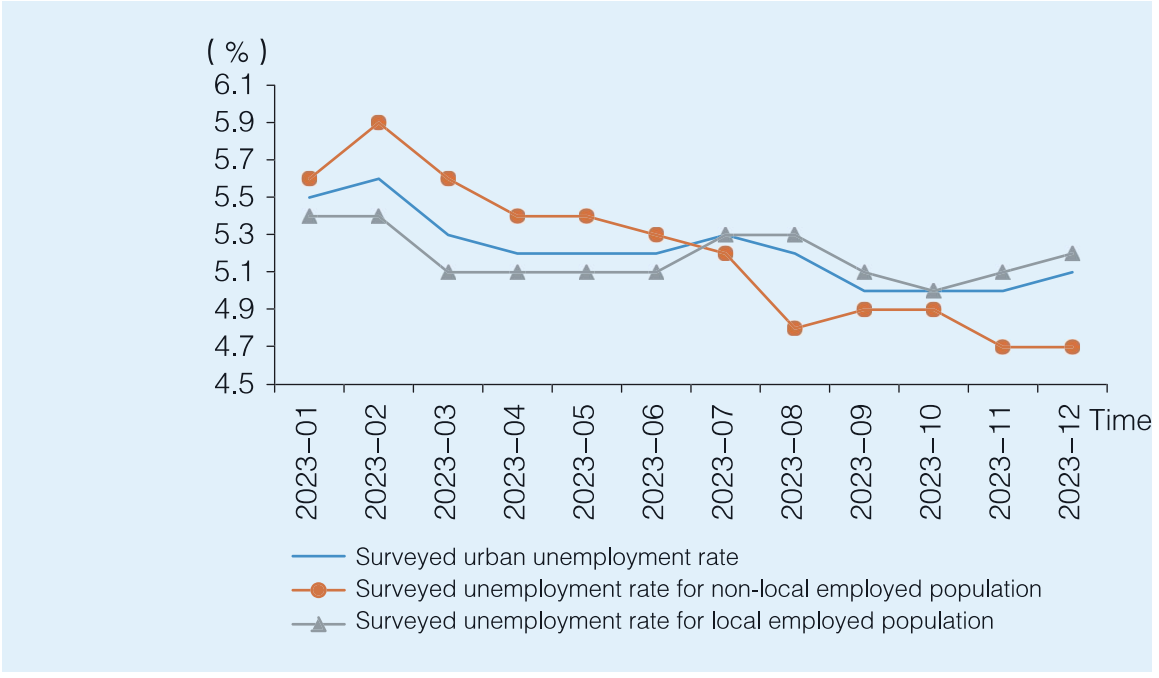

Figure 6-2 Surveyed Urban Unemployment Rate in China in 2023

Source: National Bureau of Statistics.

(2) Better protection of workers' rights and interests

The level of social insurance participation among workers continues to rise. By the end of 2023, a total of 521.21 million people had participated in the basic old-age pension scheme for urban employees, an increase of 17.66 million over that by the end of 2022. A total of 243.73 million people participated in the unemployment insurance program, an increase of 5.66 million, and 301.74 million had participated in work-related injury insurance, an increase of 10.57 million[1]. Steady progress was made in bringing basic old-age pension funds for enterprise

[1] National Bureau of Statistics: *2024 China Statistical Yearbook*, Chin. ed., China Statistics Press, 2024.

employees under unified national management, with over 50 million people opening personal pension accounts[1].

The system for the protection of the rights and interests of workers in new forms of employment was improved. Guidelines were issued regarding the establishment of labor contracts and written agreements, protection of rights to rest and labor remuneration, and public disclosure of labor rules, effectively assisting businesses in better complying with legal and regulatory standards. The human resources and social security, courts, and judicial departments collectively developed a one-stop, multi-agency mediation model for labor disputes in new forms of employment, which leverages the unique advantages of labor dispute mediation, people's mediation, and judicial mediation to provide high-quality, low-cost, diversified services to workers in new forms of employment. The pilot program for occupational injury protection for personnel in new forms of employment made steady progress, covering 73.1 million people by the end of 2023[2].

Administration on the payment of wages to rural migrant workers was enhanced. Timely payment for migrant workers is now ensured through expedited adjudication of wage disputes, and oversight and enforcement have been strengthened via an optimized monitoring and early warning platform and an upgraded national platform for reporting arrears of wages. Major cases of wage arrears were publicly disclosed, and the management of lists of entities in breach of wage payment obligations became more standardized. Local authorities and competent departments were held more accountable in regard to the payment of wages to migrant workers through regular performance evaluations.

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[1] "Personal Pension Scheme to Be Fully Implemented", Chin. ed., Xinhua News Agency, January 24, 2024.

[2] "Press Briefing of the Ministry of Human Resources and Social Security on Human Resources and Social Security Work in 2023", Chin. ed., State Council website, January 25, 2024.

III. China Made Further Refinements to Income Distribution

The system of income distribution is the foundational system for promoting common prosperity. China primarily follows a distribution system based on work, with other forms of distribution existing alongside it. In 2023, the country took further steps to improve the system and structure of its income distribution.

1. Building a well-coordinated and mutually complementary institutional framework

(1) Improving primary distribution

Improving the mechanisms for determining wages – ensuring that they are increased at a reasonable rate and paid in full – is key to leveraging the motivation, dedication, and creativity of workers. In 2023, minimum wage standards were raised in 15 provinces, autonomous regions, and municipalities. The income distribution system for public institutions was standardized following the release of the Guidelines on the Pilot Programs for Reform of Remuneration Systems in Colleges and Research Institutes and the deepening of salary reform in public hospitals. Policies and systems for distribution based on production factors were improved through the deepening of rural land reforms and the promotion of high-quality development in capital markets, thereby expanding the channels for urban and rural residents to increase their property income. An implementation

guideline for incentivizing the application of scientific and technological advances was refined, and a work plan was introduced to revitalize existing patents in universities and research institutions.

(2) Stepping up redistribution

Taxation, social security, and transfer payments are the three pillars of redistribution.

In 2023, China refined its individual income tax system, introducing increased special deductions for nursing expenses of children under the age of three, children's education, and elderly care expenses. These adjustments have significantly reduced the financial burdens of families in raising children and caring for the elderly.

Social security programs expanded their reach to cover more people, delivering greater benefits in a fairer way, meaning that people in difficult circumstances now have their basic needs met through social assistance. The capacity for disaster prevention, mitigation, and relief was strengthened, and safety production oversight was enhanced, to ensure the basic living standards of those in difficulty. Dynamic monitoring of the low-income group has also become more effective, allowing for more targeted and multi-tiered social assistance.

Transfer payments have taken on a more prominent role in rebalancing resources. In 2023, transfer payments from the central government to local governments for ensuring equal access to basic public services reached approximated RMB2.36 trillion, a 10.3-percent increase from the 2022 executive accounts. This was combined with the advancement of fiscal system reforms below the provincial level to optimize resource distribution and encourage the channeling of fiscal resources to lower-level governments. The new urbanization strategy and the rural revitalization strategy were also thoroughly implemented to reinforce and build

upon the achievements made in poverty alleviation.

(3) Leveraging third distribution

The rule of law in charity was strengthened. In December 2023, the Standing Committee of the 14th National People's Congress decided to amend the Charity Law of the People's Republic of China, with the aim of reinforcing the responsibility of the government and its departments in developing charity, refining promotional measures, standardizing operations of charities and charitable trusts, and regulating emergency charity and individual appeals for assistance. The Ministry of Civil Affairs issued the Guidelines on Strengthening Effective Connection Between Government Assistance and Charitable Support, further facilitating the participation of public interest activities and charities in social assistance to address the pressing needs and concerns of disadvantaged groups.

2. Scoring new achievements towards common prosperity

(1) Growing income and a refined structure

In 2023, the per capita disposable income nationwide was RMB39,218, representing an increase of 6.3 percent over that of the previous year, or a real increase of 6.1 percent after deducting price factors. Growth in per capita disposable income stayed in step with economic growth, with the average annual real growth rate of per capita disposable income surpassing the growth rate of per capita GDP by 0.9 percentage points.

The salary income and net operating income of residents experienced rapid growth and accounted for a larger share of total income. In 2023, the per capita salary income nationwide was RMB22,053, a 7.1-percent increase year on year. This accounted for 56.2 percent of disposable income, 0.5 percentage points

higher than 2020. The per capita net operating income was RMB6,542, growing by 6.0 percent year on year. This represented 16.7 percent of disposable income, a 0.2-percentage point increase from 2020. Net transfer income and net property income of residents maintained robust growth. The per capita net property income was RMB3,362, up 4.2 percent year on year, and the per capita net transfer income was RMB7,261, increasing by 5.4 percent over the previous year.

(2) Narrowing income gap

The relative income gap among residents narrowed. Grouped by income quintile, the ratio of per capita disposable income between the high-income group and the low-income group was 10.32 in 2023, a decrease of 0.16 from 2022, and the growth rate of per capita disposable income for rural residents continued to outpace that of urban residents. In 2023, the per capita disposable income of urban households was RMB51,821, up by 5.1 percent over that of 2022, while the per capita disposable income of rural households was RMB21,691, up by 7.7 percent over that of the previous year. The ratio between per capita incomes of urban and rural households was 2.39 in 2023, down by 0.06 from 2022, indicating a narrowing relative income gap between urban and rural areas. The per capita disposable income of rural households from counties lifted out of poverty was RMB16,396, up by 8.5 percent over that of 2022, 0.8 percentage points faster than the growth rate for rural households overall.

Residents in central and western regions experienced faster income growth. In 2023, the per capita disposable income for households in eastern, central, western, and northeastern regions was RMB53,510, RMB33,506, RMB30,711, and RMB32,494, respectively, representing increases of 5.8 percent, 6.1 percent, 6.4 percent, and 5.5 percent from 2022. The income ratio between households in eastern and western regions was 1.74, a decrease of 0.01 from 2022.

IV. Social Security Continuously Enhanced

Social security is a system designed to meet people's basic needs, enhance their wellbeing, and safeguard social equity. China has pressed ahead in developing a multi-tiered social security system that is fair, unified, reliable, well-regulated, sustainable, and covers the entire population, both in urban and rural areas.

1. Building a solid social security net

(1) Deepening reform of the social insurance system

The administration of social insurance services and oversight of social insurance funds were strengthened throughout 2023, and in December, the Regulations on the Administration of Social Insurance Services entered into force, providing legal safeguards for standardizing social insurance administration, optimizing social insurance services, ensuring the safety of social insurance funds, and protecting the legitimate rights and interests of employers and individuals. Fund supervision was also further enhanced to ensure secure fund operations, with the introduction of reporting and inquiry systems and routine on-site inspections and off-site supervision of annuity fund management institutions.

Steady progress was also made with regard to the unified national management of basic old-age pension funds for enterprise employees and the reform of private pension schemes. The reallocation of funds was intensified, with the total amount transferred by local governments and reallocated by the central

government increasing by 12 percent compared to the previous year. Pilot programs were launched in regions such as Jiangsu, Jiangxi, and Shaanxi to encourage capable rural collective economic organizations to subsidize resident payments of basic old-age pension, creating conditions for a stable, multi-channel financing mechanism and more basic pension benefits for both urban and rural residents.

The medical insurance system became more comprehensive through 2023. In May, the General Office of the State Council issued the Guidelines on Strengthening Regular Supervision of Medical Insurance Fund Usage, which clearly defines the responsibilities of medical insurance administrative and management institutions, medical institutions, and other stakeholders. It outlines requirements for implementing regular supervision systems and improving supervision, coordination, and support mechanisms, and ensures the safe operation of medical insurance funds, improves the efficiency of fund usage, standardizes medical services, and reduces the healthcare burden on the people.

The coverage of unemployment insurance and work injury insurance was also expanded. To further reduce the burden on enterprises, enhance business vitality, and promote stable employment, the State Council approved the continuation of the temporary policy for reducing premiums for unemployment insurance and workers' compensation.

(2) Improving the social assistance system

In October 2023, the General Office of the State Council endorsed and forwarded the Guidelines on Strengthening Dynamic Monitoring for Low-Income Groups and Promoting Social Assistance of Different Types at Different Levels, issued by the Ministry of Civil Affairs and other relevant departments. This document outlines arrangements for improving the information platform and database

for monitoring low-income groups, enhancing dynamic monitoring and type-based early warning, and providing basic living assistance and specialized social assistance. The eligibility criteria for people with severe disability to apply for subsistence allowances were relaxed, as were the criteria for identifying individuals living in extreme poverty. Immediate, time-limited assistance can now be directly provided by localities in the event of an emergency, and the working mechanisms, information sharing, and innovative participation methods now enable public interest institutions and charities to provide social assistance, further strengthening the connection between government assistance and charities.

(3) Deepening reform to meet the people's housing needs

To foster a new model for the transformation and development of the real estate sector and to improve the systems and institutions ensuring housing for all, the State Council issued in August 2023 the Guidelines on Planning and Building Government-Subsidized Housing. This document is focused on addressing specific problems and achieving tangible results, with the goal of increasing the building and supply of government-subsidized housing to ensure that salaried people have a home and that urban residents can lead stable lives. Following the principle of balanced finance, the guidelines outline the need for detailed plans regarding land use, infrastructure, and other important aspects. It standardizes housing sales, establishes closed-loop management processes, and strengthens supervision. To address the housing shortage for new urban residents and young people, a RMB100 billion "lend first, borrow later" direct loan support program for government-subsidized rental housing has been established, under which loans are disbursed on a quarterly basis.

2. Higher quality of social security

(1) Improving social insurance payments

Old-age pension has seen expanded coverage and steadily rising benefits. By the end of 2023, a total of 1,066.43 million people had participated in the basic old-age pension schemes, an increase of 13.36 million from the end of the previous year. Among them, 521.21 million people were enrolled in the basic old-age pension scheme for urban employees, an increase of 17.66 million from the end of the previous year.[1] A total of 545.23 million people participated in the basic old-age pension scheme for rural and non-working urban residents (see Figure 6-3).

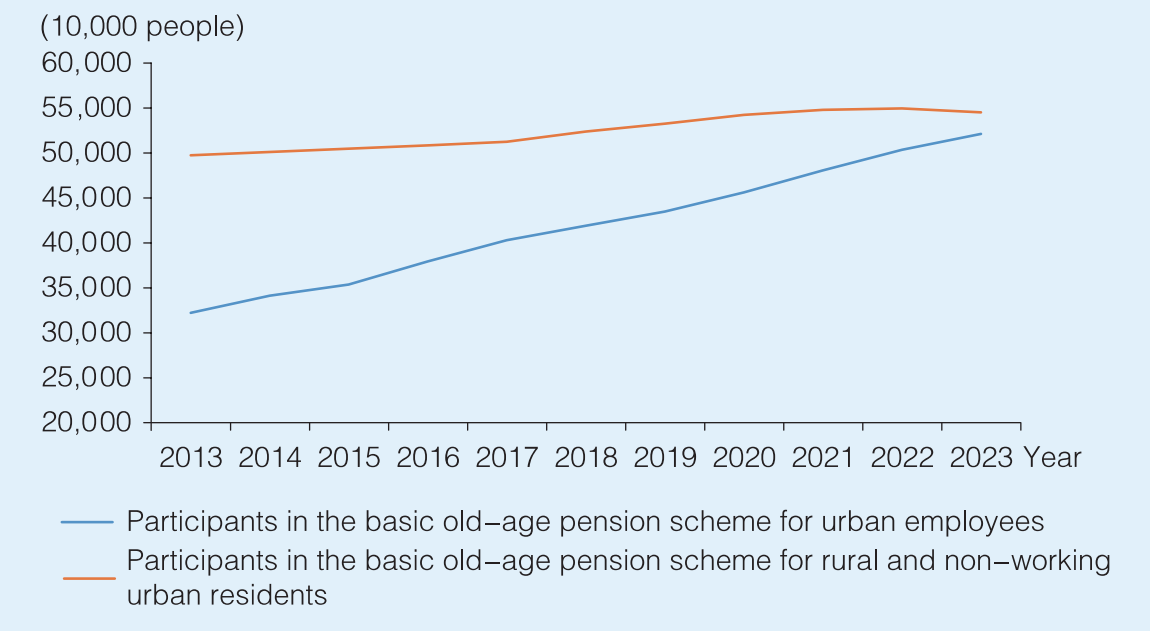

Figure 6-3 Participants in Basic Old-Age Pension Schemes from 2013 to 2023

Source: National Bureau of Statistics.

[1] National Bureau of Statistics: *2024 China Statistical Yearbook*, Chin. ed., China Statistics Press, 2024.

Civil affairs departments paid the premiums for 25.77 million individuals in disadvantaged groups, ensuring that over 99 percent of them have access to the program[1]. In 2023, the total revenue of the national basic old-age pension fund reached RMB7,617.54 billion, an increase of RMB724.24 billion from the previous year, representing a growth of 10.5 percent. Fund payout amounted to RMB6,821.38 billion, an increase of RMB513.48 billion from the previous year, or a growth of 8.1 percent[2]. Basic pension benefits for retirees from enterprises, Party and government offices, and public institutions were increased by 3.8 percent compared to the average monthly basic pension of retirees of the previous year, marking the 19th consecutive year of growth. Fourteen provinces and some cities raised the basic pension standards for urban and rural residents, to enhance economic security for the elderly.

Higher-quality coverage of health insurance reduced the medical burden on the public. A total of 1.33 billion people – over 95 percent of the total population – participated in the basic medical insurance program. Medical assistance programs provided access to basic medical insurance for 73.08 million people, including more than 99 percent of the low-income population and those lifted out of poverty in rural areas. Ongoing efforts to reform payment methods have led to more standardized medical practices, with over 90 percent of coordinated regions implementing Diagnosis Related Group and Diagnosis-Intervention Packet systems. In 101 national pilot cities, out-of-pocket payments of insured individuals were reduced by approximately RMB21.5 billion compared to 2021. Together,

[1] "Press Briefing of the Ministry of Human Resources and Social Security on the Fourth Quarter of 2023", Chin. ed., Ministry of Human Resources and Social Security website, January 24, 2024.

[2] Ministry of Human Resources and Social Security: "Statistical Snapshot of Human Resources and Social Security, January-December 2023", Chin. ed., Ministry of Human Resources and Social Security website, January 30, 2024.

basic medical insurance, critical illness insurance, and medical assistance benefited 186.50 million hospital visits by low-income rural populations, saving them RMB188.35 billion in medical expenses[1].

In terms of unemployment insurance, the fund income at the end of 2023 stood at RMB180.27 billion, marking a 13.0-percent increase from the previous year. The fund expenditure was RMB148.34 billion, a 26.5-percent decrease from the previous year[2]. Throughout the year, a total payment of RMB97.6 billion in unemployment insurance benefits supported the basic living standards of the unemployed, providing them with robust assistance amidst economic and employment volatility.

Regarding work-related injury insurance, the fund income and expenditure at the end of 2023 amounted to RMB121.08 billion and RMB123.71 billion, respectively, representing increases of 15.0 percent and 20.7 percent from the previous year[3]. Trials for occupational injury insurance for people in new forms of employment made sound progress, safeguarding food delivery riders, ride-hailing drivers, and those employed in other "high-risk" trades in the pilot areas.

(2) Stronger social assistance

Throughout 2023, the national information platform for monitoring low-income groups expanded its coverage, and by October, it had collected the basic information of over 66 million low-income people, or approximately 4.7 percent

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[1] National Healthcare Security Administration: "Statistical Snapshot of the Development of Healthcare Security in 2023", Chin. ed., National Healthcare Security Administration website, April 11, 2024.

[2] Ministry of Human Resources and Social Security: "Statistical Snapshot of Human Resources and Social Security, January-December 2023", Chin. ed., Ministry of Human Resources and Social Security website, January 30, 2024.

[3] Ministry of Human Resources and Social Security: "Statistical Snapshot of Human Resources and Social Security, January-December 2023", Chin. ed., Ministry of Human Resources and Social Security website, January 30, 2024.

of China's total population[1].

The role of minimum living allowances, relief and assistance for people living in extreme poverty, and temporary assistance in ensuring basic needs was significantly strengthened. Across the year, the central government allocated RMB154.68 billion in aid subsidies and RMB204 million in temporary price subsidies to support vulnerable groups. By the fourth quarter of 2023, the basic living needs of 40.63 million urban and rural residents receiving minimum living allowances and 4.73 million urban and rural residents receiving relief and assistance for people living in extreme poverty had been secured[2]. By the end of October 2023, 7.42 million incidences of temporary relief had been offered[3].

Efforts to reinforce and build upon achievements in poverty alleviation yielded notable results. In 2023, 3.42 million individuals, or 49 percent of those under monitoring by the rural revitalization department to prevent a relapse into poverty, received minimum living allowances, relief, or assistance, while a further 170,000 people received temporary relief.

(3) Greater housing support

In 2023, 2.13 million units of government-subsidized rental housing began construction or were completed and made available. Rebuilding commenced on 1.59 million housing units in rundown urban areas nationwide, and a further 1.93 million rebuilt units were completed. Renovation also started on 53,700 old urban

[1] State Council Information Office: "State Council Policy Briefing on October 25, 2023", Chin. ed., State Council website, October 25, 2023.

[2] Ministry of Civil Affairs: "Civil Affairs Statistics for the Fourth Quarter of 2023", Chin. ed., Ministry of Civil Affairs website, March 15, 2024.

[3] National Bureau of Statistics: "Statistical Bulletin on the National Economic and Social Development of the People's Republic of China in 2023", Chin. ed., National Bureau of Statistics website, February 29, 2024.

residential communities, benefiting 8.97 million households[1]. After years of sustained effort, by the end of 2023, China had cumulatively constructed over 64 million units of government-subsidized housing and resettlement housing for the redevelopment of rundown urban areas. This initiative has benefitted more than 150 million people and effectively covered almost all low-income families in need of housing assistance[2].

The mortgage pilot programs for rental housing groups, launched in cities such as Chongqing, Jinan, Zhengzhou, and Changchun, have made steady progress, providing stronger policy support for the rental housing needs of new urban residents and young people.

V. The Healthy China Initiative Made Steady Progress

People's health is a key indicator of a prosperous nation and a strong country. Giving strategic priority to ensuring the people's health, China has advanced the Healthy China Initiative. As a result, the people's health and basic medical and health services saw continuous improvements.

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[1] "Figure: Renovation Began on 53,700 Old Urban Residential Communities in 2023", Chin. ed., Xinhua News Agency, January 31, 2024.

[2] "State Council Information Office Briefing on Promoting High-Quality Development: Ministry of Housing and Urban-Rural Development", Chin. ed., State Council Information Office website, August 23, 2024.

1. Refining the health service system

(1) A more complete policy system for high-quality population development

During 2023, China made significant progress in developing a basic elderly care service system. The General Office of the CPC Central Committee and the General Office of the State Council issued the Guidelines on Advancing the Building of the Basic Elderly Care Service System in May, calling for swift action to establish a sustainable system that covers all elderly people, with clearly defined rights and responsibilities and the right levels of support. A National Basic Elderly Care Service List was introduced, which specifies 16 service items under three major categories, namely material assistance, nursing care, and caring services, and outlines their service recipients and content.

China also enhanced tax support for family members who care for the elderly and raise children. In August, the State Council issued the Notice on Increasing Special Additional Deductions for Individual Income Tax, raising the deductible amount for elderly care from RMB2,000 per month to RMB3,000 per month and for nursing care of children under the age of three from RMB1,000 per child per month to RMB2,000 per child per month.

Additionally, the country improved its comprehensive public service facilities in communities, with the General Office of the State Council forwarding the National Development and Reform Commission's Implementation Plan for the Construction of Urban Community-Embedded Service Facilities, which focuses on the allocation of spaces for child nursing care and elderly short-term nursing beds.

The legal framework for barrier-free environments also saw improvement.

Enacted in September, the Barrier-Free Environment Creation Law of the People's Republic of China defines key principles and establishes a management system of barrier-free environments, providing strong legal safeguards and convenience for the elderly that allow them to participate fully and equally in society. Additionally, government subsidies for basic public health services were also raised from RMB84 in 2022 to RMB89 per person per year in 2023, and priority was given to supporting localities in enhancing such services for children and elderly people.

(2) A more robust system underpinning the health sector

China expanded the opening up of the health sector, which is regarded as a priority area. The Central Economic Work Conference held at the end of 2023 proposed that market access in healthcare, alongside telecommunications and other services industries, would be relaxed. The Guidelines on Further Optimizing the Foreign Investment Environment and Increasing Efforts to Attract Foreign Investment, issued by the State Council, also named biopharmaceuticals as a key area. It includes measures to expedite the implementation of foreign-invested biopharmaceutical projects, encourage foreign-invested enterprises to conduct clinical trials of cell and gene therapy drugs already marketed overseas in China in accordance with the law, and refine the application procedures for marketing registration of drugs that are produced overseas, already marketed in China, and whose production is to be transferred to China.

China also gained momentum in its own biopharmaceutical innovation by supporting the development of the entire innovative drug chain and accelerating the research, production, demonstration, and application of high-end medical equipment. The amended Detailed Rules for the Implementation of the Patent Law of the People's Republic of China provides an overall framework and main approaches for China's drug patent term compensation system, further strengthening

the protection of intellectual property rights and promoting innovation.

(3) Better-conceived diagnosis and treatment processes

Comprehensive plans were made to establish a high-quality and efficient healthcare service system. The General Office of the CPC Central Committee and the General Office of the State Council issued the Guidelines on Further Improving the Healthcare Service System, which calls for modernizing capacity, integrating systems, improving services, refining management, and ensuring sound governance by optimizing resource allocation, training high-caliber personnel, enhancing division of labor and cooperation, adopting tiered diagnosis and treatment, improving service quality and experience, bolstering management, and deepening institutional reform, with a view to growing the healthcare sector to its full potential and making services more consistent and management more effective. Moreover, China also promoted the high-quality development of public hospitals, supported the construction of national- and provincial-level regional medical centers and county-level hospitals, to ensure that more quality medical resources were available and more evenly distributed among regions.

China optimized the tiered diagnosis and treatment system. In 2023, visits to community-level medical and healthcare institutions accounted for 52 percent of the national total, an increase of 1.3 percentage points from 2022, reflecting the growing appeal of such facilities. Nationwide, over 18,000 medical consortia of various forms have been established. Two-way referrals reached 30.32 million, marking a 9.7-percent increase from the previous year. Among these, referrals to higher-level medical institutions were 15.60 million, a 4.4 percent-decrease from 2022, while referrals to lower-level institutions were 14.72 million, a 29.9-percent increase from 2022.

2. Enhancing healthcare safeguards for the people

(1) Stronger healthcare service capacity in urban and rural areas

The supply of healthcare resources in China continued to increase through 2023, and by the end of the year, the country was home to 1.07 million medical and healthcare institutions, including 1.02 million at the community level, an increase of 36,000 from 2022. The number of healthcare professionals stood at 12.49 million, 4.78 million of whom were licensed doctors and licensed assistant doctors, and 5.64 million of whom were registered nurses, representing increases of 347,000 and 413,000, or 7.8 percent and 7.9 percent, respectively, compared to the previous year. The number of beds in such institutions was 10.17 million, an increase of 424,000 from 2022, with a growth rate of 4.3 percent, 1.1 percentage points higher than in the previous year (see Figure 6-4).

Disease prevention and control capabilities continued to improve. The average time for reporting infectious disease cases through the mandated online system was shortened to 4 hours. At the national level, a technical system capable of rapidly identifying 300 pathogens within 72 hours was established. All provincial disease control centers and 90 percent of municipal disease control centers now have the capability for nucleic acid testing and virus isolation. The vaccination rates for vaccines in the national immunization program remained above 90 percent.

Rural healthcare service capabilities were strengthened. Healthcare resources were better coordinated and allocated at the county level, and the capacity building of county-level public hospitals led to improvements in county medical consortia and rural healthcare services. Assistance from Grade III hospitals in cities was also expanded to 1,496 county-level hospitals in 940 counties.

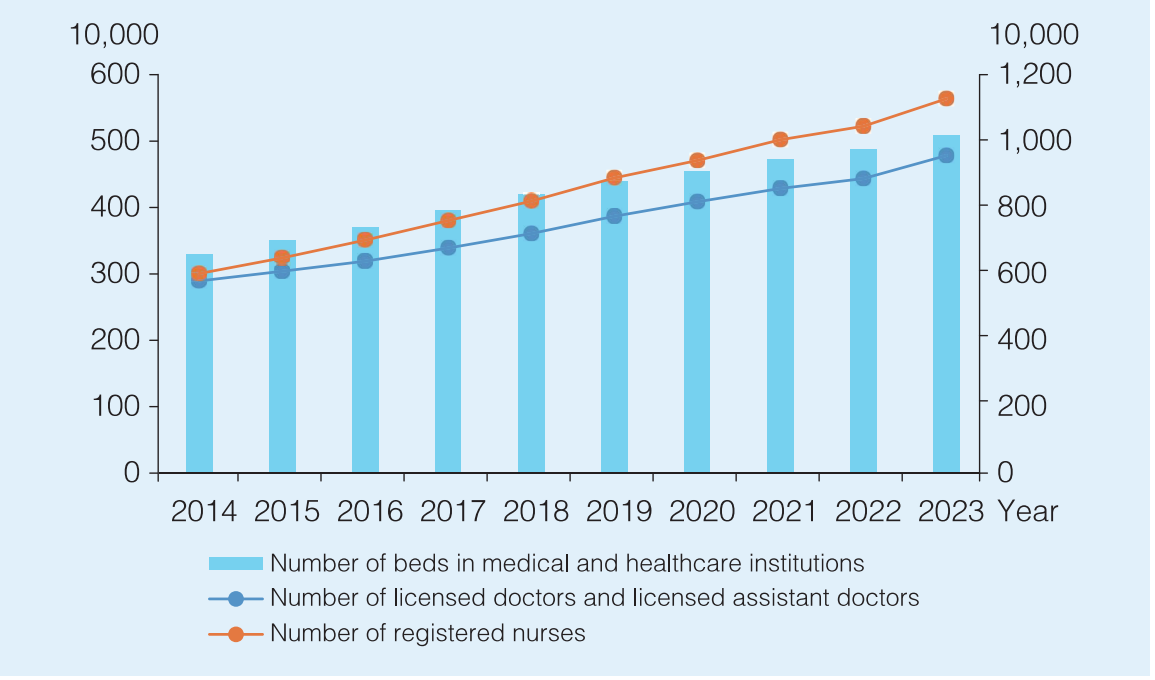

Figure 6-4 Changes in Major Medical and Healthcare Resources in China from 2014 to 2023

Source: "Statistical Communiqué on Healthcare Development" of the years mentioned; *China Health Yearbook 2023*.

Patient experience saw great improvement following the launch of a nationwide campaign to improve patient experience for greater satisfaction and the promotion of time-slot appointments for outpatient visits. Of all public hospitals at Grade II and above, 59.2 percent offered appointment-based diagnosis and treatment, 90.6 percent implemented clinical pathway management, 67.6 percent provided telemedicine services, 88.1 percent recognized test results from same-grade institutions, and 91.6 percent offered high-quality nursing services[1]. Over 5,500 general hospitals at Grade II or above offered "one-stop" comprehensive services, and multidisciplinary consultation services were available at more than 2,000

[1] National Health Commission: "2023 Statistical Bulletin on the Development of China's Healthcare", Chin. ed., State Council China Government website, August 29, 2024.

hospitals at or above Grade II[1].

Inpatient medical costs also decreased, with the average cost per hospitalization bill in 2023 standing at RMB10,315.8, a decrease of 5.0 percent in nominal terms and 5.2 percent in real terms compared to 2022. For Grade III public hospitals, the average cost per hospitalization bill decreased more significantly, falling 7.5 percent in nominal terms and 7.7 percent in real terms compared to 2022. The average cost per hospitalization bill at community health service centers and township health centers was RMB3,333.2 and RMB2,175.6, respectively, representing a decrease of 4.8 percent and 2.0 percent in real terms compared to the previous year[2].

(2) Faster development of traditional Chinese medicine (TCM)

Numerous projects aimed at refining the top-level design for TCM development were introduced in 2023. The General Office of the State Council issued the Implementation Plan for the Major Project to Revitalize TCM in February, which outlines steps to increase investment, establish new mechanisms and institutions, foster a more favorable environment, enhance TCM's disease prevention and treatment capabilities, and promote scientific research. The proposed major projects includes the Project for High-Quality Development of TCM Health Services, the Project for Integrating TCM and Western Medicine, the TCM Preservation, Innovation and Modernization Project, the TCM Talent Training Project (Qihuang Project), the Project for TCM Quality Improvement and Industry Promotion, the TCM Cultural Promotion Project, the TCM Open Development Project, and the National Integrated Reform Pilot Project for TCM.

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[1] "State Council Information Office Briefing on Promoting High-Quality Development of Health Undertakings, Protecting People's Health", Chin. ed., cpcnews.cn, November 1, 2023.

[2] National Health Commission: "2023 Statistical Bulletin on the Development of China's Healthcare", Chin. ed., State Council website, August 29, 2024.

Government investment in TCM continued to increase, with the transfer payment funds supporting the development of TCM growing by 19.6 percent. Key projects, including national centers for TCM preservation and innovation, national TCM centers for epidemic prevention and treatment, flagship hospitals integrating TCM and Western medicine, and key TCM hospitals, saw further progress.

TCM services were also improved. In 2023, 87.78 percent of counties hosted TCM medical institutions, and TCM clinics could be found in more community health service centers and township health centers, with 99.5 percent of community health service centers and 99.4 percent of township health centers capable of providing TCM services. The number of licensed and assistant TCM doctors in community clinics was 205,000, accounting for about 19.65 percent of all licensed and assistant doctors at the community level nationwide. The total number of outpatient visits to TCM medical institutions reached 1.54 billion, an increase of 25.3 percent compared to 2022, and the number of discharges was 49.81 million, an increase of 29.0 percent compared to the previous year. Thirteen overseas TCM centers and nine national bases for international cooperation were established, enabling high-quality integration of TCM into the Belt and Road Initiative.

(3) Better health among the population

In 2023, China's average life expectancy reached 78.6 years[1], an increase of 0.3 years from 2022 and 2.8 years from 2013. The infant mortality rate decreased to 4.5 per thousand, the mortality rate of children under the age of five dropped to 6.2 per thousand, and the maternal mortality rate fell to 15.1 per hundred thousand[2] (see Figure 6-5).

[1] National Health Commission: "2023 Statistical Bulletin on the Development of China's Healthcare", Chin. ed., State Council website, August 29, 2024.

[2] "Press Conference of the National Health Commission on February 28, 2024 on Healthcare Progress", Chin. ed., National Health Commission website, February 28, 2024.

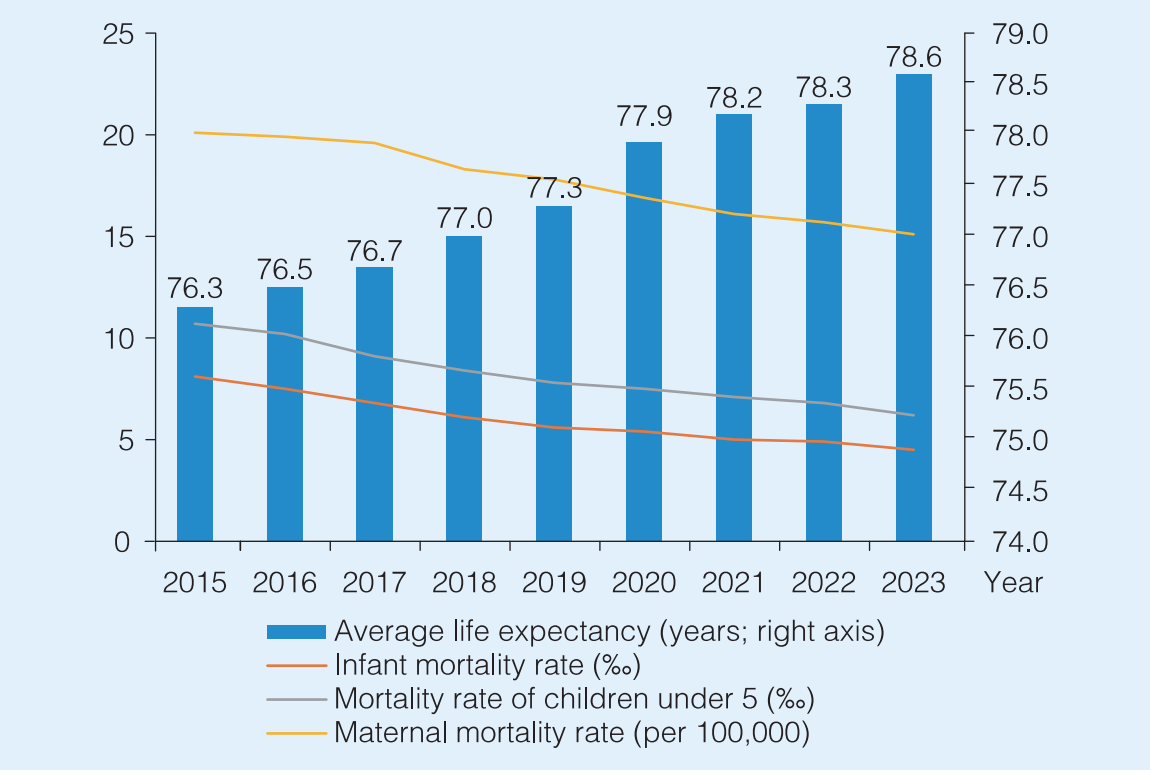

Figure 6-5 Major Health Indicators in China from 2015 to 2023

Source: National Health Commission.

The level of health literacy of Chinese residents[1] reached 29.70 percent, an increase of 1.92 percentage points from 2022 and 20.9 percentage points from 2013, showing a steady upward trend. The improvement in rural areas was particularly strong. The level of health literacy among urban and rural residents registered 33.25 percent and 26.23 percent, respectively, in 2023, representing increases of 1.31 and 2.45 percentage points from 2022.

[1] The health literacy of residents is an important indicator of a country's basic public services and the health of its people. It describes the share of people with health literacy, i.e., people having the ability to obtain and understand basic healthcare information and services and to use such information and services to make the right decision that protects and enhances their health. See National Health Commission: "Monitoring of Health Literacy of Chinese Residents in 2023", Chin. ed., April 24, 2024.

VI. China Maintained Overall Social Stability

National security provides a pivotal foundation for ensuring the steady and sustained progress of Chinese modernization. Pursuing both development and security, China redoubled efforts to ensure workplace safety and improve emergency management, adopted a full range of steps to maintain law and order, worked to defuse social tensions, and advanced reform of institutions for society work. With these steps, China was able to maintain social harmony and stability.

1. Strengthening social governance

(1) Redoubling efforts to ensure workplace safety and improve emergency management

In May 2023, the General Office of the CPC Central Committee and the General Office of the State Council issued the Guidelines on Comprehensively Strengthening Forest and Grassland Fire Prevention and Control under New Circumstances, followed in September by the Guidelines on Further Strengthening Workplace Safety in Mines. The State Council's workplace safety commission introduced the Strict Measures to Prevent and Curb Serious and Major Work Accidents in the Mining Sector, to see that all those involved in the mining sector fully shoulder their share of responsibilities. Nationwide efforts were made to identify and address major safety hazards by establishing criteria for identification, key inspection items, and a database for major accident risks, with

risk prevention as a top priority.

To modernize its emergency management system and enhance its capacity, China established a command and coordination operation mechanism for the national emergency command center that includes a consolidated national disaster prevention, mitigation, and relief commission, the National Fire and Rescue Administration, and national comprehensive fire and rescue brigades. To supplement this, the country also accelerated the construction of regional emergency response centers.

On August 17, the Standing Committee of the Political Bureau of the CPC Central Committee held a meeting to study and plan for flood control, disaster relief, and post-disaster recovery and reconstruction. China has put in place effective systems to manage natural disasters, including floods, droughts, typhoons, geological disasters, and earthquakes, and these systems were vital during the year in the successful response to the catastrophic flooding in the Haihe River Basin and earthquake rescue operations in Jishishan, Gansu.

(2) Maintaining public order

Throughout 2023, China intensified its special operations against violent and terrorist activities and cracked down on internet-related crimes to safeguard national security. The country pressed ahead with the mechanism for combating and rooting out organized crime on an ongoing basis, and continued its Kunlun operations against crimes and violations in the fields of food, drugs, the environment, and intellectual property rights. The special anti-drug operation continued to target both sources and the supply chain, and the “Golden Eagle” operation continued to apprehend and repatriate suspects involved in cross-border gambling. An operation targeting public security violations was carried out during the summer, and the operation to combat telecom and online fraud involving Chinese nationals

overseas was also continued.

Additionally, China accelerated the reform of its policing, in line with the requirement of the Ministry of Public Security that the ministry's Party committee assumes leadership, the ministry exercises coordination, provincial-level departments take main responsibility, municipal- and county-level organs fight against violations, and police stations are responsible for the prevention of violations. Emphasis was placed on the community level, with increased personnel deployment and support. The country also advanced the reform of streamlining departments and police categories in the public security organs at the municipal and county levels, improved the mechanism integrating intelligence, command, and action capabilities, and promoted the full coverage of "one police officer responsible for one village (grid)".

(3) Resolving social conflicts

China applied and further developed the Fengqiao model for promoting community-level governance in the new era. The Political and Legal Affairs Commission under the CPC Central Committee selected 104 units adopting the Fengqiao model to offer guidance on how to resolve problems as they emerge at the community level. The fifth session of the Standing Committee of the 14th National People's Congress revised and adopted the Administrative Reconsideration Law of the People's Republic of China, to better leverage administrative reconsideration as the primary channel for resolving administrative disputes. The Supreme People's Court and the Ministry of Justice issued the Guidelines on Fully Leveraging the Foundational Role of People's Mediation in Addressing Disputes at the Source. According to the document, the two departments shall collaborate with 13 other organizations, including the All-China Federation of Trade Unions, the All-China Federation of Industry and Commerce, and the National Financial

Regulatory Administration, to establish a mechanism for preventing and resolving disputes, which combines the advantages of industry-specific mediation and gives priority to alternative dispute resolution mechanisms.

China also deepened the reform of the circuit courts of the Supreme People's Court and made mediation platforms of people's courts available to villages, communities, and grids, which assisted in the on-site resolution of community disputes. The country advanced its efforts to build public legal service platforms, ensuring access to legal advisors for over 600,000 villages and communities[1]. The Regulations on Handling Public Complaints was fully implemented in 2023 to ensure that public complaints and proposals are handled in accordance with the law and to address the root causes of public complaints while resolving long-standing complaints on an ongoing basis.

(4) Promoting orderly reform of institutions for society work

The CPC Central Committee and the State Council issued the Plan for the Reform of Party and State Institutions, which includes the establishment of a Society Work Department of the CPC Central Committee. This department is responsible for:

- Offering guidance for the collection of the people's suggestions;
- Coordinating efforts to enhance community-level governance and government building through Party building;
- Overseeing Party affairs of national industry associations and chambers of commerce, and promoting reform and transformation of such associations and chambers;
- Offering guidance for Party affairs in mixed-ownership enterprises, private

[1] "Ministry of Justice: Full Coverage of Public Legal Services in Rural Areas, Legal Advisors for 600,000-Plus Villages", Chin. ed., CCTV, June 15, 2024.

enterprises, new types of economic and social organizations, and among groups in new forms of employment;

· Offering guidance for team building of social work professionals.

The purview, operational preparations, organizational structure, and personnel assignment of the department have been completed. Provincial Party committees also successfully established their respective society work departments, which have started functioning.

2. Ensuring social harmony and order

(1) Stable progress in workplace safety and disaster prevention, mitigation, and relief

In 2023, a total of 394,000 major accident risks were identified[1]. The death toll due to work accidents amounted to 21,242, marking a 4.7-percent decrease from the previous year. The road traffic death toll per ten thousand vehicles was 1.38 people, a 5.5-percent decline[2]. Compared to the most recent five-year average, the number of people affected by natural disasters, the number of deaths or missing people due to natural disasters, and the area of crops affected by natural disasters in 2023 decreased by 24.4 percent, 2.8 percent, and 37.2 percent, respectively. Notably, the number of forest fires and grassland fires decreased by 77.5 percent and

[1] "Effective Prevention, All-Out Response, Solid Foundation: China's Emergency Management in 2023", Chin. ed., Xinhua News Agency, January 5, 2024.

[2] National Bureau of Statistics: "Statistical Bulletin on the National Economic and Social Development of the People's Republic of China in 2023", Chin. ed., National Bureau of Statistics website, February 29, 2024.

46.8 percent, respectively, reaching historic lows[1].

(2) Solid foundation for the Peaceful China Initiative

In 2023, the number of public security cases investigated remained largely unchanged from the previous year, the number of criminal cases filed decreased by 4.8 percent (see Figure 6-6), and the clearance rate for current homicide cases remained at 99.9 percent. Owing to its stable public security situation, China had one of the lowest homicide rates and criminal rates in the world in 2023. Authorities cracked down on gun and explosive-related crimes, addressing approximately 20,000 cases and apprehending around 20,000 suspects, resulting in a 20-percent decrease in the number of gun and explosive-related crimes, year on year. A total of 192,000 cases involving internet disinformation and other internet-related criminal activities were handled, and 19,000 cases related to food and drug safety were uncovered, with 28,000 suspects arrested. Significant achievements were also made in combating telecom and internet fraud, with 437,000 cases solved, and 41,000 suspects handed over by law enforcement in northern Myanmar to Chinese authorities[2].

(3) New achievements in preventing and resolving social conflicts

In 2023, administrative reconsideration bodies at all levels concluded 293,000 cases in accordance with the law, a 14.5-percent increase from the previous year[3].

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[1] Office of the National Disaster Prevention, Mitigation and Relief Commission, Ministry of Emergency Management: "2023 Fact Sheets on National Natural Disasters", Chin. ed., Ministry of Emergency Management website, January 20, 2024.

[2] Ministry of Public Security: "Homicide Clearance Rate Remains at 99.9 Percent", Chin. ed., Ministry of Public Security website, January 9, 2024.

[3] "Annual Report of the Ministry of Justice on Building a Law-Based Government", Chin. ed., State Council website, March 31, 2024.

Figure 6-6 Criminal Cases Filed by Chinese Public Security Organs from 2014 to 2023

Note: Data for 2023 are calculated based on data from 2022 and Public Security Ministry report, "The Number of Criminal Cases Decreased by 4.8 Percent".

Source: National Bureau of Statistics; Ministry of Public Security press conference.

Public security organs resolved approximately 6 million disputes[1], and people's mediation committees processed 17.2 million disputes[2]. Nationwide, courts successfully mediated 11.998 million disputes through commissioned people's mediation, administrative mediation, and industry-specific professional mediation organizations, a 32-percent increase from the previous year. This accounted for 40.2 percent of the total number of civil and administrative cases filed with the courts during the same period[3]. The law-based handling of public complaints and proposals yielded tangible results, as seen in the significant

[1] Ministry of Public Security: "Homicide Clearance Rate Remains at 99.9 Percent", Chin. ed., Ministry of Public Security website, January 9, 2024.

[2] "Addressing Pressing Needs for a Greater Sense of Gain: How Judicial and Administrative Departments Advance High-Quality Development of Public Legal Services", Chin. ed., *Legal Daily*, January 18, 2024, p. 1.

[3] Zhang Jun: "Report on the Work of the Supreme People's Court", Chin. ed., March 8, 2024.

achievements in addressing the root causes of public complaints, and overall stability and sound order.

(4) Notable progress in society work

The General Office of the State Council forwarded the National Development and Reform Commission's Implementation Plan for the Construction of Urban Community-Embedded Service Facilities. This document accelerates the delivery of quality and inclusive public services to communities, which acts as a solid foundation for community governance. The seventh session of the Standing Committee of the 14th National People's Congress adopted a decision to amend the Charity Law of the People's Republic of China, providing robust legal safeguards for the development of emergency volunteer services, community volunteer services, and other related activities. In 2023, the number of registered volunteers in China surpassed 230 million[1]. Local standards such as the Norms for Judicial Social Work Services for Minors were also rolled out to further standardize social work.

[1] "The Number of Registered Volunteers Surpasses 230 Million", Chin. ed., Xinhua News Agency, September 6, 2023.

Thematic Report 1

China's New Energy Industry: Market-Based Support for Global Green and Low-Carbon Transition

Recently, some overseas politicians and media have hyped up the idea of "overcapacity" in China's new energy industry. This rhetoric is entirely unfounded and does not align with basic facts. The growth of China's new energy industry stems purely from the country's unwavering commitment to green and low-carbon transformation and the sector's economies of scale and comparative advantages, which have taken shape over a long period.

It is essential to view new energy production capacity from a holistic, historical, and evolutionary perspective, rather than relying on a narrowly defined "reasonable capacity" based solely on domestic market demand. By merely summing up effective and ineffective production capacity during technological advancement, or using current demand as the sole criterion for determining excess production capacity, we overlook the competitive market dynamics that embody the concept of "survival of the fittest", and fail to consider that emerging industries often involve dynamic adjustments in production capacity.

It is also important to recognize that China's advancement in green and low-carbon transformation and the new energy sector have made substantial contributions to the global battle against climate change and significantly improved the wellbeing of people across the globe.

I. China's Rapid Development in New Energy Industry Stems from Its Unwavering Commitment to Green and Low-Carbon Transformation and the Sector's Economies of Scale and Comparative Advantages, Which Have Taken Shape over a Long Period of Time

In the global fight against climate change, China has actively embraced the opportunities presented by green and low-carbon transformation and remains committed to advancing its new energy sector. The country was among the first to formulate and implement relevant laws and policies in this regard, with the Renewable Energy Law of the People's Republic of China coming into effect on January 1, 2006; the Medium- and Long-Term Development Plan for Renewable Energy in 2007; and the Automobile Industry Adjustment and Revitalization Plan in 2009 – the latter two explicitly focusing on the development of solar energy, new energy vehicles (NEVs), and other low-carbon industries. Since then, China has continued to provide a clear, stable policy environment for the new energy sector, as it promotes innovation and industrial application of new energy technologies.

China saw a rapid development in wind power and photovoltaic (PV) energy, achieving its goal of having non-fossil fuels account for 15 percent of the primary energy consumption by 2019, a year ahead of its target. China's announcement of peak carbon emissions and carbon neutrality goals in 2020, in particular, has led its new energy sector towards the large-scale development stage, driven by market

forces, with significant increases felt in new energy development and utilization, NEV sales, and the quality of new energy products.

By the end of 2023, China's cumulative installed wind and PV capacity had reached 1.05 billion kilowatts, accounting for 40 percent of the world's total, while its NEV sales approached 9.5 million units, leading the world for nine years in a row.

China's economies of scale contribute to the formation of a complete, competitive new energy industry chain.

First, strong manufacturing support has resulted in a relatively complete industrial system, with China's manufacturing value-added accounting for about 30 percent of the global total. China is home to a full-fledged industrial sector, a well-established supporting system, and a strong industrial system, and its efficient and coordinated manufacturing network provides all-round support for the development of each link in the new energy industrial chain. Building on top of years of development, China has established relatively complete new energy industrial and supply chains that encompass areas such as power batteries, motors and controls, complete vehicles, charging facilities, manufacturing equipment, and recycling and reuse in the NEV sector.

Second, China's supersized market helps it reduce costs and allows competing technology roadmaps to grow independently. Huge investments in R&D and equipment are required in the early stage of the new energy sector. China's vast market helps companies reduce costs, giving them a competitive edge in the international market with their low-cost, high-performance products derived from domestic competition. Teardowns of Chinese NEVs have revealed the competitive cost of some domestic manufacturers. The expansive market space also provides ample room for varying technology and innovation roadmaps and business models

so that products and companies that are truly competitive and in line with the direction of industrial upgrading can proliferate. This is exemplified by China's PV cell industry, where different manufacturers have taken different approaches to bring their technology to the implementation stage, each giving rise to several listed companies.

Such comparative advantages built upon a process of dynamic evolution have laid the foundations for the rapid development of China's new energy sector. Ongoing technological upgrades, profound shifts in the mix of production factors and endowments, and the integration of digitalization and green transformation underpin the continuing rapid development of the new energy industry.

Firstly, China has emerged as a world leader in terms of NEV, wind power, and PV technologies by seizing the opportunities offered by this critical period of electrification, intelligence, and the green transformation of the automotive industry. Technological advancements in these areas have led to breakthroughs in key technologies, including high-energy-density batteries, high-efficiency drive motors, and electric control systems. Chinese PV cells have some of the world's highest levels of average conversion efficiency, and its wind power technologies for long wind turbine blades and high towers are now industry-leading. Of the world's 558,000 patents granted for green and low-carbon technologies between 2016 and 2022, 178,000 – or 31.9 percent – were awarded to Chinese patent holders.

Secondly, China owes success to its significant workforce of dedicated new energy professionals. According to a joint report by the International Renewable Energy Agency (IRENA) and the International Labor Organization (ILO), the number of people working in China's renewable energy sector stood at 5.55 million by 2022, making up some 40 percent of the global total. China's expert engineers – one-quarter of the world's total, have been a key attraction for multinational

automotive companies looking to set up NEV R&D centers in the country. In 2023, for instance, Volkswagen Group established its largest R&D center outside Germany in Hefei, capital of east China's Anhui Province, specializing in the development of intelligent and connected NEVs.

Thirdly, China's growing capital abundance lends strong support for the development of the technology- and capital-intensive new energy sector. In 2022, the country represented 28.1 percent of the global capital formation, leading to a significant reduction in the funding gap for industrial development. High-standard infrastructure assets, including railways, power grids, transport pipelines, energy storage, and charging stations, also remarkably boosted the development of the new energy sector.

Fourthly, the strengths of China's digital economy, combined with green and low-carbon transformation, also add new momentum to its new energy sector. As the world's second-largest digital economy, digital empowerment has played a significant role in improving the manufacturing and logistics efficiency of the new energy sector, enabling more responsive customer service, more vibrant innovation of technology and business models, and faster iteration of product designs and technology.

In December 2023, GAC Aion's Smart Ecological Factory was selected for the World Economic Forum's Global Lighthouse Network, the world's only NEV lighthouse factory. Carmakers have worked in collaboration with chip, software, and communications companies; autonomous driving and intelligent connectivity technologies have made further progress; and smart applications and services have closely connected vehicles and human activities.

II. It Is Essential to View New Energy Production Capacity from a Holistic, Historical, and Evolutionary Perspective, Instead of Arriving at the Absurd, Oversimplified Conclusion of "Overcapacity" Through One-Sided, Static Lenses

Throughout the process of industrialization and economic globalization, the production capacity of advanced sectors has always been driven by global demand. Therefore, it is important that domestic demand should not be the sole criterion for defining the reasonable size of production capacity. Socialized mass production, as a result of industrial development, has greatly improved productivity, allowing countries to participate in the international division of labor based on their respective advantages. Supply and demand are not confined within the boundaries of any given country.

At the end of the 19th Century, the United States became the largest industrial nation, and its share of global trade increased significantly. From 1915 to 1920, the share of its exports in the global market exceeded 20 percent, with a peak of 26.2 percent in 1916. Leveraging its mass production capacity, the US dominated global markets in automobiles, aircraft, and computers. In 1913, the Ford Motor Company introduced the famous assembly-line production model at its Detroit factory, which substantially boosted productivity and elevated the US to the world's largest car producer. At one point, its car production stood for over 60

percent of the world's total.

Between the 1960s to 1980s, the US company IBM held 70 to 80 percent of the large computer market in industrialized countries. For a long time, Boeing controlled over 60 percent of the global commercial aircraft market. After World War II, the automotive industries in Western Europe and Japan experienced rapid growth. In 2018, 78 percent of automobiles produced in Germany were exported, compared to 48.3 percent in 1957. Japan's car production increased from 1.28 million units in 1963 to 12.27 million units in 1985, with exports rising from 100,000 units to 6.73 million units over the same period, comprising 54.8 percent of the cars made in the country.

Over the past three decades, many European, American, Japanese, and Korean automotive brands have entered the Chinese market and captured significant market shares. Despite this, China has never accused these countries of overcapacity. In 2023, China exported 1.20 million NEVs, accounting for only 12.5 percent of its production – far from indicating any signs of overcapacity.

Still, it is important to recognize that the development of the new energy sector is accompanied by technological breakthroughs and rapid iterations. As a result, effective and ineffective capacities exist in parallel and should not be simply added up.

New technologies often lead to higher productivity and greater competitiveness, motivating businesses to adopt them in order to enhance their production capacity. In turn, inefficient and ineffective production methods based on older generations of technology are naturally phased out over time. Adding older production capacity to its more advanced alternatives and labeling the output as excess defies all logic and does not align with the basic facts.

In 2010, for example, the light-to-electricity conversion efficiency of mass-produced

PV cells stood at around 16.5 percent. By 2015, with the arrival of second-generation technology, this figure had increased to about 20 percent. By the time the third generation launched in 2023, this efficiency had risen to some 25 percent. Each percentage-point increase in conversion efficiency results in a 7-percent reduction in power generation costs. Such significant advancements in efficiency and cost reduction compelled companies to develop new technologies and invest in new production capacity. The average time required to iterate PV production lines has been shortened to two-three years, while depreciation takes more than a decade. Consequently, older production capacity quickly becomes uncompetitive.

A similar situation exists in other high-tech sectors. Take the information technology industry. Over the last few years, global integrated circuit technologies have been upgraded under the drive of Moore's Law, leading to growing advanced production capacity, but also widespread outdated, idle capacity. In the third quarter of 2023, for instance, TSMC's advanced production lines for 4-5 nanometer processes operated at a capacity utilization rate of over 80 percent. In contrast, GlobalFoundries' production lines for 16-22 nanometer processes had a capacity utilization rate of only 55-65 percent, as more advanced production capacities came online. In 2024, Samsung, TSMC, and Intel are expected each to invest billions of US dollars to build production lines of advanced processes.

Intense market competition is often accompanied by the survival of the fittest and dynamic production capacity adjustments, and this is equally true for the new energy sector. Taking a static view of the size of production capacity at any given time overlooks this fact. Under market economy conditions, competition and the survival of the fittest are the norm. In this process, production capacity will continuously enter, exit, transform, and adjust in accordance with the universal law of industrial development.

Viewing this dynamic, evolving process as a single point in time is of little use, and will never lead to the correct conclusions. When the United States became a major automobile manufacturing country in the early 20th Century, hundreds of automobile companies emerged. As market competition intensified, however, most of these companies went bankrupt. The old names that have survived, like General Motors, Ford, and Chrysler, now face challenges from emerging automakers such as Tesla. Similarly, with the rise of personal computers in the late 1970s, there were once over 400 manufacturers globally. As technical standards unified and the market matured, many of these companies fell by the wayside. By 1997, the few top manufacturers, including Compaq, IBM, Dell, and HP, constituted over 60 percent of the global market.

The mobile phone industry has also undergone a process of survival of the fittest. In the early 2000s, Nokia, Motorola, Sony, and Ericsson led the market, with Nokia taking up as much as 35 percent of the market. Yet, as smartphones began to emerge, these companies gradually lost their market share and were replaced by other manufacturers.

Emerging industries often see rapid rises and declines of businesses and nonstop, dynamic production capacity adjustments in their development. The new energy industry will inevitably go through a similar process in a self-regulating market.

Today, the new energy industry is experiencing a period of rapid growth, and production capacity is expanding primarily to meet demand projections. As such, the current demand levels should not be used as a benchmark to determine whether production capacity is in excess.

In a typical life cycle, industries emerge, grow, mature, and fall. When industries grow, demand expands at an accelerated rate, and companies increase

investments to meet future demand expectations. This leads to investment surges and increases in production capacity.

According to estimates by the International Energy Agency (IEA), global demand for NEVs will grow strongly over the next decade, reaching 45 million units by 2030, about four times the level in 2022, and global demand for new PV installations is expected to reach 820 gigawatts (GW) by 2030, also about four times the level in 2022.

Numerous examples illustrate that strong future demand can attract significant investment, resulting in rapid growth in production capacity. Between 1990 and 1997, the proportion of US households owning computers increased from 15 percent to 35 percent, triggering a surge in demand for internet services. This increase in demand drew substantial investments into the internet sector, generating the "dot-com bubble". The massive investment during this period laid the foundation for the booming internet economy that exists today.

A similar example occurred in the LCD panel industry in South Korea. LG's LCD business operated at a loss for eight consecutive years from 1987 to 1994, with an average loss of US$53 million per year. Samsung's LCD business faced losses for seven consecutive years from 1990 to 1997, averaging US$100 million per year. Despite these setbacks, South Korean companies continued to invest billions of dollars in large-size LCD panel production lines based on expectations of immense future market demand. As demand surged for notebook computers, desktops, and flat-screen TVs, the production capacity of companies like Samsung and LG played a crucial role in meeting market needs. Without their forward-looking production capacity development, gaps would have been left unfilled in the expanding market demand.

III. China's New Energy Sector Conforms to the Global Trends of Green and Low-Carbon Transformation and Economic Globalization and Benefits Humanity and the World

Climate change is progressing at an unprecedented rate, and there is a significant shortage of global green products to combat it. Effective climate response hinges on actions, and China's new energy industry has already played a vital role in the global transformation to green and low-carbon alternatives.

2023 was the hottest year on record, with multiple climate indicators – including sea-level rise and Antarctic ice melt – breaking historical records. Extreme weather events, including prolonged heatwaves, heavy rainfall, and flooding, have become ever more frequent, severely impacting global progress and threatening people's safety.

The 2023 Lancet Countdown on Health and Climate Change report indicates that heatwave-related deaths among people aged 65 and older have risen by 85 percent compared to the average from 1986 to 2005.

According to the United Nations Intergovernmental Panel on Climate Change (IPCC)'s 2021 forecast, if the global economy continues to rely on fossil fuels for growth, the global average sea level could rise by 0.63 to 1.6 meters by 2100, compared to the average from 1995 to 2014. Islands and coastal cities may become submerged or uninhabitable in just a matter of decades, and much of human civilization may be jeopardized by adverse climatic conditions.

At present, more than half of the global green and low-carbon technologies

are yet to mature, and the substantial mismatches between the high demand for low-carbon development and the limited availability of affordable green technologies are hindering the global climate response.

China has developed feasible technological roadmaps for deep decarbonization in the energy and transportation sectors and has significantly reduced the cost of new energy products through large-scale technology application. This progress demonstrates to the world that there is still hope in the global fight against climate change.

An April 2024 article in *The New York Times* noted that a rapid and large-scale transformation to renewable energy has become a necessity for humanity, while a 2022 *Nature* study estimates that the global PV module supply chain, led by China, saved the United States and Germany US$24 billion and US$7 billion, respectively, in PV installation costs from 2008 to 2020. Should countries decide to turn inward for production, prices would be more than 20 percent higher than under globalized production, and the global effort to combat climate change would be severely impacted.

China is committed to openness, cooperation, and shared development opportunities as it continues to grow its new energy sector.

China has opened its domestic market to foreign enterprises and, in 2018, removed the foreign equity cap on NEV manufacturing, leading to significant investments by companies like Tesla, Volkswagen, BMW, and Toyota in electric vehicle production. According to Gartner Strategic Advisory, in 2023, foreign automakers held a combined 14.2-percent share of China's passenger NEV market, with Tesla alone accounting for 7.9 percent.

China has also supported outward investments in the new energy sector. From 2021 to 2022, the value of signed contracts for Chinese renewable energy projects abroad grew by 13 percent. In the first three quarters of 2023, Chinese companies

signed overseas renewable energy project investment agreements worth US$3.8 billion. BYD, as an example, is constructing an advanced and highly automated NEV production base in Hungary, which will not only promote local green industrial transformation but also create thousands of jobs.

Furthermore, China is continuing to advance mutually beneficial trade. Besides importing a large number of NEVs from brands like BMW, Audi, and Porsche, China also imports high-end components for electric vehicles, such as lighting systems, braking systems, tires, and shock absorbers. Chinese exports also include a significant number of products from foreign enterprises, with Tesla alone making up 28.6 percent of China's NEV exports in 2023.

Given these facts, it is hard not to question the motives of those who deliberately hype up "overcapacity" in China's new energy sector. While industrial competition and trade frictions between countries are inevitable, resorting to unilateralism and protectionism – using allegations of overcapacity to justify protectionist measures and limiting China's new energy product exports – will only slow down the global new energy sector, hinder technological progress in new energy, and delay the global green and low-carbon transformation.

Ecological and environmental challenges call for a community of shared future, in which mankind rises and falls together; no country can remain immune to these challenges. Guided by the concept of a global community of shared future, China is committed to accelerating the green transformation of its development model, pursuing high-standard opening up, promoting the development of the new energy sector, and advancing international cooperation.

China will continue to create more opportunities for the common development of all and inject new impetus into collective global climate response and improvement in the wellbeing of mankind as a whole.

Thematic Report 2

Understanding the Development of China's Future Industries

Future industries are new industrial forms spawned by the new wave of scientific and technological revolution that are still in the critical stage of technological breakthrough or tentative commercialization yet show great potential for growth or strategic impact in the next 5-10 years.

It is possible to highlight key development areas that are worthy of attention by considering new technologies and business types that have emerged in recent years and their future trends, and taking into account the potential for measures of technological disruptiveness, industrial strategic significance, radiation capacity, and possible economic and social benefits, while also drawing on the future industrial layout of developed countries and China's strategic needs and industrial foundation.

It is initially estimated that the total market size of the seven identified key development areas of China's future industries is expected to reach about RMB10 trillion in 2030, with reference to the data forecasts of domestic and foreign think tanks and the assessments of industry organizations, leading enterprises, and experts. These seven identified areas are as follows: future intelligence, quantum information, future network, future materials, low-carbon energy, life and health, and future space.

Of course, it should be noted that, given the dynamic nature of innovation, there are uncertainties in the direction of technological evolution in various fields. Between now and 2030, new development paths will emerge, new tracks for future industries and key areas for

technological advancement will develop, and China will adjust its development approach accordingly.

I. Future Intelligence

Future intelligence is at a stage of rapid technology iteration and deep industrial integration. Continuous breakthroughs are being made in artificial general intelligence (AGI) technology that will drive the fast development of key industries such as intelligent connected vehicles (ICVs), humanoid robotics, and metaverses. The market size of this area is expected to reach RMB5 trillion in China by 2030.

AGI refers to software and hardware systems with autonomous perception, learning, decision-making, and execution capabilities in many different environments, representing the future direction of artificial intelligence (AI). In-depth AGI application in various industries will give rise to a series of new business types and models. According to McKinsey and other organizations, the scale of China's generative AI industry exceeded RMB100 billion in 2023 and is expected to surpass RMB1 trillion by 2030.

To maintain growth in this sector, China should continue to improve the research and development (R&D) capability of generalized large models and develop vertical-specific models with high-quality industry data. This, in turn, will lead to an acceleration in AI empowerment for thousands of industries, strengthen international cooperation on AI governance, and allow for the continued exploration and improvement of regulatory rules in practice.

ICVs are vehicles with the functions of environment perception, information interaction, intelligent decision-making, and automatic control. The development

of ICVs in recent years represents a profound change in the automotive industry, building on advances made in the new energy vehicle sector.

ICVs are likely to play a leading role in the development of the intelligent transportation system and of smart cities as a whole. At present, ICVs are moving from the technology verification stage towards wide-scale industrialization, with the value of the industry surpassing RMB300 billion in 2023.

With the rapid development of vehicle-road-cloud synergy and autonomous driving technology, the ICV industry will enter the expansion period around 2028, with the scale of the industry expected to reach RMB2.8 trillion by 2030 and maturity by 2038.

To achieve this, China should speed up technology iteration and mass production, improve infrastructure, revise the Road Traffic Safety Law of the People's Republic of China, further improve the relevant liability determination mechanism, and gradually expand the scope of road pilots for the move from regional demonstration to market-oriented operation.

Humanoids are robots that can mimic the appearance and behavior of human beings and adapt to a variety of complex environments, such as rugged terrain, space, and the deep sea. These robots will profoundly change the way humans produce things and live their lives.

Currently, humanoid robots are moving from the L3 stage, in which they have sensing capability but require task design, to L4, where they autonomously complete tasks to predefined goals. It is expected that the industry will enter the introduction phase around 2025, with small-scale mass production, before entering the expansion period in 2030, characterized by industrialization and large-scale application.

According to the forecast of the Chinese Institute of Electronics, the market

scale of humanoid robots in China is expected to reach RMB870 billion by 2030. To achieve this, China should strengthen R&D in core technologies such as chips, algorithms, precision sensors, and servo motors, and expand multi-scenario applications such as factories and homes while strengthening standardization and information protection.

The metaverse is an immersive and interconnected space where the digital and physical worlds are intertwined and various possible scenarios of production and life are simulated in highly realistic virtual environments. Through the mutual reinforcement of the real and the virtual, high-end and intelligent manufacturing is likely to undergo a series of upgrades. Whilst this technology is still in the nascent stage of development and application exploration, the industry is expected to achieve introductory commercialization around 2025, rapid growth by 2030, and maturity around 2035.

Key technology research and integration innovations such as intelligent generation algorithms and decentralized identity verification should be strengthened for application in key scenarios such as smart cities, digital creativity, and industrial processes with enhanced computing infrastructure and sound industrial standard systems to allow this technology to advance.

II. Quantum Information

Quantum information is a key technology for economic and social development. The development of quantum information is trending in a number of directions, including quantum computing, quantum communication, quantum measurement, and sensing. By 2030, China's market size in this field is expected to exceed

RMB300 billion.

Quantum computing is a new type of computation based on quantum mechanics, and is mainly used for ultra-scale complex calculations with a speed hundreds of millions of times faster than that of traditional supercomputers. At present, the quantum computing industry is still exploring technological paths and is expected to enter the expansion period by 2040 and maturity in 2060. To achieve this, China should strengthen R&D in fault-tolerant general-purpose quantum computing technology while supporting the construction of large quantum science and technology installations and accelerating the promotion of applications in finance and medicine, among other sectors.

Quantum communication is an emerging communication method that utilizes the properties of quantum computing to transmit information. The major advantage of quantum communication over conventional communication means is its hack-proof nature, allowing for safer and more private communication. This technology has already been applied on a small scale in China, and the industry is expected to reach a market size of RMB110 billion by 2026 before achieving large-scale commercialization by 2030. This can only be achieved if China strives for early breakthroughs in key technologies such as quantum stealth transmission and enhances its product engineering capabilities.

Still, China should support the construction of vertical pilot bases to accelerate the testing of quantum communication results while promoting large-scale application of the technology in high-security scenarios such as government affairs, finance, and energy.

Quantum measurement and sensing is a technology that utilizes quantum computing for detection, measurement, perception, and sensing. This form of measurement has much greater accuracy, sensitivity, and stability than conventional

technologies. The team led by academician Pan Jianwei of the University of Science and Technology of China (USTC) has achieved an accuracy of one part in a hundred billion for the measurement of time using an optical atomic clock.

Preliminary commercial applications of this technology are being explored, but to advance this technology, it is necessary to promote the integration of quantum measurement and sensing with AI and other cutting-edge technologies while enhancing the supply capacity of key upstream devices and promoting the application of the technology in oil exploration, life sciences, advanced materials, aerospace, and other fields.

III. Future Network

Future network is the new form of next-generation internet, and includes technologies such as satellite internet and 6G. Currently, these technologies are in the introductory and germinating stages, respectively, and other future network technologies are still under R&D and exploration. It is expected that the market scale of future network in China will reach RMB600 billion by 2030.

Satellite internet is a network system that provides global internet access services through satellites. It can make up for the blind spots of ground networks and provide information collection and communication services covering the whole world, supporting activities such as weather forecasting, ocean monitoring, and strategic material storage and transportation deployment.

This technology is in the introductory phase and is expected to enter the expansion period by 2030. This will be achieved through the mass production of low-orbit satellites and the construction of launch sites, the optimization of the

frequency application process, and the commercialization of launches. The information interaction and management mechanism between the satellite system and the ground network should be set up to accelerate the application of satellite internet in smart cities, augmented reality, autonomous driving, and other scenarios.

Sixth-generation mobile communication, or "6G", is the next generation of mobile communication standard. 6G is characterized by ultra-high speed and ultra-low latency, which can provide basic support for traditional industries and drive the development of emerging industries.

This technology is still at the germinating stage, and is expected to enter the introductory phase in 2030. Upon full commercialization, expected by 2035, this technology will directly drive trillions of dollars of economic output every year. It is, therefore, crucial that China should enhance its R&D of core technologies and cultivates industrial chains in an orderly manner while accelerating the construction of future network test facilities and gradually achieving commercialization on a large scale.

China will establish a national standard and technology promotion center for 6G and jointly participate in the formulation of international standards with more countries so as to enhance its say over standards. Additionally, it will accelerate the construction of a cyberspace defense system to improve the capability of safeguarding national cybersecurity.

IV. Future Materials

Future materials will play a crucial role in altering the performance of basic products and the way they are manufactured in the coming years. In China, key

areas of focus for future materials include graphene materials, superconducting materials, future new energy materials, and new-generation semiconductor materials. The value of the country's future materials market is expected to reach RMB1.2 trillion by 2030.

Graphene is a material composed of carbon atoms in a specific arrangement and is the thinnest, hardest material ever to have been produced. It possesses excellent optical, electrical, and mechanical properties and has broad application prospects in energy, biomedicine, and electronic information, among other fields. The development of graphene materials in China is still at an early stage, with a market scale of less than RMB50 billion in 2023, but is expected to enter the expansion period around 2030, after which, rapid growth is likely to be seen in its application in high-performance equipment, flexible electronics, and sensors. To achieve this, China should strengthen core technology research on high-conductivity copper-based graphene composite materials and graphene-based electrode materials and accelerate the promotion of graphene materials in the key areas of application, while improving insurance compensation for first-time application of new graphene materials.

Superconducting materials are those with zero resistance and complete antimagnetism under low-temperature conditions. They are mainly used in energy and power, health and healthcare, and large-scale scientific engineering. At present, China's high-temperature superconductivity is at the R&D and experimentation stage, while room-temperature superconductivity is still in the stage of theoretical feasibility.

To advance its superconducting materials market, China should strengthen the basic research in superconductivity and establish a scientific research platform for superconducting materials with multidisciplinary cross-fertilization. It should

also promote the gradual realization of low-cost production of bismuth-based and yttrium-based superconducting materials and actively participate in international cooperation and exchanges.

New energy materials of the future are new materials that contribute to the transformation of future energy sources, including perovskite and solid-state lithium battery materials.

Today, China's new energy materials industry is in the industrialization demonstration stage, and is expected to be widely used in the new energy sector by 2030 with significantly enhanced efficiency. Various technology pathways should be encouraged for exploration in parallel for this to be achieved, and capable enterprises should be supported to put themselves forward as leaders of joint innovation to secure cutting-edge technologies. Solid-state battery onboarding and demonstration operations should also be encouraged to accelerate industrialized applications.

New-generation semiconductor materials refer to silicon carbide, gallium nitride, gallium oxide, and other materials that feature high frequency, high speed, high power, high voltage resistance, and low power consumption.

They are suitable for the production of high-power, high-temperature, and high-frequency electronic devices, and are mainly used in new energy, electronic and electrical appliances, and communications. Now in the introductory stage, the industry is expected to enter the expansion stage around 2030.

When achieved, technical research on large-size gallium oxide wafer substrates should be strengthened. For silicon carbide and gallium nitride materials whose production has been preliminarily localized, the semiconductor and terminal industries are encouraged to accelerate their certification and use.

V. Low-Carbon Energy

Low-carbon energy is a field of research of great significance in addressing global climate change and promoting low-carbon economic and social transition. Key development directions in this field include hydrogen energy, advanced nuclear energy, new energy storage, and carbon capture, utilization and storage (CCUS). The market size of this industry in China is expected to reach RMB1.6 trillion by 2030, when it supports more than 25 percent of the non-fossil energy consumption.

Hydrogen energy is a clean, high-quality, and low-carbon secondary energy. It is primarily used in industry, transportation, construction, and electric power.

At present, most green hydrogen projects are still under planning and construction. The demand for hydrogen is expected to exceed 35 million tonnes by 2030, accounting for 5 percent of the final energy consumption.

To meet these demands, China should strengthen R&D in technologies such as high-efficiency and low-cost hydrogen production from electrolytic water, long-distance large-scale storage and transportation, and key equipment for hydrogen refueling stations, support the demonstration operation of hydrogen fuel-cell vehicles, accelerate the construction of hydrogen pipelines and refueling stations, and subsidize the production and use of green hydrogen with reference to carbon trading prices.

Advanced nuclear energy, including fourth-generation nuclear power and controlled nuclear fusion, is the ideal baseload energy source for the future and the

greatest hope for energy freedom for humanity. Mainly used in power, heat and gas supply, seawater desalination, and shipbuilding, this field of research is increasingly receiving worldwide attention.

At present, China's fourth-generation nuclear power plants have begun commercial operation, while controlled nuclear fusion is still at the research and trial stage. To ensure that this field of research continues to advance, China should support leading enterprises in improving spent fuel reprocessing capacity and developing intelligent nuclear power technologies, actively participate in international cooperation on nuclear fusion R&D, and jointly build and share the results of the International Thermonuclear Fusion Experimental Reactor (ITER).

New energy storage, including new battery energy storage, compressed air energy storage, and hydrogen (ammonia) energy storage, will be widely used in electric power systems, households, industry, municipalities, and other areas in the coming years.

China is experiencing the introductory stage, with the industry expected to achieve economies of scale in 2030, driving trillion-dollar upstream and downstream industries.

The country should accelerate the research of new energy storage technology for the storage of large capacity, long duration, and high reliability, encourage the development of grid-side and user-side energy storage, and allow new energy storage enterprises to enter the power market as independent entities.

CCUS refers to the practice of capturing carbon dioxide through physical or chemical means, and before utilization or sequestration. This is a key technology for promoting low-carbon development in coal-fired power generation, petrochemicals, and iron and steel smelting, among other industries.

At present, there is still a technology gap between Chinese enterprises

and multinational companies. CCUS will be widely used in high energy-consuming industries such as coal, petrochemicals, and iron- and steel-making in China by 2030. Its contribution to emission reduction by 2050 will reach 1 to 3 billion tonnes. To achieve this, China will actively carry out CCUS technology R&D, encourage new high-emission projects to add CCUS installations, and realize low-cost, large-scale commercialization as soon as possible.

VI. Life and Health

Life science is an important science and technology field comparable to AI that may bring about disruptive innovations. Key development directions include synthetic biology, brain-computer interface (BCI), and cell and gene therapy.

This field of research is still at the early stage of commercialization or in clinical trials, but is expected to achieve large-scale growth in the next five-10 years. By 2030, the market value of China's life science industry is expected to exceed RMB500 billion.

Synthetic biology involves the design and production of living organisms through gene editing and recombination technology. It has the potential to replace chemical materials in various applications, including agriculture, materials, and biomedicine.

According to McKinsey, by 2030-2040, 60 percent of the global products will be able to be synthesized by biological methods, generating an economic value of US$1.8 trillion to US$3.6 trillion annually.

It is thus critically important that safety and technical standards for synthetic biology application are introduced as soon as possible and the inspection and

testing system in this field is improved.

Access restrictions on non-food synthetic biology products and synthetic biology food products already on the market in foreign countries may be relaxed, while the supervision of synthetic biology medicines by means of early intervention and follow-on supervision should be strengthened.

BCI is a technology that directly connects the brain to external devices for human-computer information interaction. This technology can restore, replace, and enhance human body functions and is mainly used in health and healthcare.

China is yet to approve clinical trials for invasive BCI, while non-invasive BCI has begun to be commercialized and is expected to enter the introductory phase of small-scale mass production in 2030.

To advance research in this field, China can strive for early breakthroughs in brain-computer fusion, brain-inspired chips, and other technologies, formulate evaluation and ethical standards for BCI, consider approving invasive BCI for clinical trials, and develop approval methods for related medical devices.

Cell and gene therapy is touted as a "new pillar of future medicine". This technology enables precise treatment by altering cells and genes, and is mainly used to treat difficult and rare diseases such as cancer and genetic and immune system disorders. It has the advantage of providing cures with long-lasting efficacy.

Cell and gene therapy is in the early stage of commercialization in China, and is expected to achieve large-scale growth in five to 10 years. This can be achieved by accelerating the localization of reagents and materials used in cell therapy and promoting the inclusion of cell drugs in the catalog of medicines covered by medical insurance. Doing so will require the improvement of technical standards for gene sequencing and the clarification of access conditions for testing institutions and personnel.

VII. Future Space

Future space is the frontier of human exploration in emerging areas, with key development directions including manned low-altitude flight, deep space, deep underground and deep sea explorations, and polar development.

By 2030, the market size of China's future space industry is expected to exceed RMB800 billion.

Manned low-altitude flight refers to manned flights over the ground or water at an altitude of less than 1,000 meters. The main applications of such flights are transportation, tourism, and emergency rescue.

Today, China has successfully developed electric Vertical Take-off and Landing (eVTOL), which are expected to be fully commercialized by 2030.

For manned low-altitude flights to become commonplace in China, a sound low-altitude flight service system should be built, low-altitude airspace planning and design improved, and standards of airspace delicacy management enhanced. The testing and validation of low-altitude aircraft, including eVTOL, should be accelerated to gradually expand their use from demonstration applications to larger areas.

Deep-space, deep-undergroud, and deep-sea explorations are development activities carried out by means of new technologies in space beyond the Earth's gravitational field or at the depths of the underground and the oceans, in order to obtain resources and carry out scientific research.

Today, China is leading the world in its technology of carrier rockets and

manned submersibles. To advance deep-space exploration further, China should strengthen the research and application of core technologies such as rockets and reusable carrier rockets, coordinate the management and development of space resources, and explore scientific experiments on outer planets.

As for advancing deep-underground research, China should continue to carry out exploration in this field and build more infrastructure to support such experiments. In terms of deep-ocean exploration, China should accelerate the technological upgrading and industry cultivation for deep-ocean resource development.

Polar development refers to activities in the North and South Poles, such as resource development and utilization, biodiversity exploration, scientific experiments, and the opening of new routes.

China is in the top flight of global polar research, and its hardware support system is initially formed. To the next stage, the country should speed up the construction of research stations in the Arctic and Antarctic and enhance polar communications and dynamic monitoring, strengthen international cooperation, and conduct polar exploration, development, and protection under the principles of equality, mutual benefit, and inclusive development.

China's future industries are highly innovative and show great potential. However, they require huge, continuous R&D investment and take a long time to commercialize amid uncertainties. Efforts can be made for a sustainable development of the future industry via various means, such as strengthening R&D support, encouraging venture capital, cultivating high-level talent, improving the industrial eco-network, exploring application scenarios, and improving the governance of new business types, thus giving full play to the decisive role of the market in allocating resources and the guiding role of the government.

Thematic Report 3

Major Trends and Implications of the Development of AI

Human society has entered the era of artificial intelligence (AI). AI, a disruptive and revolutionary new quality productive force with accelerated development, will not only become the engine of a new wave of global economic growth, but also a key force impacting science and technology, society, the military, the international landscape, and even the future of humanity.

From a comprehensive viewpoint, an AI duopoly of China and the United States has initially emerged, with China set to reap huge dividends from the development of AI through unique advantages and potential. China's AI policy can focus on two aspects with perseverance, namely strengthening applications and developing technology, taking a development-first, baseline-secured, application-driven, and science and technology-led approach.

I. The Nature, Features and Trends of AI

AI is essentially a computer system similar to human intelligence, with the ability to perceive, cognize, and make decisions. The large model[1], generally referred to as the large language model (LLM), is the current mainstream technology for the development of AI and has the ability to understand, reason, imitate and create to a considerable extent.

Especially in the past two years, AI has developed by leaps and bounds. There

[1] Currently, large models refer to AI models developed on the Transformer, a deep-learning architecture.

are frequent international predictions about the advent of AI singularity when machine intelligence will fully surpass human intelligence. Most studies five years ago suggested that it would take more than 30 years, while those three years ago predicted it would happen after 2030. In early 2024, a well-known organization suggested around 2026.[1]

1. The development of AI has four major technological and economic features

First, it is the first disruptive technology that can iterate at high speed in a self-organizing, self-enhancing manner. No other technology in the history of industrial revolution has such a feature.

According to an article published in the journal *Science*, the development of AI technology draws on Darwin's theory of evolution to create intelligent models that iterate and enhance themselves without human input.[2] AlphaGo Zero, a Go AI developed by Google, played against itself about 29 million times in 40 days and gained far more skill than any human player. In early 2024, Sora, a video generation model released by OpenAI, Gemini, a new generation of multimodal models from Google, and Claude-3, a large model from Anthropic, all represented breakthroughs that beat expectations in simulating the real world and moving towards artificial general intelligence. In August 2024, Strawberry, an AI project

[1] The Big Ideas 2024 report released by ARK Invest, a US-based company founded in 2014 and known for investing in disruptive technology companies and obtaining high returns, makes this judgment. The "Big Ideas" series of reports released by the company since 2017 have a great influence on the high-tech industry in the US and globally.

[2] Edd Gent: "Artificial Intelligence Is Evolving All by Itself," https://www.science.org/content/article/artificial-intelligence-evolving-all-itself.

by OpenAI, was reported to be able to autonomously search the internet, breaking the bottleneck of the manually fed data process, and autonomously generating high-quality data for training large models.[1]

Second, it is an underlying and generic technology with strong empowerment capability. Large models can drive the marginal cost of knowledge production towards zero. According to a market study, they can create animated characters, answer legal questions, and perform other tasks in seconds at a marginal cost of 0.1 cent, whereas a human being may need an hour to complete a similar knowledge production activity at a cost of US$100-500.[2]

The application cost of AI is significantly lower than that of the internet, landline telephones, and other historical ICT technologies. With their more significant economies of scale and open-source nature, AI may spread commercially at an unprecedented rate, spurring reinvention across multiple sectors and dramatically boosting productivity.

According to a study by McKinsey & Company, generative AI will bring an additional US$2.6 trillion-4.4 trillion in annual growth to the global economy.[3]

Third, it is highly monopolistic with a winner-takes-all situation emerging. The number of parameters, datasets, and computing power for large model training continues to expand. Its exponentially increasing functionality, combined with its versatility, will lead to the Matthew effect and a winner-takes-all situation and make it difficult to challenge the market position of the technology leader.

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[1] "OpenAI Rumored to Use Strawberry Model for Autonomous Internet Search, Will Generate Training Data", Chin. ed., Chinese website of *MIT Technology Review*, August 28, 2024.

[2] "a16z: Large Model's Marginal Cost Changes Will Spark Revolution", Chin. ed., March 2024. The article is a presentation by Martin Casado, a partner at a16z, a leading global technology venture capitalist.

[3] "The Economic Potential of Generative AI: The Next Productivity Frontier", Chin. ed., McKinsey & Company, June 2023.

For example, the data volume the GPT series of large models trained on grew from 980 million words in 2018 to about 13 trillion words in 2023, an increase of over 10,000 times. Ever increasing and more complex datasets mean a higher demand for advanced computing power.

It is estimated that the world's leading AI projects used 10 billion times more computing power from 2010 to 2022, with demand doubling every six months.[1] This implies that the financial and talent thresholds for large model training will become too high for the average enterprise or organization, and the most powerful AI technologies may concentrate in the hands of a few.

According to Stanford University's AI Index Report 2024, the development cost of GPT-4 is estimated to be a whopping US$78 million; in 2023, industry developed 51 important machine learning models, compared to only 15 by academia.

Since 2024, competition law enforcement authorities in Germany, the United Kingdom, the European Union, the United States, and other jurisdictions have expressed concern about the monopolistic behavior of Microsoft and other leading companies such as OpenAI, Google, and Nvidia, and some have launched antitrust investigations.

Fourth, it is highly opaque. AI research and development involves a wide range of complex disciplines, and the theoretical foundations of technologies such as deep learning are still unclear. Even researchers designing intelligence models are not able to fully understand the ways in which data and algorithms interact to make machines think.

Although there has been a great deal of research focusing on the interpretability

[1] Sevilla, Jaime, Lennart Heim, Anson Ho, et al.:"Compute Trends Across Three Eras of Machine Learning", (2022 International Joint Conference on Neural Networks), 2022, pp. 1-8.

of AI, a general solution has yet to emerge.[1] Technologies like deep learning have enabled LLMs to generate trillions of parameters, but researchers have difficulty accurately regulating the content generation process, thus posing a challenge to AI governance.

Turing Award winner Geoffrey Hinton, the father of deep learning, thinks that AI was initially an imitation of the biological brain, but now it may be a completely different form of intelligence from the biological brain and is bound to overtake humans in the near future.[2]

2. The development of AI shows three major trends

First, data-, information- and knowledge-intensive industries will become the first main application scenarios of AI technology, which will serve as the "new infrastructure" for economic and social development in the future.

Data foundation, intelligence cost, and fault tolerance are important factors affecting AI application. According to a survey by McKinsey & Company (2023), 33 percent of technology, media and telecommunications practitioners regularly use generative AI tools in their work, 24 percent in financial services, and 23 percent in business, legal and professional services. The numbers for advanced manufacturing, and energy and materials are lower at 16 percent and 14 percent.

In the next three to five years, the intelligence process of service industries such as consumer, information and communication, scientific research, and finance

[1] Gunning D., Vorm E., Wang Y., et al.: "DARPA's Explainable AI (XAI) Program: A Retrospective", *Applied AI Letters*, 2021 (2): 61.

[2] Will Douglas Heaven, "Geoffrey Hinton Tells Us Why He's Now Scared of the Tech He Helped Build", https://www.technologyreview.com/2023/05/02/1072528/geoffrey-hinton- google-why-scared-ai/.

will advance rapidly, whereas the improvement of intelligence in manufacturing will depend on data availability and cost optimization.

Second, new technology routes other than large models will continue to emerge. As the technological trajectory and industrial ecology of AI are yet to mature, the dominant technological route may change. With the amount of training data approaching a bottleneck, problems such as computing power and energy shortages are becoming more acute.

According to an article in *The Economist*, the amount of human text data available on the internet will run out in 2028.[1] One study predicts that global AI-related electricity consumption could increase to 85 billion-134 billion kilowatt-hours in 2027, which is comparable to the annual consumption of countries such as the Netherlands, Argentina, and Sweden, and equivalent to about 0.5 percent of the world's current consumption.[2]

All of these factors are likely to cause the large model technology to reach the limits of its capabilities.[3] However, the industry is still divided on when alternative and disruptive technologies emerge. Meanwhile, technologies such as reinforcement learning, knowledge computing, incremental computing, and lightweight modeling are accelerating, and the development of credible AI will also speed up.

Third, it will accelerate its integration with other cutting-edge technologies, giving rise to more new technology tracks. The combination of large models and automatic prompt tools accelerates the development of AI agents, and the

[1] "AI Firms Will Soon Exhaust Most of the Internet's Data", *The Economist*, July 27, 2024.

[2] Alex de Vries, "The Growing Energy Footprint of Artificial Intelligence", *Joule*, 7, 2023 (10).

[3] Industry leaders who hold negative views on the ability of large models for continuous iteration include Bill Gates, former President of Microsoft, who believes that the current generative AI has reached the limit of its ability, and will take 10 years to make the next breakthrough; and Yann LeCun, chief AI scientist at Meta and winner of the Turing Award, argues that it is difficult to sustain the large model technology due to the limited amount of training data.

integration of advanced manufacturing, life sciences, quantum computers, and blockchain with AI has given rise to new tracks such as general-purpose robots with embodied intelligence, brain-like intelligence, precision medical care and smart contracts.

For example, in 2024, OpenAI participated in the collaborative development of a humanoid robot called Figure 01, which is capable of utilizing a large model to perform activities such as visual information description, memory reflection, reasoning and interpretation, and action planning. During the same period, at least eight companies around the world were working towards the commercialization of humanoid robots. The cost of a humanoid robot in the logistics and material handling industry is estimated to be about US$12.5 per working hour, making it initially economical.[1]

In addition, there has always been a dispute between open-source and closed-source AI technology organization while currently, the most advanced AI large models are mainly closed-source. There are also many promising open-source models. For example, technology giants like Meta and Google, some top research institutions and unicorn companies have all adopted fully or partially open-source approaches to promote technology iteration and catch-up.

There are country-specific differences in the global regulation of AI, and no consensus has been formed. In 2023, AI regulation was ushered in. Different countries, however, differ in their regulatory philosophy, legislative pace and regulatory means due to the differences in their AI technological capabilities and industrial ecology, legal system, social governance and traditional values despite the fact that the broad international consensus is to accelerate AI risk regulation and

[1] "Humanoid Robots Are Getting to Work", *IEEE Spectrum*, December 2023, a publication of the Institute of Electrical and Electronics Engineers (IEEE).

enact legislation.

For example, the EU formally adopted the world's first comprehensive AI regulatory framework, the Artificial Intelligence Act, in March 2024, which specifies prohibited behaviors, transparency and data governance obligations, and regulatory enforcement requirements for relevant entities under the principle of classified and hierarchical risk regulation. The US, on the other hand, emphasizes gradual and collaborative governance and encourages private sector participation in institution building. A unified AI regulation at the federal level is yet to emerge, with the minimum requirements laid out mainly through "reinterpretation" of existing legal provisions.

II. The Impact of AI on Human Society

The features and trends of AI imitating or even surpassing human intelligence make it not only a production tool that replaces labor with machines, but also a "new species" that can have a profound impact on national development and security and even the future of humanity.

1. Humans will face a quantum leap in capabilities as well as risk management challenges

If efficient human-machine cooperation can be realized, humanity is in for another "cognitive revolution" in its evolutionary history, which will greatly enhance its ability to understand and transform the world.

Mankind has become the master of the earth by virtue of its superiority in rational thinking in evolutionary history. But as Kissinger, Schmidt and Huttenlocher pointed out in their book *The Age of AI and Our Human Future*, the groundbreaking advances in AI, especially in general large models, have created the ability to learn and process information unattainable by human reason alone. Combined with hardware systems such as robots, AI can greatly expand the ability of human beings to open up strategic new frontiers such as deep space, polar regions and deep oceans with supra-human perceptions and tolerances, thus opening up a new space for human survival.

If the opaqueness of AI cannot be changed, humanity may face the risk of the "new species" going out of control. The cross-fertilization of brain science, embodied intelligence, brain-computer interfaces, and other technologies may bring AI closer and closer to becoming a "new species" that can survive independently and possess self-awareness.

Jeffrey Hinton, winner of the Turing Award, predicts that within 10 years, AI may have independent intelligence and then reproduce itself into a more powerful system that is uncontrollable and will eventually destroy humanity. The Bletchley Declaration, the world's first global statement on AI signed by 29 parties, including China, the US, and Europe, also points out that AI models may cause serious or even catastrophic harm, either intentionally or unintentionally. Only by building a global community of shared future that acts in unison can the risks of AI be effectively managed.

2. AI will reshape scientific research paradigms and the global division of labor

AI will dramatically accelerate scientific and technological progress and decide the winner of international scientific and technological competition.

AI powered by large models and other technologies can make more effective use of massive information and knowledge, enhance analysis, reasoning and prediction capabilities, and lead to sharper, more accurate observation equipment, accelerating the progress of scientific research on both a finer microscopic scale and in a broader macroscopic field.

"AI for Science" has been applied in life sciences, materials and energy, among others. *Nature* magazine named ChatGPT one of its Top 10 in Science for 2023, the first non-human entity to make it to the list. Google's AlphaFold model has predicted the structures of over 200 million proteins based on global protein sequence and structure data. A *Nature* survey of 1,600 researchers found that half of the respondents needed to work with companies that have AI tools.

The next step is for AI to move from simple data analysis to experimental design and even problem discovery, transforming from "research assistants" who improve efficiency to "scientists" who lead the research. DeepMind co-founder Demis Hassabis and Turing Award winner Yann LeCun both think that AI will accelerate technological progress and usher in a golden age of scientific discovery.

AI will lead industrial transformation and profoundly change the global industrial and competitive landscape. Its industrial application and vertical penetration are accelerating and deepening.

According to KPMG's *Outlook on AI Transformation: The Leap Point (2023)*,

AI application scenarios are getting richer and richer, with the application of AI technologies in finance, healthcare, manufacturing, transportation, education and security driving the digital transformation of enterprises, reshaping and optimizing industrial chains, and improving production efficiency. The in-depth application of AI in the real economy will significantly increase productivity and organic capital formation, accelerating the replacement of the labor factor.

Accenture's research suggests that in some industries, AI will increase productivity by 40 percent. The advantage of low labor costs will be significantly weakened, as industries with higher profit margins, such as high-end manufacturing, accelerate their migration to capital-rich and AI-advanced countries. Countries with advanced AI are likely to further strengthen their dominant position in global value chains, while countries that are slow to transform will find it more difficult to upgrade their industries.

3. AI will have an important impact on employment and income distribution

The pattern of employment and income distribution is facing profound adjustments. McKinsey & Company expects that labor costs in the securities and insurance industries will be reduced by 20 percent in 2025, and 50 percent of human occupations will be replaced in 2030-2060. Goldman Sachs thinks that about one-fifth of the jobs in the world will be replaced by AI.

According to the International Labor Organization, in the short term, generative AI will have a greater impact on clerical work and women's employment and increase the employment pressure on young people; in the long term, AI will complement the development of most industries and create more new occupations.

As for income distribution, AI is likely to strengthen capital income and greatly reduce the proportion of labor in primary distribution, requiring secondary distribution to play a better regulating role.

AI will have a far-reaching impact on changes in the education model. It can provide more personalized and efficient learning methods, and significantly improve the quality and efficiency of teaching.

The replacement of middle-skill labor by AI will put more emphasis on skilled and research-oriented talent, whose proportion in education will continue to rise. In addition, AI in education will help to reduce regional disparities in quality education resources and improve education equity.

Shaping the Future of Learning: The Role of AI in Education 4.0, published by the World Economic Forum (WEF) in April 2024, gives nine typical cases of AI application in education implemented by the United Nations International Children's Emergency Fund and the Ministry of Education of the Republic of Korea, illustrating that AI has already become a complementary tool enhancing the educational experience in many countries. Further integration of AI and education in the future is likely to significantly enhance the learning experience and effectiveness on the one hand, and prepare learners for the new paradigm of work in the future on the other.

4. AI will profoundly affect public perception and ethical norms

AI may become the most powerful tool or disruptor of information generation and dissemination. The powerful content generation capability of large models will significantly improve the efficiency of news dissemination and reduce the cost of information production.

NewsGPT, the world's first news reporting platform driven entirely by AI, was launched in April 2023. However, the cost of producing false information has also been significantly reduced, and intelligence-driven personalized algorithmic recommendations will significantly amplify the information cocoon effect, raising the risk of public opinion manipulation.

Fake AI-generated videos have already appeared. The emergence of products such as Sora will have an even more complex impact. The Cambridge Analytica scandal in 2018 showed that both the major political parties in the US had used big data companies to provide false information to voters in the 2016 presidential election, while the voters were largely unaware. According to the WEF's Global Risks Report 2024, the impact of AI on election outcomes tops the list of global risks in 2024.

AI will pose unprecedented ethical and moral challenges. According to the AIAAIC database, which tracks the misuse of AI technology, the number of controversial incidents has increased 26-fold since 2012, mainly involving privacy breaches, social fraud, and racial and gender discrimination.

As AI becomes embedded in wider social networks, there will be many ethical gaps in the human-machine relationship. The behavioral norms and values traditionally used to regulate individuals, organizations, and the state will be fundamentally reshaped, so will be the relevant legal systems.

The Research Report on Ethical Governance of Artificial Intelligence (2023) published by the China Academy of Information and Communications Technology suggests that the ethical challenges caused by AI have shifted from theoretical discussions to real risks. *Getting the Future Right – Artificial Intelligence and Fundamental Rights* by the EU Agency for Fundamental Rights also notes that AI applications must take ethical issues into account, and the ethical implications of

AI should be assessed before and during its use.

III. China's Main Advantages in the Development of AI

China is in the world's top flight of AI development. *Harvard Business Review*'s ranking of countries based on their AI prowess accords it the second place.[1] China has unique advantages and strong demand potential, supply capacity, and smart infrastructure.

AI has huge potential for consumption and a wide range of industrial application scenarios. China's well-developed digital infrastructure and vast, multi-layered and deep consumer market are an important foundation for model innovation and industry prosperity.

By the end of 2023, China had 805 million 5G cell phone users and 23.02 million ports with gigabit network service capability; the number of mobile Internet of Things (IoT) terminal users reached 57.5 percent of the number of mobile network terminal connections.

Chinese consumers are highly receptive to innovative products and services. According to a survey conducted by Stanford University, 78 percent of the Chinese public are open to AI, which is much higher than in Europe, the US, Japan, and other countries and regions.[2]

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[1] Studies by the Brookings Institution and others also show that China is in the first tier with the US in terms of total AI investment and R&D investment, far exceeding other countries.

[2] The specific numbers are 35 percent in the US, 42 percent in Japan, 38 percent in the UK, 37 percent in Germany, and 50 percent in Italy.

The advantage of a large manufacturing country is outstanding with wide application scenarios. With the world's most complete manufacturing system and the largest manufacturing value-added, China enjoys favorable conditions in promoting and leading the vertical application of AI in manufacturing.

An institute related to the Ministry of Industry and Information Technology projects that the scale of China's core AI industry will reach RMB1.73 trillion in 2035, or more than 30 percent of the global market.

Major economic and social transitions such as urbanization, demographic shifts, and the swelling middle-income group will also create more AI application scenarios in healthcare, finance, transportation, and smart cities.

China has a sound science and technology foundation, with a strong ability to follow up on technology.

Its scientific research system is the largest in the world, and ranks first in the number of AI papers published and cited and that of patent applications.

China also has the world's largest higher education system, with 45 percent of university graduates in science and engineering, and an outstanding advantage of scale in the cultivation of middle- and high-level skilled talent.

In March 2024, a report released by MacroPolo, a think tank under the Paulson Institute, showed that Chinese universities produce almost half of the world's top AI talent (in terms of undergraduate institutions), but the proportion of top AI talent graduating from Chinese universities in 2019 was only 29 percent of the world.

China is home to a large number of technology companies. In 2023, it had more than 400,000 high-tech enterprises, 500,000 technology SMEs, and 679 of the world's top 2,500 companies in R&D spending.

The scale of China's core AI industry exceeds RMB500 billion, with more

than 4,500 AI enterprises[1] and over 100 large models with more than one billion parameters[2]. Chinese enterprises and R&D institutions in general have the ability to keep pace with the R&D progress of global technology giants.

China also has leading intelligence infrastructure and favorable conditions to upgrade its intelligent economy. Its computing facilities have an advantage in scale. By the end of 2023, the total computing scale of China's active computing centers had exceeded 230 EFLOPS, ranking second in the world.

China leads the world in telecommunications infrastructure, with 3.377 million 5G base stations. The scale of data resources is growing rapidly. According to the National Data Resource Survey Report 2023, China's cumulative data storage reached 1.73 zettabytes (ZB) in 2023. In particular, industrial data shows an outstanding advantage in scale, diversity and specialization.

China is a global leader in green power infrastructure, with power costs accounting for about 60 percent of the operating costs of intelligent computing centers. With the transition of global energy mix and growing computing power, green power will become a key factor in the development of AI.

In 2023, China's installed capacity of renewable power generation reached 1.516 billion kW, accounting for nearly 40 percent of the world's total renewable energy capacity and with the largest installed capacity for hydro, wind, and photovoltaic power.

China's new system for mobilizing resources nationwide to make key technological breakthroughs can vigorously mobilize and coordinate not only essential elements across the whole society including computing capacity, data and

[1] "China's Artificial Intelligence Enterprises Have Exceeded 4,500", Chin. ed., Xinhua News Agency, June 20, 2024.

[2] "Liu Liehong, Head of the National Data Administration, Attends and Speaks at the China Development Forum 2024", Chin. ed., National Data Administration website, March 26, 2024.

talent but also efforts to make breakthroughs in core technologies, thus forming an important institutional guarantee. Nevertheless, it should also be noted that China's basic research in AI is not deep enough, with gaps in high-end chips, basic software and data quality, among other basic factors.

Science and technology are the foundation and application is the key to promote the development of AI. It is necessary to give full play to the enthusiasm of the market, coordinate key resources, and vigorously carry out reforms to release the dividends of AI development.

China should continue to strengthen the research foundation, integrate key computing power, data and other resources, and support market-oriented innovation. It should promote in-depth application of AI, develop scalable industry solutions and demonstrate their application in key areas, and accelerate the cultivation of new quality productive forces.

China should also build a sound AI regulatory system to ensure the standardized development of AI; strengthen interim and ex-post regulation, especially the regulation of data authenticity, privacy and fair competition; improve the social support system, and enhance livelihood protection in the era of AI.

It should gradually mainstream the protection of labor rights and interests in new employment forms driven by AI, and establish a dispute settlement mechanism to prevent harm to labor rights and interests from excessive use of AI.

Finally, China should support the establishment of AI education and innovation bases covering all school segments and oriented to the cultivation of higher-order thinking skills.

Thematic Report 4

Capturing the Economic Characteristics of Data

In recent years, the digital transformation of the economy and society has accelerated, with advancements in digital technology and the growth of data volumes highlighting the increasing value of data.

Given the emergence of data as a new phenomenon, there are differing views on its economic characteristics – some are realistic, while others are exaggerated, leading to considerable disagreements and controversies. For example, most viewpoints argue that data enriches a country's resource structure, enhances business competitiveness, reshapes future competitive advantages, and is thus an emerging fundamental resource. However, some confuse concepts such as data, technology and knowledge, treating data directly as assets or even capital, thereby exaggerating its role.

After a careful review of the authoritative literature and original views from both domestic and international sources, as well as research on various enterprises engaged in data collection, processing, handling and utilization, we have reached the following conclusions:

I. Data – a Fundamental Resource in the Digital Era with New Characteristics, Different from Traditional Resources

1. Data is a set of symbols that record the state, nature and interrelationships of things, which can be further mined and analyzed to generate information and knowledge

Data has existed since ancient times, but due to the earlier limitations of

recording media and technological development capabilities, it was difficult to widely disseminate and effectively utilize. In the digital era, however, data is stored in the binary form of 0 and 1 on devices such as disks, hard disks and CDs. This, combined with breakthroughs in new-generation digital technologies like the Internet of Things (IoT), cloud computing, big data, and artificial intelligence (AI), has led to a significant reduction in the costs of data collection, processing, circulation and utilization.

These data can reproduce the state of things and other information recorded in them after encoding, decoding and interpretation, and high-value information with specific connotations and applications can be extracted from them through further processing and analysis.

By summarizing the underlying trends and patterns behind the information, and supplementing them with theoretical assumptions, experimental analysis, and repeated validation, knowledge with broader applicability can be derived. Overall, data itself is only a quantitative record with limited significance; only when information and knowledge are extracted from data and used to assist decision-making and guide practice can the economic and social value contained in the data be realized.

2. Data is increasingly becoming a key input in the formation of technology and creativity

From the perspective of economic growth, neoclassical growth theory suggests that technological progress, like capital and labor, is the source of economic growth; endogenous growth theory further clarifies that technological progress depends on creativity and R&D, which is the fundamental driving force behind sustained economic growth.

In recent years, academia has come to recognize the increasing role of data in both technological advancement and idea formation. In other words, data drives

economic growth as an intermediate input.[1] In terms of difference, data is mostly a "by-product" automatically recorded or naturally accumulated as a result of digitized and networked economic and social activities, while technology and creativity require investing complementary resources, such as labor and capital, and undergo extensive trial and error in laboratories before they are produced.

At the same time, data needs to release its value through circulation and utilization, and is mostly protected through technical encryption, while technology and creativity, once generated, are prone to leakage and dissemination, and require protection through intellectual property rights system such as patents and copyrights.

3. The potential use-value of data makes it an emerging fundamental resource

Global data volume grows by around 27 percent annually.[2] This, coupled with the rapid development of digital technologies, makes the role of data in the discovery of new knowledge and the creation of new value increasingly prominent. International organizations, Europe, the US, and other countries have all classified data as an emerging fundamental resource.[3] Compared with traditional resources

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[1] Jones C. I., Tonetti C.: "Nonrivalry and the Economics of Data", *American Economic Review*, 110, 2020 (9), pp. 2819-2858.

Cong L. W., Xie D., Zhang L.: "Knowledge Accumulation, Privacy, and Growth in a Data Economy", *Management Science*, 67, 2021 (10), pp. 6480-6492.

[2] Reinsel D., Gantz J., Rydning J.: "Data Age 2025: The Digitization of the World from Edge to Core", IDC white paper, 1. 2018 (1), pp. 1-29.

[3] European Commission: "A European Strategy for Data", 2020.

The Office of Management and Budget: "The Federal Data Strategy-Leveraging Data as a Strategic Asset", 2020, https://strategy.data.gov/.

such as land and labor, the uniqueness of data is manifested in several aspects:

First, it is reusable, with no loss in the process of use, and more data can be generated through circulation, sharing and exploitation.

Second, the marginal cost is almost zero. The cost of data reproduction, circulation and storage is close to zero, and under the premise of compliance, data can be widely circulated and exploited.

Third, it is partial exclusivity. While government open data and publicly available data on the internet are non-exclusive in use, data concerning national security, commercial secrets and personal privacy is often restricted in its scope of use.

Fourth, some data depreciates quickly. Data is generated at specific points in time and in specific scenarios, and some data such as promotional and location data is effective in real time, while others such as manufacturing data, supply chain data, and credit data have great commercial value for a certain period of time before it declines significantly.

Fifth, fusion multiplies the value. After data from different sources and dimensions is aggregated, new insights can be generated through cross-analysis that creates more scope for value creation.

4. Data can become intangible assets directly under certain conditions

The use value of data is enhanced after it has been cleaned, processed and analyzed. According to statistical and accounting rules, data that meets the conditions of legal ownership or control, potential use value, and reliable measurement can be transformed into intangible assets.

To date, according to some studies, about 50 percent of the intangible assets

in nine European countries can be categorized as data assets.[1] Compared with traditional intangible assets (e.g., brands, patents, etc.), which are easy to value and record, the ownership of some data is relatively clear, while that of others is controversial due to the rights and interests of multiple subjects such as platforms, merchants, and users.

Moreover, the value of data is closely related to its users, application scenarios, and other factors, and its valuation methods are still under exploration. As a result, the boundaries of data assets are unclear, and the underlying data remains uncertain.

Since 2023, China has been trying to put data assets on the balance sheet, and some listed companies recognize data resources as intangible assets or inventories. When data is classified as an intangible asset, it will have the potential for collateralization, financing, or even funding in the capital market, but the exploration has just begun.

II. New Products and Services Catalyzed by Data

As the costs of data collection, storage, processing and analysis have fallen sharply, the development and utilization of data by various parties has deepened, with data-driven innovation emerging as a new source of value creation. There are four main areas:

First, it has catalyzed the emergence of data processing, trading, and other

[1] Corrado C., Haskel J., Iommi M., et al.: "Data, Intangible Capital, and Productivity", National Bureau of Economic Research, 2023.

services. A large number of service providers specializing in data collection, cleaning, labeling, desensitization, trading, and security, among others, have emerged in the face of massive and diversified raw data. They have strengthened the foundation for high-quality data supply and formed the mainstay of the data industry ecosystem.

Second, it has led to the formation of datasets and databases. It is often necessary to process the raw data in order to improve the information density and value content of data. For example, commercial databases and industry datasets are formed through government open data and enterprise-collected data. These specialized, structured and high-added-value data products are one of the direct ways to monetize data.

Third, it supports large models and intelligent products. Built on high-quality datasets and enhanced by high-performance computing and deep learning algorithms, general and industry-specific models have supported innovative products and services such as intelligent vehicles, equipment, robots and customer service. In addition, based on data resources and algorithmic models, services such as online data querying, verification, credit assessment, and risk evaluation can also be provided.

Fourth, it aids in the innovation of application scenarios. Data can be reused by many entities in multiple scenarios. Combined with digital technologies and algorithms, data has injected new vitality into various industries, fostering new models of the digital economy such as the platform economy, sharing economy, and digital trade, while also promoting the transformation and upgrading of traditional industries and changes in governance models (see Table Z4-1).

Table Z4-1 Types of Data Products and Services

Data ecosystem services	Datasets and databases	Data support	Data assistance
Data processing: collection, cleaning, annotation, desensitization	Raw data: meteorological data, transaction data, browsing records, equipment operation records	Large models: ChatGPT, Sora, Wenxin Yiyan, Tongyi Qianwen, Xunfei Xinghuo	Based on personal data: map navigation, food delivery, online car-hailing, personalized recommendation, precise marketing, digital social security
Data transaction: registration, identification, assessment, compliance, review	Datasets: image datasets, voice datasets, engineering datasets	Smart products: electronic translators, learning machines, smart driving solutions, service robots	Enterprise-based data: supply chain monitoring, inventory optimization, supply and demand analysis, collaborative R&D, remote operation and maintenance, digital trade
Data security: privacy calculation, security sandbox, federated learning	Database: financial database, judicial database, bidding database, scientific research paper database, intellectual property rights database	Data services: qualification query, license verification, risk assessment, credit rating, various types of data reports (monitoring, diagnostics, forecasting)	Based on public data: disaster warning, environmental monitoring, smart city, digital culture.

Source: Based on public information.

Compared with traditional products and services, data products and services are unique in their own way, raising new requirements for their regulation and governance.

First, dependency. Provided in digital form, they are highly dependent on infrastructure such as the IoT, data centers, cloud computing and the industrial internet, which requires moderate forward-looking deployment of new types of infrastructure.

Second, hyper-personalization. Leveraging personal data and algorithms, enterprises can better capture user preferences and provide diversified products to meet the personalized needs of different users. However, this also facilitates price discrimination against long-term users, making it necessary to prevent the misuse of data.

Third, fast iteration. Data-driven products and services have fast function updates and short iteration cycles, which results in new issues. For example, there is an urgent need to speed up institutional innovation as existing systems are struggling to address AI intellectual property rights and regulations for autonomous driving.

Fourth, flexible monetization. Depending on the target audience, data products can be priced and delivered in a variety of ways, such as subscription, one-time purchase, pay-per-use billing, and free provision with advertisement monetization. However, this also raises higher requirements for price and behavioral regulation.

III. Data Promotes Economic Growth and Social Development

Data empowers micro-entities and the macro-economy in a number of ways, helping improve service standards and governance capacity and realize high-quality development.

1. Data helps enhance enterprise competitiveness

The use of big data has become a common choice for enterprises to innovate, expand output and improve competitiveness. An OECD survey shows that the

proportion of enterprises adopting big data technology in member states increased from 11 percent to 34 percent between 2015 and 2023.[1] In terms of impact, the productivity of US manufacturing sector increased by 5-6 percent after adopting big data, while the market value of domestic listed companies increased by 4.21 percent after applying big data.[2] The main mechanisms are:

First, improving the accuracy of market demand forecasting. Based on dynamic sales data, enterprises can sense demand, grasp market trends, and make targeted price adjustments in a timely manner. For example, the price adjustment cycle of e-commerce platforms is much shorter than that of physical stores. At the same time, they can gain insights into customers' preferences, manage accurate segmentation and personalized pricing, and explore new market opportunities.

Second, optimizing internal decision-making and production processes. Unlike traditional qualitative decision-making that relies on experience, quantitative analysis based on big data can assist in weighing the pros and cons, selecting the best option, and reducing decision-making bias. It can also help enterprises achieve flat and efficient management and improve operational efficiency, such as reducing inventory costs by analyzing the order and logistics data.

Third, improving innovation efficiency and speeding up iteration. Digital simulation experiments supported by high-quality data accelerate cutting-edge innovations such as new drugs and materials, shorten the R&D cycle and reduce testing costs. Internet enterprises widely use online, multiple, small-sample comparative experiments to validate innovative ideas, optimize algorithms, and improve

[1] OECD: "Businesses Having Performed Big Data Analysis(%)", https://stats.oecd. org/Index.aspx?DataSetCode=ICT_BUS.

[2] Zhang Yeqing, Lu Yao, and Li Leyun: "The Impact of Big Data Application on the Market Value of Chinese Firms: Evidence from Textual Analysis of Annual Reports of Listed Companies in China", Chin. ed., *Economic Researc*h, 2021 (12), pp. 42-59.

efficiency.

2. Wide use of data promotes economic growth

Constantly generated and reusable, data has a multiplying and amplifying effect in promoting economic development. A study suggests that from 2003 to 2019, data entering the production process contributed an average of more than 10 percent to China's GDP growth over the same period.[1] The main mechanisms are:

First, reducing information asymmetry and improving the efficiency of resource allocation. Sharing and utilizing data among different regions, sectors and links can match supply and demand on a wider scale and reduce the distortion of resource allocation. For example, e-commerce platforms utilize data to match supply and demand, breaking time and space constraints, effectively reducing transaction costs and expanding trade opportunities. Financial institutions, through big data "profiling", accurately identify enterprise risk levels and financing needs, and efficiently allocate credit resources.

Second, driving technological progress through "creative destruction". Data accelerates the formation and diffusion of knowledge, and reshapes the course of technological progress from the original S-shaped curve of slow development based on experience-sharing to the J-shaped curve of rapid evolution, iteration and upgrading, hence significantly shortening the cycle of technological innovation and upgrading. For example, AI models trained on massive data have greatly changed the production methods of content creation, software programming, and

[1] Liu Taoxiong, Rong Ke, Zhang Yadi: "Estimation of Data Capital and Its Contribution to China's Economic Growth – Based on the Perspective of Data Value Chain", Chin. ed., *Social Sciences in China*, 2023(10), pp. 44-64.

scientific research.

Third, empowering traditional industries and improving total factor productivity. Data plays the role of a "fusion agent" in the real economy. The connectivity of enterprise data across the entire process can enable collaborative R&D, flexible production, predictive maintenance and others, and help the shift of manufacturing to dark and future factories with improved product quality and added value.

Fourth, forming new dynamics of the "data economy".[1] According to a study by the EU, considering only the activities related to the "data economy" from data production to exploitation, the output of China's "data economy" grew by 22.5 percent on average annually from 2020 to 2022, accounting for 2 percent of its GDP and providing 10.1 million data-related jobs, thus becoming a new driving force for the economic growth.[2] It can be expected that the growing volume and dimensions of data will offer greater possibilities for the development of the digital economy.

3. Data enhances social development and governance effectiveness

Data-driven new models and business formats are emerging one after another, profoundly affecting people's lifestyles and social governance.

First, promoting lifestyle transformation. Cyberspace brings together massive data, information and knowledge. Social media, as an example, facilitates multi-directional and multi-dimensional communication of information; the search

[1] The data economy measures the overall impact of the data market on the economy as a whole. It involves the generation, collection, storage, processing, distribution, analysis, refinement, delivery and utilization of digitally enabled data.

[2] European Commission: "European Data Market Study 2021-2023", 2021.

service makes knowledge readily accessible; e-commerce makes it possible to "buy globally and sell globally"; and location-based services, such as ride-hailing, food delivery, and maps and navigation, enable precise service provision.

According to the China Internet Network Information Center, by the end of 2023, China's online retail sales had reached RMB15.4 trillion, ranking first in the world for eleven consecutive years. They have redefined people's work, study, and lifestyle with online office, online payment, and online food delivery users accounting respectively for 49.2 percent, 87.3 percent, and 49.9 percent of internet users.[1]

Second, satisfying people's needs for quality cultural products. New models of digital culture represented by online audiovisuals, exhibitions, and performances are flourishing. Enhanced by innovative technologies such as virtual reality and holography, they can create more realistic and immersive cultural experiences, thus greatly changing the way culture is consumed.

According to the National Data Administration, by the end of 2023, China's digital reading and online audiovisual users reached 570 million and 1.074 billion respectively. China accumulatively released online video resources of more than 130,000 of ancient books and literature in special collections, effectively meeting people's cultural needs.[2]

Third, promoting inclusive public services. Government data supports new models of government service such as "unified online government service", "cross-location service" and "cross-provincial service"; digitized high-quality education resources and healthcare resources can be extended to the grassroots through

[1] China Internet Network Information Center: "53rd Statistical Report on China's Internet Development", Chin. ed., March 22, 2024.

[2] National Data Administration: "Digital China Development Report (2023)", Chin. ed., June 30, 2024.

the network, accelerating the expansion and penetration of services; and digital social security services have met the demand for cross-provincial and cross-location medical and pension services. According to the National Data Administration, the e-social security card covered a national "unified online government service" section in 2023, receiving more than 10 billion visits accumulatively.[1]

Fourth, helping improve the capacity of social governance. Data can facilitate sound decision-making, and help the government act proactively and implement targeted measures in areas such as risk identification, disaster warning, emergency response and daily supervision. Regulatory authorities can mine heterogeneous data from multiple sources using large-scale digital platforms, algorithms and other technological tools, effectively identifying fraud and other misconduct, thus improving regulatory efficiency.

IV. Some Noteworthy Risks in the Development and Use of Data

1. Risk of monopoly from excessive data concentration

Data-driven new business and models such as e-commerce, online payment, instant messaging, and live streaming tend to foster an oligopolistic market structure in which "the rich get richer". A small number of large platform enterprises have accumulated huge amounts of data in their business activities. Its misuse may

[1] National Data Administration: "Digital China Development Report (2023)", Chin. ed., June 30, 2024.

harm potential competition by, for example, strangling mergers and acquisitions and targeted exclusion or restriction of potential rivals, which might undermine potential competition.

Large platforms may also use data to engage in exclusionary behaviors such as imposing a choice on small and medium-sized merchants that deprives them of choice, restricts market competition and further strengthens the former's monopoly.

It is also important to note that these platforms serve hundreds of millions of users and play the role of public infrastructure. So if there are anomalies in data storage, processing and use, the normal operation of the economy and society is likely to be jeopardized within a short space of time.

2. Risk related to personal data protection and data security

Mismanagement or illegal access to and use of data may lead to unpredictable leakage of personal data, loss of business interests, and even threats to national security. Given the high commercial value of personal data, any irregularities in their collection, circulation or transaction may bring property losses and even threats to personal safety, such as telecommunications fraud, harassing phone calls and cyber violence, to name only a few.

Commercial data often contains valuable trade secrets, and some may involve national security. For example, data collected by smart cars and online hailing cars may cause geospatial data security risks if not handled properly. Still, using big data and AI technologies to collect, analyze and evaluate open data on the internet, including text, video, social media and geospatial data, is becoming an increasingly important channel for acquiring open-source intelligence. Some countries

derive around 40 percent of their intelligence from the analysis of publicly available data.

3. Risk associated with job restructuring and income polarization

Data-driven innovation has a significant double-edged sword effect. On the one hand, it creates new jobs such as data processors, data brokers, data compliance officers and security engineers; on the other hand, it disrupts the established job structure, especially when it has triggered the digital transformation of production, distribution, circulation and consumption, which has deepened the automation process that has been ongoing for half a century and accelerated the replacement of middle-skill jobs that are repetitive, regular, and programmable by machines.

The rise of AI has already led to substantial substitution of high-skill jobs such as inspection and testing, operation and scheduling, and risk identification. Adapting to technological change and retraining the labor force seem to be the inevitable trend as AI starts to pose a threat to clerical and creative jobs. But research shows that only a small number of workers are able to master new skills and gain a technological premium. The trend of job differentiation and income polarization has become a hot topic in academic research and policy discussion in developed countries over the last few years.

4. Determination of data ownership remains controversial

Data is usually created by multiple subjects, and it involves commercial secrets, personal privacy and even national security, making the determination of

data ownership around data use more controversial.

In international practice, improving data accessibility takes precedence over data ownership. Over-emphasizing and subdividing ownership rights will lead to mutual constraints among right holders, which is not conducive to the use of data.[1]

In domestic practice, the rights and liabilities related to the use of non-personal data are mainly prescribed by contracts. The rights and interests are protected by institutional measures such as the "right of communication through information network" under the Copyright Law of the People's Republic of China, provisions against infringement of "commercial secrets" under the Law of the People's Republic of China Against Unfair Competition, and safeguards against the "crime of illegally obtaining data from a computer information system" under the Criminal Law of the People's Republic of China, with minimal controversy in these areas.

However, there remains ambiguity regarding whether the property rights to personal data should be allocated to individuals or enterprises, despite legislation having been enacted to establish the general framework of data protection.

In business practice, enterprises mostly require users to sign a standardized "service agreement" for their consent and authorization for development and use of data. Domestic discussions on personal data ownership have intensified after the introduction of the Guidelines of the Communist Party of China Central Committee and the State Council on Building a Foundational Data System and Better Utilizing the Role of Data Factor in 2022. This may lead to an overemphasis on personal rights, which could hinder business investment incentives and obstruct the reuse of data and the unlocking of their potential value.

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[1] Varian H.: "Artificial Intelligence, Economics, and Industrial Organization", National Bureau of Economic Research, 2018.

Thematic Report 5

Improving the Carbon Market Trading Mechanism and Pursuing the Goals of Peak Carbon Emissions and Carbon Neutrality

It is an important task in pursuing Chinese modernization, which is characterized by the harmonious coexistence of man and nature, to actively and steadily advance peak carbon emissions and carbon neutrality while steering comprehensive green transformation of the economy and society. Under the coordinated deployment of the CPC Central Committee, China has established a "1+N" policy framework for reaching peak carbon emissions and carbon neutrality, accelerated the development of new green tracks and industries, and improved the basic support system for carbon emissions data.

A social atmosphere for green and low-carbon development has also been created. The carbon market is a major institutional innovation to meet the requirements of low-carbon development. After years of local pilots and national exploration, its market system and infrastructure system have stood the test of actual operation. A persistently high compliance rate, increasingly active trading, and rising prices underline the carbon market's role in guiding green and low-carbon transformation. A carbon pricing mechanism with the national carbon market playing the principal role has initially formed.

The Third Plenary Session of the 20th CPC Central Committee in July 2024 called for improving the carbon trading system and the mechanism for green and low-carbon development, navigating the direction for accelerating the building of a unified national carbon market and improving it to better guide the green and low-carbon transformation.

I. Progress of China's Peak Carbon Emissions and Carbon Neutrality Efforts

Reaching peak carbon emissions and carbon neutrality is a broad, profound and systematic economic and social transformation. Since China announced these goals in 2020, the central government has made a series of major deployments to systematically plan and organize the work.

First, adhering to the centralized, unified leadership of the CPC. Since 2020, President Xi Jinping, also general secretary of the CPC Central Committee, has spoken about promoting carbon neutrality at dozens of domestic and international conferences and events.

An integrated "1+N" policy framework for reaching peak carbon emissions and neutrality has been established. In this framework, "1" stands for the overarching guidance of two key policy documents – the Guidelines of the CPC Central Committee and the State Council on Delivering Carbon Peaking and Carbon Neutrality in Full and Faithful Implementation of the New Development Philosophy and the Action Plan for Reaching Peak Carbon Emissions by 2030; "N" denotes action plans, policies and measures for China's 12 key industries, 11 supportive programs, and implementation plans for 31 provincial-level administrative units.

Second, prioritizing carbon emission statistics, monitoring, accounting and formulating standards in these areas. Relevant ministries have successively introduced special rules and regulations for establishing a sound statistics and accounting system for carbon emissions, and reporting and verification of greenhouse gas

emissions by enterprises in key industries.

In June 2024, the Ministry of Ecology and Environment and 14 other departments issued the Implementing Plan on Establishing a Carbon Footprint Management System, which proposes setting rules and standards for accounting the carbon footprints of key products, and setting up a database on carbon emission factors. Relevant departments also promulgated the Guidelines for Building a Peak Carbon Emissions and Carbon Neutrality Standard System and the Action Program on Further Strengthening the Building of a Peak Carbon Emissions and Carbon Neutrality Standard Measurement System (2024-2025) to accelerate the development of a peak carbon emissions and carbon neutrality standard system.

Third, establishing and improving systems for compliance assessment and accountability, green investment and financing, carbon pricing, and other aspects. In 2022, the promulgation of the Measures for Rectification of the Central Ecological and Environmental Protection Inspection incorporated the implementation of the peak carbon emissions and carbon neutrality goals and tasks into the central ecological and environmental protection inspection.

The year 2024 saw the issuance of the Work Program for Accelerating the Building of a Dual Control System for Carbon Emissions, which expressly calls for the establishment of a system for evaluating and assessing local carbon emission targets, including rationally breaking down dual-control targets for carbon emissions, establishing a comprehensive evaluation and assessment system for peak carbon emissions and carbon neutrality, and promoting the establishment of a budget management system for carbon emissions at provincial and municipal levels.

A national green development fund has been established, and carbon emission reduction support tools and special refinancing loans for the clean, efficient

utilization of coal have been created, focusing on carbon and pollution reduction and green expansion.

The carbon pricing mechanism continues to be improved and a carbon market with the largest coverage of greenhouse gas emissions in the world has been established.[1]

Last, China has participated in global green and low carbon governance in various ways. It has taken part in the Conference of the Parties to the United Nations Framework Convention on Climate Change (UNFCCC) in a constructive manner, adhered to the multilateral consensus, and advanced the process of global climate governance.

China has been actively pursuing a green Belt and Road and signed over 200 Belt and Road cooperation documents with more than 150 countries and over 30 international organizations. It has also signed 50 agreements on South-South cooperation on climate change, constructed four low-carbon demonstration zones, and carried out 77 projects on climate change mitigation and adaptation.[2]

China has done its utmost to help other developing countries enhance their capacity to cope with climate change. With the United States it has jointly issued the Sunnylands Statement on Enhancing Cooperation to Address the Climate Crisis, promoting cooperation in areas such as clean energy and methane control.

Thanks to the concerted efforts of all, the intensity of China's energy consumption and carbon emissions has continuously decreased. In 2023, China's energy intensity dropped by about 7.3 percent compared to 2020, showing new progress in overall green economic and social transformation.

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[1] Ministry of Ecology and Environment: "National Carbon Market Development Report (2024)", Chin. ed., July 22, 2024.

[2] Chen Zhihua, Tian Yuanxin: "China Actively Promotes South-South Cooperation in Responding to Climate Change", Chin. ed., *China Environment News*, January 12, 2024, p. 3.

First, China saw several highlights in the green and low-carbon transformation of energy. In 2023, its installed capacity of solar and wind power reached 610 million kilowatts and 440 million kilowatts respectively, representing a year-on-year increase of 55.2 percent and 20.7 percent.[1] The proportion of non-fossil energy in primary energy consumption rose to 17.9 percent, an increase of 2 percentage points from 2020. Still, the proportion of coal consumption in total energy consumption dropped to 55.3 percent. China has built the world's largest clean and efficient coal-fired power generation system, raising the level of coal substitution and clean and efficient coal utilization.

Second, China experienced a growth surge and export momentum in its "New Three Industries". In 2023, the total output of China's photovoltaic industry was RMB1.75,[2] the production and sales volume of new energy vehicles accounted for more than 60 percent of the world's total, and the total output of the lithium battery industry exceeded RMB1.4 trillion.[3]

Third, China achieved progress in energy saving and carbon reduction in its heavy and chemical industries. The green transformation of the steel industry continues to advance, with the total energy consumption of key steelmakers down by 1.8 percent year on year, and the comprehensive energy consumption per tonne of steel down by 0.16 percent year on year. CO2 emissions from the cement industry decreased by 13.9 percent in 2022 compared with 2020, and the comprehensive energy consumption per unit of electrolytic aluminum fell by 2.6 percent during

[1] National Energy Administration, "National Power Industry Statistics for 2023", Chin. ed., National Energy Administration website, January 26, 2024.

[2] "Last Year, the Total Output of the Photovoltaic Industry Exceeded RMB1.75 Trillion, and the Year-on-Year Growth of the Output of Major Manufacturing Segments Exceeded 64 Percent", Chin. ed., *People's Daily*, March 15, 2024, p. 2.

[3] Ministry of Industry and Information Technology: "Operational State of the National Lithium Ion Battery Industry in 2023", Chin. ed., Ministry of Industry and Information Technology website, March 1, 2024.

2020-2023. The digital transformation of heavy and chemical industries is advancing rapidly. By 2023, nearly 70,000 manufacturing enterprises in China had adopted smart manufacturing.[1]

Fourth, China made breakthroughs in its green and low-carbon scientific and technological innovation. The R&D, design and integrated manufacturing system for the whole industrial chains of wind power and photovoltaic power continue to advance.

The conversion efficiency of high-efficiency crystalline silicon and perovskite photovoltaic cells has set new world records, with the conversion efficiency of mass-produced advanced crystalline silicon photovoltaic cells exceeding 25 percent. The maximum unit capacity of onshore wind turbines exceeded 10 megawatts, and offshore wind turbines with a unit capacity of 18 megawatts were successfully launched.

China continues to promote the smart grid technology, and has completed landmark projects such as flexible direct current transmission. It has seen the development in new energy storage and hydrogen energy technologies as well as the construction of demonstration carbon capture, utilization and storage (CCUS) projects.

Fifth, China enhanced the carbon sink capacity of its ecosystems. By the end of 2023, nature reserves accounted for 18 percent of the country's land area, with the redline area for ecological protection measuring more than 30 percent of its total. The construction of key ecological projects such as the Three-North Shelterbelt paced up, and the capacity of wetlands and marine carbon sinks increased.

Sixth, China witnessed the rising public awareness of green consumption. In

[1] Ministry of Ecology and Environment: "2023 Annual Report on China's Policies and Actions to Address Climate Change", Chin. ed., October 27, 2023.

2023, a nationwide questionnaire survey conducted by the research group found that 95 percent of the respondents agreed that the earth's temperature rise should be controlled as soon as possible; 31.7 percent knew and understood the specific contents of the peak carbon emissions and carbon neutrality goals, an increase of 5.5 percentage points from the previous year. Also, 69.9 percent said they would buy appliances with the China Energy Efficiency Label "most of the time". The proportion of respondents who "save food every time" also increased by 5.2 percentage points from the previous year. Finally, 75 percent of the respondents said that the implementation of the tiered tariffs had "increased their awareness of and attention to saving electricity", an increase of 7 percentage points from the previous year.

II. Imperative for Carbon Pricing Mechanism to Play a Bigger Role in Reaching the Peak Carbon Emissions and Carbon Neutrality Goals

China's realization of peak carbon emissions and carbon neutrality will represent the highest reduction rate in carbon emission intensity in the shortest period of time in global history, managing the historic leap from peak carbon emissions to carbon neutrality in the face of unprecedented challenges.

The Third Plenary Session of the 20th CPC Central Committee made arrangements for deepening the reform of the system for developing an eco-civilization and improving the mechanism for green and low-carbon development, emphasizing the need to improve the dual control system for carbon emissions and the carbon emissions trading system.

It has become an important task for the Chinese government to establish a carbon pricing mechanism with the national carbon market playing the principal role for the innovation of the mechanism of green and low-carbon development in the face of the long-term task of green and low-carbon development and the goal of further deepening reform across the board.

The carbon pricing mechanism, emerging as the world's mainstream policy tool for carbon emission reduction, is an economic tool that internalizes the external cost of carbon emissions, mainly based on the theories of Pigouvian taxes and the Coase Theorem, thus incentivizing the emission reduction behavior. The carbon tax is the main policy tool based on the theory of Pigouvian taxes while the Coase Theorem is the inspiration for the carbon emission trading system and the voluntary trading mechanism for certified emission reductions (CERs), among others.

Carbon tax and carbon trading are the mainstream carbon pricing mechanisms in the international community. According to a study by the World Bank, as of April 2024, there were 75 carbon tax and emission trading mechanisms in operation globally, including 39 carbon tax mechanisms and 36 carbon emission trading mechanisms. These covered a total of 13 billion tonnes of CO2-equivalent greenhouse gases, accounting for about 24 percent of the global carbon emissions.[1] Another 10 percent or so of the greenhouse gas emissions will be covered by the carbon tax and carbon trading mechanisms under construction or proposed, such as those being developed by Brazil, India, Türkiye and other countries.

In addition, as Article 6 of the Paris Agreement on international carbon trading mechanisms gains growing recognition, more and more countries and regions are

[1] World Bank: "State and Trends of Carbon Pricing 2024", 2024.

establishing or planning voluntary trading mechanisms based on carbon credits. The Carbon Offsetting and Reduction Scheme for International Aviation (CORSIA) entered the first phase of formal trading (voluntary trading phase) in 2024, setting the stage for the launch of liability-bound trading in 2027.

The Chinese government attaches great importance to the building of a carbon pricing mechanism. In accordance with the unified deployment of the central government, China's carbon pricing mechanism is one in which the carbon market plays the principal role. It includes a national mandatory carbon emission trading market and a voluntary emission reduction trading market.

The development of China's carbon market has gone through a gradual process, from the approval of the local carbon emission trading pilot in January 2011 to the official launch of the national carbon market in 2021. According to the Guidelines of the CPC Central Committee and the State Council on Delivering Peak Carbon Emissions and Carbon Neutrality in Full and Faithful Implementation of the New Development Philosophy, reaching peak carbon emissions and carbon neutrality requires a dual-engine drive by both the market and the government.

The establishment of a sound carbon pricing mechanism is an important lever for using market mechanisms to reduce emissions. The national mandatory carbon market has now operated smoothly for two compliance periods. January 2024 saw the launch of the national voluntary greenhouse gas emission trading market.

Generally speaking, the national carbon market, whose future development is highly anticipated both at home and abroad, is still in an early stage and needs persistent pushing. However, it is important to recognize that the building of the carbon market is not something that can be achieved overnight; it requires continuous adjustment and improvement through practice.

Further deepening reform across the board requires accelerated formulation and improvement of a carbon pricing mechanism. The Third Plenary Session of the 20th CPC Central Committee focused on building a high-level socialist market economic system, calling for the full play of the decisive role of the market in resource allocation and better play of the role of the government. For a long time, China has mainly relied on administrative means to promote energy conservation, emission reduction and pollution prevention and treatment, reversing the trend of surging energy consumption and high pollutant emissions in a relatively short period of time and making notable progress in building an eco-civilization.

At present, China's drive to build an eco-civilization has entered a critical stage for synergizing pollution and carbon reduction, fostering comprehensive green economic and social transformation, and substantially improving ecological and environmental quality with carbon reduction as a key strategic direction.

In order to achieve green development and efficient carbon reduction, it is necessary to deeply integrate the dual carbon goals into the entire process of economic and social development, mobilize the enthusiasm and initiative of society as a whole for practicing green development, and accelerate the overall green transformation of the economy and society to deliver a modernization where man and nature co-exist in harmony.

To this end, it is necessary to coordinate carbon reduction, pollution reduction, green transition, and growth, pay more attention to the development of market mechanisms for green and low-carbon development, and form a clear, stable and long-term policy guidance and market expectations. This creates more urgent and higher requirements for improving the carbon market system and the voluntary greenhouse gas emission reduction trading system, and for swiftly improving the carbon pricing mechanism.

III. China Has Formed an Initial Carbon Pricing System with the National Carbon Market Playing the Principal Role

To build a carbon market, the government should set the stage and the market should play the leading role. In particular, developing a carbon trading system is the foundation and the carbon price discovery mechanism the key. The government should play a leading role in formulating the carbon trading system and rules in terms of coverage, allowance management, trading management and data management[1].

The carbon price is the barometer of the market, and market players can synchronize emission reduction or investment in decision-making for production and operation according to short-term price levels and long-term price trends. The equilibrium price is formed through the competition of multiple market players for the optimal allocation of carbon emission rights, so as to meet the emission reduction targets at the minimal cost in the system.

The rules of the national carbon market draw on the practices of local pilots. A rule system which is more suitable for China's national conditions has been established, giving the carbon market a steady start.

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[1] Coverage mainly refers to the scope of industries and enterprises to be included in the carbon market; allowance management involves setting the total amount of allowances, allocation of the initial allowance, setting offset credits, the rules for dynamic adjustment, etc.; trading management includes the rules for facilitating and regulating trading, and the rules for settlement and compliance; and data management includes rules for enterprises' carbon accounting and reporting, rules for third-party verification, and the rules for the management of data quality.

In terms of the scope of coverage, the national carbon market includes only the power industry as a starting point, avoiding other industries with weaknesses in areas such as weak carbon emission statistics and accounting. This was done to ensure that the national carbon market could be launched for trading in 2021.

Theoretically, the greater the diversity of emission control entities covered by the carbon market, the bigger the differentiation of emission reduction costs for different entities, and the easier it is to promote allowance trading. From the actual experience of market establishment, entity coverage depends on two conditions: first, whether the carbon emission accounting capacity of various entities can support a clear and accurate quantification of their emission rights; and second, whether the potential emission reduction benefits of enterprises participating in carbon trading can be higher than the management costs they need to pay for carbon accounting, reporting, verification, and so on.

Based on these two conditions, developed countries mainly chose to cover energy and heavy chemical industries in the early stage. For example, in the first phase of the EU carbon market in 2005-2007, a total of 11,000 carbon-emitting facilities were covered in fields such as electricity and heat power, iron and steel, petrochemical, chemical, building materials, and paper industries.

For China's national carbon market, consideration should be given to aligning with other rules. The national carbon market sets and allocates allowances based on the baseline of carbon intensity of the industry. The accounting requirements for the emission control entities are based not only on the carbon emissions of their production facilities in the compliance cycle but also on the carbon intensity of their products. The more complex an industry's products are, the more difficult it is to account for carbon intensity, which limits the scope of industries that can be included in the carbon market.

When China's national carbon market was launched in 2017, it was clear that it would cover eight major industries: power, iron and steel, building materials, nonferrous metals, petrochemicals, chemicals, paper, and aviation, but only power generators have been included in the two compliance cycles that have been completed so far. An important factor for that is that power generation enterprises have a single product compared with other industries, thus making it easier to carry out their carbon intensity accounting per unit of electricity.

As for allowance management, the national carbon market has established rules for setting and allocating the total amount of allowances based on the carbon intensity of the industry, taking into account the domestic condition that China's carbon emissions are yet to peak, and winning the support of market players for the smooth launch of the carbon market.

The EU carbon market and the California carbon market in the United States, based on the fact that their carbon emissions had already peaked, set the total amount of allowances before allocating the allowance at the beginning of their establishment. Then the prudent practice adopted was that allowances would be allocated free of charge first, then gradually increasing the auctions.

In China, where electricity and industrial carbon emissions have yet to reach their peak, intensity-based rules have been adopted for setting and allocating allowances based on local pilots, i.e., setting a baseline value for the intensity of the industry, calculating the allowance to be issued based on the actual production of the enterprise during the compliance period, and issuing the allowance free of charge. These issued allowances are totaled from the bottom up to become the total amount of allowance in the national carbon market. This approach has effectively relieved enterprises' hesitation and even anxiety in joining the carbon market for the first time and won their support.

When it comes to trading management, the carbon market has set up trading organizations and registration organizations, and formulated initial rules for allowance trading and settlement, therefore providing infrastructure support.

At present, allowance trading in the carbon markets of the EU, the UK, and California of the US is mainly carried out on the Intercontinental Exchange (ICE). The trading of carbon emission allowances managed by the ICE needs to comply with the general regulatory rules on commodity futures and spot trading.

In China, when local carbon markets began to be piloted, each pilot region set up a separate trading organization and registration organization, accumulating rich experiences in trading management. Today, the national carbon market has designated the Shanghai Environment and Energy Exchange (SEEE) as the allowance trading institution and the Hubei Carbon Emission Trading Center (HCETC) as the operator of the national carbon emission registration system, making maximum use of the work foundation laid down by the local pilots.

At the same time, based on the Measures for the Administration of Carbon Emission Right Trading (Trial) issued by the Ministry of Ecology and Environment, the SEEE issued the Rules for the Administration of Carbon Emission Right Trading (Trial) in 2021, making preliminary provisions on trading mode, trading entities, and trading management, and formulating a basic system for trading.

With regards to data management, the national carbon market has gradually established a better data quality management system. High-quality carbon accounting data is the basis for enterprises to clearly determine the number of allowances.

China has paid great attention to data quality management in the carbon market and introduced a system for accounting, reporting and verifying carbon emissions. The quality of carbon emission reports has been improved by issuing and continuously revising technical guidelines on carbon emission accounting for enterprises

and standardizing the key points and procedures for verification.

The data management system has been strengthened by establishing a three-tier national-provincial-municipal joint auditing system for the monthly carbon emission certificates of key emission units. The Interim Regulation on the Administration of Carbon Emission Trading, promulgated in 2024, specifies in law the penalties for data falsification. The rules and systems with Chinese characteristics that China has established for the management of corporate carbon emissions data have greatly boosted society's confidence in the healthy development of the national carbon market.

In addition, the national voluntary emission trading market, an important supplement to the mandatory carbon market, has been relaunched to mobilize the entire society to participate in GHG emission reduction. In addition, several documents have been issued to set up a policy system for the national voluntary emission reduction trading market.

The documents include the Administrative Measures for Voluntary Emission Reduction Trading of Greenhouse Gases (Trial), the Implementation Rules for the Validation of Voluntary Emission Reduction Projects and Verification of Emission Reduction of Greenhouse Gases, the Rules for the Registration of Voluntary Emission Reduction of Greenhouse Gases (Trial), the Guidelines for the Design and Implementation of Voluntary Emission Reduction Projects of Greenhouse Gases and the Rules for the Trading and Settlement of Voluntary Emission Reductions of Greenhouse Gases (Trial).

A national greenhouse gas voluntary emission reduction trading platform has also been established, and four methodologies have been issued – for forest carbon sinks, grid-connected photovoltaic power generation, grid-connected offshore wind power generation, and mangrove forest construction – to support the development of forest carbon sinks and renewable energy projects.

IV. The National Carbon Market Has Proven Effective

By the end of 2023, the national carbon market had been running smoothly for two compliance cycles, marking China's initial establishment of a carbon pricing mechanism mainly in this form. Judging from the three years of operation, China's national carbon market is still at an early stage of development, but it has shown effectiveness in promoting carbon emission reduction.

The national carbon market has been operating smoothly. First, China has successfully launched a carbon market that is the largest in the world by greenhouse gas emission coverage, including more than 2,000 power generation enterprises and covering over 5 billion tonnes of CO2 emissions per year. It has become the cynosure of the international community.

Second, its transaction scale is rising, with the annual volume in 2023 exceeding 200 million tonnes, 18.5 percent higher than in 2021. Compared with the first compliance cycle, in 2022-2023, 216 new trading accounts were opened; the number of key emission units participating in trading increased by 31.79 percent; and the number of key emission units participating in trading multiple times increased by 32.14 percent.

Third, compared with the initial stage of the EU carbon market, the carbon trading price has not registered great volatility. In the first phase of the EU carbon market (2005-2007), there was a price collapse, with an over 300-percent swing in 2006 and a drop to almost 0 from about 20 euros per tonne in 2007.

China's national carbon market had an average daily price of around RMB64 per tonne in 2023, up 39 percent from RMB46 per tonne in 2021. The price continued to rise in the first quarter of 2024, with an average daily price of RMB78 per tonne.

The national carbon market is guiding enterprises to actively reduce emissions.

First, emission control enterprises have a stronger incentive to reduce emissions and are thus stepping up reduction measures. After their inclusion in the carbon market, power generation enterprises are required to include the income and expenditure from carbon allowance trading in their financial statements in accordance with the accounting standards[1], giving them a real sense of the cost of carbon emissions and raises their awareness and initiative for emission reduction.

According to a 2022 survey by international consulting firm ICF, 73 percent of the respondent enterprises said that carbon emission trading would have a moderate or significant impact on their investments by 2025.[2] In practice, Huaneng, Huadian and other power generation companies are required to include the income and expenditure from carbon allowance trading in their financial statements according to the accounting regulations. In 2023, they and other large power companies indicated that they would accelerate technological upgrade to control carbon emission costs.

Second, it pushes the thermal power industry to accelerate carbon reduction and energy restructuring. In 2023, the carbon emission intensity of national thermal power decreased by 2.38 percent compared with 2018, and the carbon emission intensity of electric power decreased by 8.78 percent compared with

[1] Ministry of Finance: "Interim Provisions on Accounting Treatment Related to Carbon Emission Right Trading", Chin. ed., December 16, 2019.

[2] The power generation industry accounts for about 40 percent of the enterprises surveyed.

2018.

By promoting carbon emissions reduction and energy restructuring, the carbon market's policy guidance of incentivizing the advanced and restraining the laggards has been significantly strengthened.

Third, it is levering up green and low-carbon investment and financing. The national carbon market has seen a steady price rise, with the green financial attributes of carbon emission rights recognized by more and more financial institutions. The carbon emission rights trading price has gradually become the benchmark for climate investment and financing, carbon asset management, and allowance pledging. Some key emission units, on the premise of fulfilling their compliance obligations, have successfully launched investment and financing through their carbon allowance pledge.

V. The Improvement of the National Unified Carbon Market Will Be Accelerated

Given the good results of the carbon market, China should take into account the imperatives brought about by the change in its stage of economic and social development, improve the carbon pricing mechanism focused on carbon emission trading, and enhance the effectiveness and long-term nature of emission reduction, so that its carbon market becomes, in a quickly manner, more effective and dynamic, with international influence.

1. The principles China should follow to improve the carbon trading mechanism

The carbon market is an "artificially created" market, where carbon emission allowances are made scarce through policy and institutional design, and the price of carbon emission allowances is discovered through market supply and demand and competition, with a view to optimizing the allocation of the allowances and efficiently reducing emissions. China should do the following to improve the carbon pricing mechanism against the backdrop of the new situation and specific national conditions, and following the law of the market.

(1) Establishing a carbon market based on the rule of law

Socialist market economy is essentially an economy based on the rule of law. The carbon market can operate effectively only by safeguarding the scarcity of carbon allowances and property rights in accordance with the law, protecting the rights and interests of the trading entities, and supervising carbon trading in accordance with the law. China has already issued interim regulations on carbon trading management. It needs to carry out carbon trading in accordance with the law and improve the relevant laws and regulations in practice.

(2) Enhancing information transparency

Open and transparent market information is key to healthy operation of the carbon market and an important prerequisite for carbon price discovery. China's carbon market has just started, and the contents and timeliness of trading information disclosure need to be improved. It is necessary to speed up the information disclosure to ensure full transparency.

(3) Building a unified national carbon market

The development of a national carbon market starts with the pilot exemplary of local carbon markets. The formation of a unified national carbon market should be accelerated with the inclusion of more industries and enterprises. Industries other than electricity should be included in the carbon market as soon as possible for the free flow of carbon allowances nationwide and to avoid the negative impact of market segmentation on equilibrium carbon pricing.

(4) Following the law of supply and demand in the market

To create a scarcity of carbon allowances and ensure their effective demand and supply, the problem of related party transactions within the group should be focused on, so that the price is formed after all the main parties on both the supply and demand sides in the whole market have expressed their expectation for the trading allowances.

2. China's reform orientation for improving the carbon market trading mechanism

The carbon market is an effective way to promote low-carbon and long-term development of the production and living style of the entire society. To improve the carbon market, it is necessary to promote reform in the following areas:

(1) Clarifying its functional positioning and development objectives

The national carbon market is based on the goal of intensity control. With the gradual shift to the total management for carbon emission control, forward-looking arrangements should be made for the positioning and role of the carbon market in the future.

Before putting forward a roadmap for the development of the carbon market,

it is necessary to clarify its role in supporting the delivery of peak carbon emissions and carbon neutrality and guiding the green and low-carbon transformation of the economy and society. The role of local carbon markets in promoting the innovative development of the national carbon market should be clarified. With the establishment of an effective price formation mechanism at the core, the national carbon market should be encouraged to increase the number of listed transactions and accelerate the formulation of a unified price.

(2) Improving the rule of the national carbon market

In view of the problems in the carbon market, such as single industry coverage, single trading variety and insufficient market liquidity, it is necessary to steadily expand the scope of industries covered by the market, expeditiously incorporate industries with relatively mature carbon accounting into the national carbon market, and publish the carbon intensity baseline of related industries at an early date.

Allocation of allowances based on overall targets should be explored and industries whose carbon emissions have peaked should be selected to change the base for total allowance setting from intensity to emission targets. The information disclosure system needs to be improved by establishing a standardized information disclosure mechanism, broadening the contents of disclosure to include information such as allowance allocation, and making rules for regular disclosure.

It is necessary to gradually establish and improve a mechanism for total allowance setting and dynamic regulation as well as a dynamic supply mechanism combining free allocation and auctioning. The basic rules of the national and local carbon markets should be unified for allowance allocation benchmarks, issuance methods and market transactions.

(3) Improving the voluntary emission reduction trading mechanism

It is necessary to better utilize the national voluntary emission reduction trading

market and mobilize more social actors to participate in the market-oriented activities related to carbon reduction. Methodologies need to be expanded fast as soon as possible to include advanced emission reduction technologies that meet the requirement of additionality in industry, construction, transportation, agriculture, among others, carbon removal technologies such as carbon capture, utilization and sequestration, as well as quality methodologies like mature nature-based solutions. Localized application of mature methodologies globally should also be accelerated. The allowance-offsetting proportion of the China Certified Emission Reduction (CCER) schemes should be dynamically adjusted and the demand for them increased through the expansion of the national carbon market.

(4) Promoting the integration of the carbon market with other policies

To step up policy and institutional synergy, in-depth studies should be conducted on the objectives, mechanisms, mutual impacts and substitutability of different policies from the perspective of supporting the peak carbon emissions and carbon neutrality goals and guiding the green and low-carbon transformation, so as to clarify their respective positions and coordination mechanisms or optimize policy programs.

The consistency and comparability of carbon emission statistics, monitoring and accounting methods, standards and other technical infrastructure should be strengthened. Communication and coordination among authorities at the key stages of policy formulation should be improved to enhance the soundness, effectiveness and macro-consistency of policies.

Appendix Key Indicators of China's Development

	Indicators	2019	2020	2021	2022	2023
Overall development	Year-end population (million)	1,410.08	1,412.12	1,412.60	1,411.75	1,409.67
	Gross domestic product (GDP) (billion yuan)	98,651.52	101,356.70	114,923.70	120,472.40	126,058.21
	Primary industry	7,047.36	7,803.09	8,321.65	8,820.70	8,975.52
	Secondary industry	38,067.06	38,356.24	45,154.41	47,378.99	48,258.85
	Tertiary industry	53,537.10	55,197.37	61,447.64	64,272.71	68,823.84
	GDP growth rate (%)	6.0	2.2	8.4	3.0	5.2
	Investment in fixed assets (billion yuan)	43,954.10	45,115.50	47,300.30	49,596.60	50,970.80
	Retail sales of consumer goods (billion yuan)	40,801.72	39,198.06	44,082.32	43,973.25	47,149.52
	Consumer price index (CPI) (previous year = 100)	102.9	102.5	100.9	102.0	100.2
	Surveyed urban unemployment rate (%)	5.2	5.2	5.1	5.5	5.1
	Per-capita disposable income nationwide (yuan)	30,733	32,189	35,128	36,883	39218
	National general public budget revenue (billion yuan)	19,039.008	18,291.388	20,255.464	20,364.929	21,679.543
	National general public budget expenditure (billion yuan)	23,885.837	24,567.903	24,567.300	26,055.212	27,462.294

	Indicators	2019	2020	2021	2022	2023
Overall development	Money supply of broad sense (M2) (billion yuan)	198,648.88	218,679.59	238,289.96	266,432.08	292,271.33
	Grain output (million tonnes)	663.843	669.492	682.847	686.528	695.410
	Primary energy output (million tonnes of standard coal equivalent)	3,973.17	4,072.95	4,271.15	4,638.08	4,830.00
Innovative development	Proportion of expenditures on research and experimental development activities in GDP (%)	2.24	2.41	2.43	2.56	2.65
	Expenditures on basic research programs (billion yuan)	133.56	146.70	181.70	202.35	225.91
	Proportion of expenditures on basic research programs in GDP (%)	6.03	6.01	6.50	6.57	6.77
	Proportion of the value added of high-tech manufacturing industry in that of industrial enterprises above the designated size (%)	14.4	15.1	15.1	15.5	15.7
	Number of invention patent applications (thousand)	1,401	1,497	1,586	1,619	1,678
	Number of highly cited papers (thousand)	30.8	37.2	42.9	49.9	57.9
Coordinated development	GDP by region (billion yuan)					
	Eastern areas	50,977.04	52,554.98	59,587.91	62,201.83	65,208.42
	Central areas	21,751.53	22,048.56	24,913.95	26,651.27	26,989.77
	Western areas	20,490.83	21,300.13	24,187.29	25,698.50	26,932.49
	Northeastern areas	5,012.65	5,090.08	5,559.15	5,794.63	5,962.45
	Urbanization rate of permanent residents (%)	62.71	63.89	64.72	65.22	66.16
	Per-capita disposable income of urban and rural households (yuan)					
	Urban	42,359	43,834	47,412	49,283	51,821

	Indicators	2019	2020	2021	2022	2023
Coordinated development	Rural	16,021	17,131	18,931	20,133	21.691
	Per-capita consumption expenditure of urban and rural households (yuan)					
	Urban	28,063	27,007	30,307	30,391	32,994
	Rural	13,328	13,713	15,916	16,632	18,175
	Engel's coefficient of urban and rural households (%)					
	Urban	27.6	29.2	28.6	29.5	28.8
	Rural	30.0	32.7	32.7	33.0	32.4
	Business revenue of enterprises above the designated size engaged in culture and related industries (billion yuan)	8,662.40	9,851.40	11,906.40	12,180.50	13,034.22
	Number of public libraries	3,196	3,212	3,215	3,303	3,246
Green development	Year-on-year decrease of energy consumption per 10,000 yuan of GDP (%)	2.6	0.1	2.7	0.1	0.5
	Year-on-year decrease of carbon dioxide emission per 10,000 yuan of GDP (%)	4.1	1.0	3.8	0.8	0
	Proportion of primary electricity and other energy consumption in total energy consumption (%)	15.3	15.9	16.7	17.5	17.9
	Proportion of clean energy consumption in total energy consumption (%)	23.3	24.3	25.5	25.9	26.4
	Grid-connected wind power installed capacity (megawatt)	210,050	281,530	328,480	365,440	441,340
	Grid-connected solar power installed capacity (megawatt)	204,680	253,430	306,560	392,610	609,490
	Annual average concentration of particulate matter (microgram/cubic meter)	36	33	30	29	30

	Indicators	2019	2020	2021	2022	2023
Green development	Annual proportion of days with good or excellent air quality in cities at or above prefecture level (%)	82.0	87.0	87.5	86.5	85.5
	Proportion of surface water at or above Grade III quality (%)	74.9	83.4	84.9	87.9	89.4
	Forest coverage rate (%)	22.96	23.04	23.04	24.02	24.02
Open development	Total value of imports and exports of goods (trillion yuan)	31.6	32.2	38.7	41.7	41.8
	Value of goods exported	17.2	17.9	21.4	23.6	23.8
	Value of goods imported	14.3	14.3	17.3	18.0	18.0
	Total value of imports and exports of services (trillion yuan)	5.4	4.6	5.3	6.0	6.6
	Value of services exported	2.0	1.9	2.5	2.9	2.7
	Value of services imported	3.5	2.6	2.8	3.1	3.9
	Foreign direct investment actually utilized (billion US dollars)	141.22	149.34	180.96	189.13	163.25
	Outbound direct investment (billion US dollars)	136.91	153.71	178.82	163.12	177.20
Shared development	Number of new urban jobs (million)	13.52	11.86	12.69	12.06	12.44
	Number of people participated in the basic old-age pension scheme for urban employees (million)	434.879	456.211	480.740	503.550	521.208
	Number of people participated in the basic old-age pension scheme for rural and non-working urban residents (million)	532.660	542.438	547.974	549.523	545.225
	Number of licensed doctors and licensed assistant doctors (thousand)	3,867	4,086	4,288	4,435	4,782
	Infant mortality rate (‰)	5.6	5.4	5.0	4.9	4.5
	Gross enrollment rate for preschool education (%)	83.4	85.2	88.1	89.7	91.1

	Indicators	2019	2020	2021	2022	2023
Shared development	Retention rate for nine-year compulsory education (%)	94.8	95.2	95.4	95.5	95.7
	Gross enrollment rate for senior secondary education (%)	89.5	91.2	91.4	91.6	91.8
	Gross enrollment rate for higher education (%)	51.6	54.4	57.8	59.6	60.2

Data sources: Ministry of Industry and Information Technology, Ministry of Commerce, National Health Commission, Ministry of Education, General Administration of Customs, National Bureau of Statistics, State Administration of Foreign Exchange, "Statistical Communiqué of the People's Republic of China on the National Economic and Social Development" 2019-2023, "Statistical Report on China's Educational Achievements" 2019-2022, "Statistical Communiqué on National Expenditures on Science and Technology" 2019-2023, "2023 Statistical Bulletin of China's Outward Foreign Direct Investment", "2024 Statistical Bulletin of FDI in China", "Report on the State of the Ecology and Environment in China" 2019-2023, *China Statistical Yearbook* 2019-2024, "Statistical Communiqué on China's Health Endeavors" 2019-2023, "Statistical Data of Chinese S&T Papers 2019-2023", "2023 State Council Evaluation Report on the Environmental Situation and the Achievement of Environmental Protection Goals", and United Nations Conference on Trade and Development.

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Afterword

The Development Research Centre of the State Council first launched the annual *China Development Report* in 2023. By presenting the extraordinary progress of China's modernization under the leadership of the Communist Party of China, the *Report* documents the theoretical, institutional, and practical achievements in the course of modernization, and includes some of the Centre's research outcomes on major issues of China's development.

The *China Development Report 2024* is the second in the series, and crystallizes the collective wisdom of the Development Research Centre of the State Council. Based on the framework of the 2023 *Report*, the Editorial Board has held many in-depth discussions and carefully studied the structure, main views, and contents of the *Report* and organized researchers from various research departments of the Centre to participate in its discussions and writing. The Editorial Board also collects the feedback from and takes up the suggestions of experts and scholars in various fields at home and abroad, by means of holding expert seminars and conducting discussions with international organizations and academic institutions.

Chapter One was led by the Department of Development Strategy and Regional Economy and the Department of Macroeconomic Research, with the participation of all research departments and institutes of the Centre. It includes written contributions from Wu Zhenyu, Xu Wei, He Jianwu, Zhuo Xian, Wang He, Zhu Ni, Zhong Zhen, Shi Shujie, Jia Shen, Liu Xiaoge, Li Chengjian, Dong Qian, Liu

Jinyu, and others.

Chapter Two was led by the Research Department of Innovation Development with the participation of the Research Department of Industrial Economy, and includes written contributions from Ma Mingjie, Tian Jietang, Dai Jianjun, Xu Zhaoyuan, Shen Hengchao, Yang Chao, Wang Minghui, Liu Shen, and Zuo Shengqiang.

Chapter Three was led by the Department of Development Strategy and Regional Economy, with the participation of the Research Department of Rural Economy and the Institute of Public Administration and Human Resources, and includes written contributions from Wu Zhenyu, Li Zuojun, He Jianwu, Yin Haodong, and Zhao Zheng.

Chapter Four was led by the Research Institute of Resources and Environment Policies, and features written contributions from Gao Shiji, Chang Jiwen, Wu Ping, Li Weiming, Yang Yan, Yu Min, Xiong Xiaoping, and others.

Chapter Five was led by the Research Department of Foreign Economic Relations, with the participation of the Research Institute of Finance, and includes written contributions from Zhang Qi, Zhang Liping, Luo Yuzhe, Lü Gang, Zhao Fujun, Xu Hongqiang, Zong Fangyu, Gao Qingpeng, Sun Fei, and Chen Hongna.

Chapter Six was led by the Research Department of Social and Cultural Development with the participation of the Institute of Public Administration and Human Resources, and contains written contributions from Li Jianwei, Li Zuojun, Song Zifeng, Zhang Liang, She Yu, Qian Cheng, Zhang Bingzi, Shan Dasheng, Zhang Jiahui, Yu Dong, Liu Shenglan, Ke Yanghua, Wang Weijin, among others.

The five thematic reports are all major research topics determined by the Centre and were completed under the direct leadership and guidance of the president and responsible vice presidents of the Centre. Thematic Report 1 was coordinated

by the Department of Macroeconomic Research, and features written contributions from Xu Wei, Tian Jietang, Zhang Qi, Yuan Dongming, Xu Zhaoyuan, Luo Yuze, Li Chengjian, Liu Jinyu, Xiang Hui, Yu Min, Han Xue, and Liu Tiezhi. Thematic Report 2 was coordinated by the Research Department of Industrial Economy, with written contributions from Tian Jietang, Li Yan, Xu Zhaoyuan, Zhou Yi, Wang Minghui, Zhao Yong, and Lu Qian. Thematic Report 3 was coordinated by the Research Department of Innovation Development, and contains written contributions from Ma Mingjie, Yang Chao, Xiong Hongru, Zhang Xin, Liu Shen, and others. Thematic Report 4 was coordinated by the Institute of Enterprise Research, and includes written contributions from Ma Yuan, Yuan Dongming, Xu Wei, Xue Fei, Guo Ning, and Dong Qian. Thematic Report 5 was coordinated by the Research Institute of Resources and Environment Policies, and contains written contributions from Gao Shiji, Zhang Liping, Wang Haiqin, Li Jifeng, Xiong Xiaoping, Han Xue, Yu Min, Chang Jiwen, Sun Fei, Tang Chao, and Shao Yi.

The General Office of the Centre and the Department of Development Strategy and Regional Economy coordinated the preparation of the *Report*. China Development Press was responsible for the publication of the Chinese version of the *Report*, and Foreign Languages Press and China Development Press were responsible for the publication of the English version. China Development Press and CITIC Press Group were responsible for the distribution of the *Report*.

The Editorial Board

October 1, 2024

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