

Research Paper of China-EU Cooperation on Green Recovery

Working Group on Green Recovery

Institutes of Science and Development, Chinese Academy of Sciences

October 2020

Table of Contents

| | |
|----------------------------------------------------------------------------------------------------------------------------|----|
| I. China's Economic Recovery Policies and Actions in the Post-epidemic Era | 4 |
| (I) A stimulus package for post-epidemic economic recovery..... | 5 |
| 1. Prioritize employment and livelihoods in work goals..... | 5 |
| 2. Establish a modern health system to deal with the normalization of epidemic..... | 5 |
| 3. Adopt flexible and innovative monetary policies and tools to support businesses | 6 |
| 4. Actively expand effective investment with the focus on "new infrastructure, new urbanization, and major projects" | 6 |
| 5. Cut taxes and fees to unleash demand-side potential | 6 |
| (II) Analysis of the economic stimulus plan | 7 |
| (III) Green Considerations for China's Economic Recovery | 10 |
| 1. The Goal of China's Green Development..... | 10 |
| 2. China's Actions of Green Development | 12 |
| 3. China's Green Policies and Measures after the Epidemic | 14 |
| (IV) High Risks of Carbon Lock-in in China's Economic Recovery | 16 |
| II. Latest Developments of Green Investment and Financing in China | 17 |
| (I) Institutional Arrangements of Green Finance | 17 |
| (II) Governance Framework of Green Finance | 18 |
| (III) Green Financial Instruments..... | 19 |
| 1. Green Credit..... | 20 |
| 2. Green Bonds..... | 21 |
| 3. Green Development Fund | 22 |
| 4. Green Insurance | 22 |
| 5. Financial Innovation..... | 22 |
| (IV) Local Practices | 22 |
| (V) Capacity Building..... | 23 |
| (VI) Participation in Global Financial Governance | 24 |

| | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| (VII) Green Finance after the COVID-19 Epidemic..... | 24 |
| III EU's Experience in Green Recovery | 25 |
| (I) Green Deal and Related Policy Progress..... | 25 |
| (II) Priority Areas for Green Recovery | 26 |
| (III) Initiatives to Accelerate Green Transformation | 26 |
| 1. Green Allocation of Development Resources | 26 |
| 2. Focusing on Green Research and Innovation..... | 27 |
| 3. Promoting Green Education and Training | 28 |
| 4. Building a Green Guarantee Mechanism | 28 |
| 5. To Be a Global Green Leader | 28 |
| (IV) Enlightenment of European Green Deal to China..... | 29 |
| 1. Reshaping the Development System with the Concept of Green Development | 29 |
| 2. Ensuring a Fair and Just Green Transformation..... | 29 |
| 3. Focusing on Green Capacity Building to Support Transformation Realization..... | 29 |
| 4. Building a Diplomatic Strategy with Green as the Connotation | 29 |
| IV. Opportunities and Challenges of China's Economic Green Recovery | 30 |
| (I) Intensified De-globalization under COVID-19, In-depth Uncertainty of International Political and Economic Landscape..... | 30 |
| (II) Deterioration in Sino-US Relations and COVID-19 Intensifying Downward Pressure on Economy, Slower Consumption Growth and Weak Growth in Effective Investment of China | 30 |
| (III) Accelerated Transformation of Green Technologies, Global Consensus on Green and Low-carbon Growth..... | 31 |
| (IV) Green and low-carbon development is an important component of high-quality development. The degree of green low-carbon economical development in the "14th Five-Year Plan" period will affect the realization of NDC targets. | 32 |
| V. Suggestions on Green Recovery of China's Economy | 33 |
| VI. Suggestions on Strengthening Green Cooperation between China and EU | 36 |

I. China's Economic Recovery Policies and Actions in the Post-epidemic Era

2020 is highly extraordinary year. The new coronavirus epidemic that rages across the globe poses a huge threat to the safety and health of people around the world. It is not only gravely challenging global public health security, but also significantly impacting global development in political, economic, social and other dimensions. As a result, the economic growth and income levels of countries around the world will be affected to varying degrees. The world is facing a more severe and complex pattern with possibility of accelerating de-globalization and rising populism, nationalism and other forces. The pandemic has prompted countries to reflect on the direction and routes of economic transition. Post-epidemic green economic recovery has become the consensus of the international community, but it adds the pressure on economic transition and the challenge to response to climate change and global climate governance.

In 2020, due to the dual challenges posed by changes in the international landscape and the normalization of epidemic control, coupled with heavy rainstorm disaster, the Chinese economy contracted for the first time in decades. The gross domestic product (GDP) stood at 20,650.4 billion yuan in the first quarter of 2010, down by 6.8% year-on-year. Despite the tough start, the Chinese Government has always put people's safety and health first, and preliminarily reaped significant results in the fight against the epidemic, as well as economic and social development. This pushed the GDP up by 3.2% year-on-year in the second quarter. However, in the third quarter, China suffered the worst flood season since 1998. As of September 3, the major rivers and lakes experienced 18 numbered floods, including basin-wide floods in many rivers and catastrophic floods in the upper Yangtze River. Water levels exceeded the warning levels on 751 rivers. These floods have affected 70.984 million person-times in 28 provinces, while causing direct economic loss of 214.31 billion yuan.

2020 is the final year of China's 13th Five-Year Plan (FYP) and the year for mapping out the 14th FYP. On the basis of normalized epidemic prevention and control, China has advanced the three uphill battles in a coordinated manner, i.e. major risk prevention, targeted poverty alleviation, and pollution control. It has entered a decisive stage in building a moderately prosperous society in all respects as outlined in the 13th FYP. The next FYP period will mark the first five years that China takes advantage of the momentum to embark on a new journey of fully building a modern socialist country and move towards the second centenary goal. It is also a critical period in which China will carry on its responsibilities as a major power to fulfill the commitment to peaking carbon emissions under the Paris Agreement and realize the China's National Plan on Implementation of the 2030 Agenda for Sustainable Development. Therefore, the 14th FYP period is crucial to putting into practice the new vision of development and deciding the development path towards the second centenary goal. Comprehensive green development is an important component of the new vision of development. The realization requires China to improve the pace and quality of growth from the outside to inside, and gradually push forward industrial upgrading and energy structural reform in the current period for the purpose of sustainable development. China should avoid new high-carbon growth and associated long-term carbon lock-in effect that hampers the progress of building a community

with a shared future for mankind while actively addressing increasing climate and environmental risks.

(I) A stimulus package for post-epidemic economic recovery

To address the huge negative impact of the epidemic on China's economy and society, the Chinese government has established the policy that focuses on "six priorities to ensure stability in six areas". On April 17, the Politburo Meeting of the CPC Central Committee identified the "six priorities". It called for coordinated progress in epidemic prevention and control and economic and social development. Under the premise of normalized epidemic prevention and control, China should adhere to the underlying principle of seeking progress while maintaining stability, and safeguard employment, basic livelihoods, market entities, food and energy security, stable industrial and supply chains, and smooth operation of government at the grass-root level. At the Executive Meeting of the State Council on May 13, Premier Li Keqiang made it clear that focus efforts will be made in the "six priorities" to ensure stability in six areas for steady economic fundamentals. The requirements for six priorities and six stabilities have been heightened, while downplaying the requirements for economic growth. To meet these requirements, China has stepped up efforts in various fields, such as epidemic control, livelihoods safeguard, expansion of consumption, and stimulation of innovation, and strives to foster a new economic development model that overcomes negative influence of internal and external factors. On July 30, the CPC Central Committee Politburo Meeting made a major judgment that China has entered a stage of high-quality development, and proposed to speed up the formation of a new development pattern with domestic cycle as the mainstay and domestic and international cycles reinforcing each other.

1. Prioritize employment and livelihoods in work goals

The government has shifted the focus of work across the board and given priority to ensuring employment and protecting livelihoods. The main goal this year is to ensure employment. While the quantitative indicators are largely related to employment and livelihoods, the major indicators are weakened than last year in consideration of the severe employment situation this year. The employment priority policy has been fully strengthened. Fiscal, monetary and investment policies are combined to support stable employment by removing unreasonable restrictions and introducing stimulus measures. In addition, China's requirements for the fight against poverty remain unchanged: All rural poor people and counties must be lifted out of poverty under current standards.

2. Establish a modern health system to deal with the normalization of epidemic

In response to the pressure of normalized epidemic prevention and control on China's health system, the disease prevention and control system has been reformed to build up the capacity of tackling infectious diseases. An anti-epidemic special treasury bond with a scale of one trillion yuan has been issued to support local public health and other infrastructure construction and anti-epidemic expenditures. The epidemic prevention and control mechanism has been

improved and normalized, under which the reserves of medical and health supplies are added. Besides, international cooperation in combating the epidemic has been strengthened as a part of the concrete actions to building a human health community.

3. Adopt flexible and innovative monetary policies and tools to support businesses

At present, the role of micro, small and medium enterprises (MSME) is specially valued in stabilizing economic growth. Monetary policies pay more attention to wide credit, especially to the availability of credit for MSME. A variety of tools will be used, such as reserve requirement ratio reductions, interest rate cuts and re-lending, to enable broad money supply and aggregate financing to grow at notably higher rates than last year. Innovative monetary policy instruments that directly reach the real economy will be adopted to facilitate business access to loans and continued decline in interest rates. Banks are encouraged to defer the payments on all inclusive loans of micro and small businesses and to increase inclusive finance lending to micro and small businesses. This year, the central bank offered a 300-billion-yuan anti-epidemic special loan through re-lending and a 1.5-trillion-yuan inclusive re-lending re-discounted quota.

4. Actively expand effective investment with the focus on "new infrastructure, new urbanization, and major projects"

Active and promising investment will be leveraged to boost economic growth. New government bond issuance will be invested in new infrastructure, new urbanization, and major transportation and water conservancy projects. In specific, the construction of new infrastructure is heightened to stimulate consumer demand and assist industrial upgrading. This covers next-generation information networks, 5G applications, data centers, charging piles and swapping facilities, as well as new energy vehicles. New urbanization will be advanced by improving the public facilities and service capacity of counties and starting the renovation of 39,000 old urban communities. In addition, major transportation and water conservancy projects will be launched with an increase of 100 billion yuan in national railway construction capital. Market-oriented investment and financing mechanisms will be perfected to support the equal engagement of private enterprises in construction. On April 20, the National Development and Reform Commission (NDRC) for the first time defined the scope of new infrastructure¹ as new type of infrastructure that is guided by new development vision, driven by technological innovation, based on information networks, and oriented to high-quality development needs, and provides services such as digital transformation, intelligent upgrade and integrated innovation. It mainly includes three aspects: information infrastructure, integration infrastructure and innovation infrastructure.

5. Cut taxes and fees to unleash demand-side potential

¹ http://www.china.com.cn/zhibo/content_75950998.htm

Efforts will be made to strictly prevent housing prices from distorting the consumption structure of residents. The real estate work conference held on July 24 reiterated that "houses are for living in, not for speculation, and the real estate sector will not be used to shore growth in the short term." For the purpose of expanding final consumption, the duty-free shop policy has been refined in many places to fuel tax-free consumption through the addition of duty-free shops in outbound ports and in cities. The income distribution system has been optimized. The policies of lower value-added tax rates and corporate pension rates issued last year has cut about 500 billion yuan in taxes cuts and fees and expects to reduce the burden of enterprises by more than 2.5 trillion yuan in 2020. In addition, more than 100 billion yuan has been drawn from the unemployment insurance fund balance to support local employment and entrepreneurship policies.

(II) Analysis of the economic stimulus plan

The government has scaled up financial support to relieve the impact of the new coronavirus epidemic on development. This includes i) expanding the fiscal deficit of central government by one trillion yuan; ii) issuing the anti-epidemic special treasury bonds with a scale of one trillion yuan, iii) adding local government bond insurance by 1.6 trillion yuan, and iv) increasing the tax cut and fee reduction scale for enterprises to 2.5 trillion yuan.

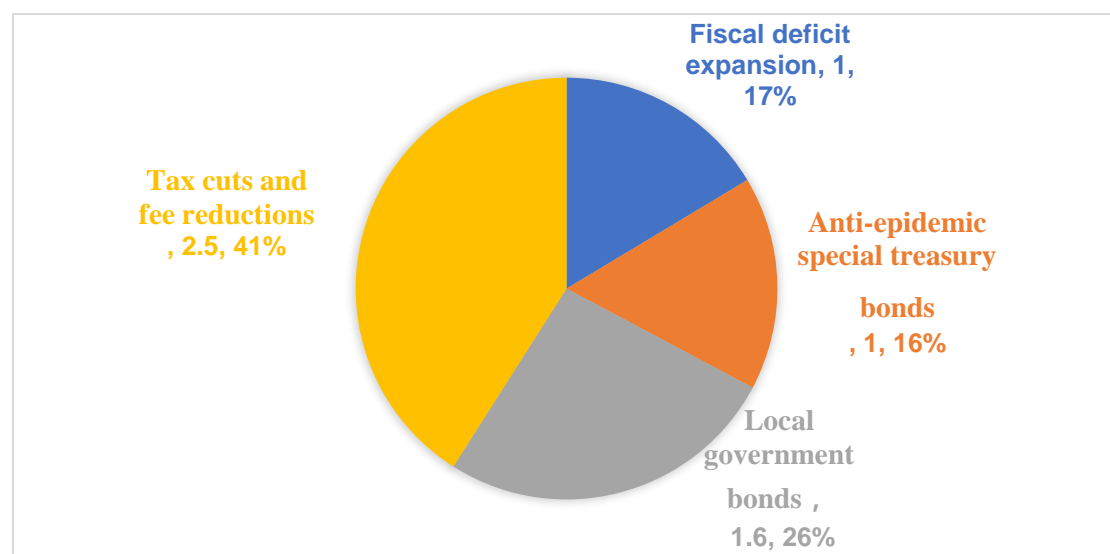


Figure 1 Composition of the central government's fiscal stimulus package (unit: trillion yuan)

At the same time, China has initiated hedging measures centered on infrastructure investment. With the exception of Hubei, Jilin, Heilongjiang, Qinghai, and Liaoning, a total of 26 provinces or municipalities have intensively unveiled the 2020 construction plans for key (major) projects, which features large quantity, wide scope and heavy investment. The investment of announced key projects has amounted to 44.32 trillion yuan, of which investment planned for 2020 is 8.37 trillion yuan, involving 23,363 projects. Among these announced projects, there are 763 new infrastructure projects worth more than one trillion yuan, accounting for about 12%. However, since the new infrastructure catalogue is still unclear, the specific number and investment of

these projects may differ from actual ones.

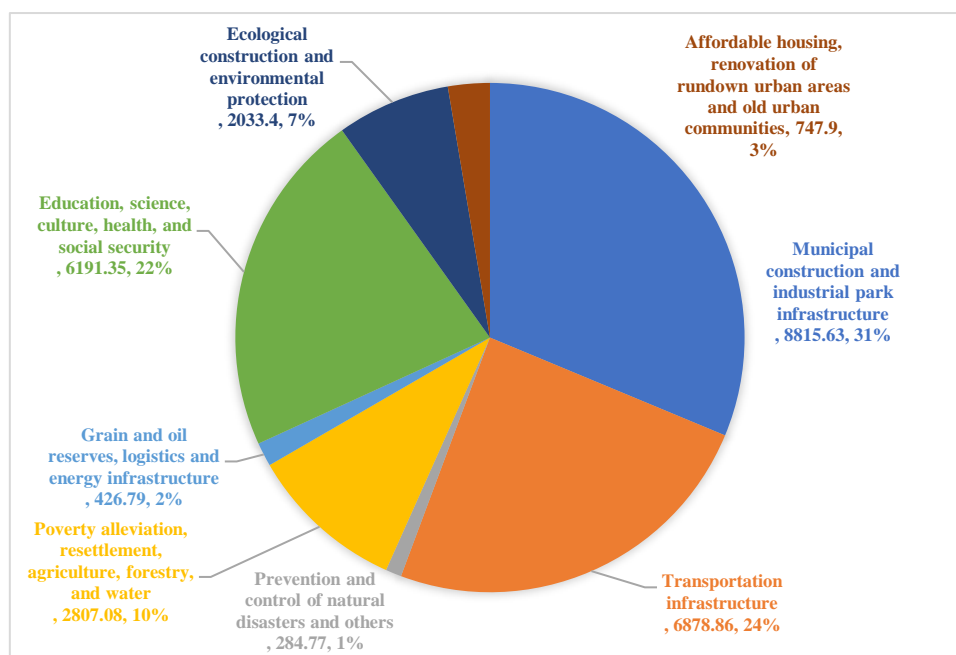


Figure 2 Destination of new local government bonds (unit: 100 million yuan)

As a result of stimulus package, the new local government bond issuance far exceeds the level of the same period last year. By the end of July, the cumulative issuance of local government bonds added by 2,818.578 billion yuan. The specific destinations are municipal construction and industrial park infrastructure (881.563 billion yuan), transportation infrastructure (687.886 billion yuan), education, science, culture, health, and social security (619.135 billion yuan), poverty alleviation, resettlement, agriculture, forestry and water (280.708 billion yuan), ecological construction and environmental protection (203.34 billion yuan), affordable housing, reconstruction of rundown urban areas and renovation of old urban communities (74.79 billion yuan), grain and oil reserves, logistics and energy infrastructure (42.678 billion yuan), and prevention and control of natural disasters and others (28.477 billion yuan).

In terms of financing sources, taking new infrastructure as an example, local self-financing occupies a dominant share of 60%, such as non-standard financing, urban investment bonds, and private-public partnership (PPP). State budget funds contribute to 16%, such as local government bonds and land transfer fees. Outstanding domestic loans account for 16%, such as bank loans. Foreign capital or balance of other financing means take up a share of 8%. As the local debt problem will restrict the implementation and further expansion of infrastructure construction, central government support and diversified financing tools are expected to provide certain support, such as green bonds. In addition, the Standing Committee of the CPC Central Committee Politburo clearly stated on March 4 that "we should pay attention to mobilizing private investment", noting that social capital will also play an effective role in bolstering economic recovery.



Figure 3 Distribution of investment in provinces with announced major projects (unit: trillion yuan)

Provinces in China have mixed prospects and varying efforts of economic recovery. The large-scale recovery plans in various provinces fully demonstrate China's economic resilience to the impact of the epidemic. As far as 18 provinces with known investment are concerned, the investment presents an overall pattern of high in the south and low in the north. It exceeds three trillion yuan in more than seven provinces, namely Guangdong, Yunnan, Sichuan, Fujian, Shaanxi, Henan, and Zhejiang. Considering different levels of fiscal revenues in 2019, it may be difficult for Anhui, Yunnan, Shaanxi, and Guizhou to implement the investment plans, so new financial instruments or financing channels are needed to ensure full realization of investment. In addition, the total investment in key projects reflects the capacity of various provinces to tackle the impact of the epidemic. While paying attention to highly resilient provinces, we should be alert to the increasing disparities among provinces. In Ningxia, Inner Mongolia, Tianjin, and Hainan, the total investment in key projects is less than one trillion yuan, far less than the highest investment of nearly 6 trillion in Guangdong. China should avoid an escalation in regional development imbalances caused by differences in the impacts of the epidemic and recovery capabilities. In addition, due to the poor resource and environment pricing and payment mechanisms, environmental-related debt risks may also arise.

China is trying to transform the economic development model through the construction of new infrastructure, so as to achieve high-quality economic growth. The construction of new infrastructure is a major innovation-oriented measure taken by the country to improve total factor productivity and turn crisis to opportunity. While governments at all levels actively respond to the new infrastructure, how to use the new infrastructure to form a sustainable development momentum has become a key issue at present. The National Development and Reform Commission (NDRC) stated that it will work with relevant departments to issue

guidance on promoting the development of new infrastructure. New infrastructure is put in a prominent position in this round of economic stimulus. It is not because of high investment that is estimated to account for 30% of the total stimulus package, but sustained impetus injected to the economy. In addition, new infrastructure can enable industrial upgrading by accelerating the elimination of backward production capacity.

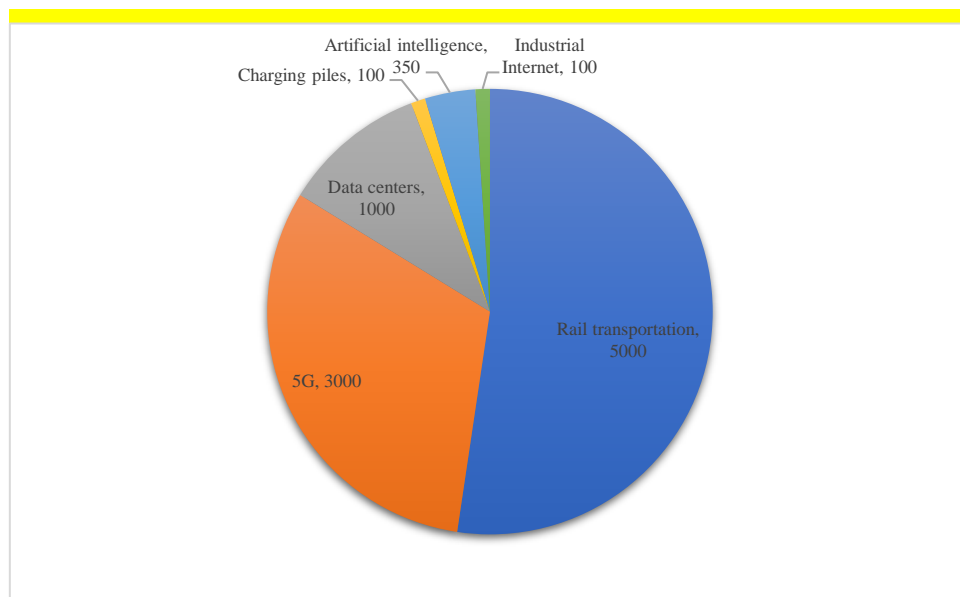


Figure 4 Estimated investment in major new infrastructure in 2020 (100 million yuan)

New types of infrastructure present significant positive externalities to China's current development. Investment and consumption driven by new infrastructure will support the six priorities to ensure stability in six areas. New infrastructure involves a wide range of sectors. It will generate large-scale investment in the short term and effectively stimulate consumption in a favorable way, providing strong support for the realization of six priorities and six stabilities. New infrastructure is expected to reshape the industrial pattern and restructure the industrial ecosystem. It has developed amid the epidemic that accelerates the digital transformation of enterprises, and will put into practice the digital economy by increasing the popularity of applications. New infrastructure will drive innovative economic development. With weak attribute of spatial distance, it creates conditions for innovative development by giving birth to new production and consumption models and technological innovation. New infrastructure can stimulate consumer demand and accelerate industrial upgrading, while stimulating investment for economic recovery. It will catalyze the transformation of development models to realize the synergy of economic recovery and high-quality economic growth.

(III) Green Considerations for China's Economic Recovery

1. The Goal of China's Green Development

In the course of economic development, China has always adhered to the concept of green development, and incorporated ecological civilization into the "five-sphere integrated plan".

China has incorporated the concept of green development into all aspects of national development, and formulated a multi-tiered and cross-sectoral China's approach emphasizing international contributions and set clear development goals. China put forward the concept of "Beautiful China" for the first time and put it in a prominent position at the 18th CPC National Congress, and formulated a phased plan and evaluation system. The ecological environment governance is included as the overall goals in the 13th Five-Year plan. At the same time, China actively responded to the challenges of climate change and assumed international responsibilities and obligations. On June 30, 2015, China submitted the "Enhanced Actions on Climate Change: China's Intended Nationally Determined Contributions" to the United Nations Framework Convention on Climate Change. In response to new changes in the energy supply and demand structure as well as new trends in international energy development, for the sake of its energy security, China put forward the revolutionary strategy of actively promoting China's energy production and consumption on June 13, 2014.

"Beautiful China" emphasized that the construction of ecological civilization should be given top priority and integrated into all aspects and the whole process of economic, political, cultural, and social development. From 2020 to 2035, we will strive for another 15 years to basically achieve socialist modernization on the basis of finishing building a moderately prosperous society in all respects. By then, the ecological environment will have fundamentally improved and the goal of creating a beautiful China will have been basically achieved. From 2035 to 2050, on the basis of basically realizing modernization, we will strive for another 15 years to turn China into a great modern socialist country that is prosperous, strong, democratic, culturally advanced, harmonious, and attractive.

On December 29, 2016, the National Energy Administration issued "Energy Production and Consumption Revolution Strategy (2016-2030)", which mentioned that by 2020, China will comprehensively launch the layout of the energy revolution system, promote the clean-up of fossil fuels, fundamentally reverse the extensive growth of energy consumption, and implement both policy guidance and constraints to form a relatively complete energy security system. By 2030, the use of renewable energy, natural gas and nuclear energy will continue to grow; the use of high-carbon fossil energy will be drastically reduced; total energy consumption will be limited to 6 billion tons of standard coal; a modern energy system will be preliminarily constructed. Looking ahead to 2050, total energy consumption will be basically stable, with non-fossil fuels accounting for more than half of the total; an energy civilized consuming society will be built; China will become an important player in global energy governance; a modern energy system will be built.

China attaches great importance to the issue of climate change. It has taken active efforts to address climate change as a major national strategy for economic and social development, and green and low-carbon development as an important part of ecological progress. China has actively assumed international responsibilities in line with its development stage and national reality, and reaped noticeable results by implementing a series of policies and actions. China has completed the 2020 climate target ahead of schedule, making a major contribution to the

global response to climate change. The share of non-fossil energy in China's total energy consumption has risen to beyond 15%. China has 30% of the global total installed capacity of renewable energy and 44% of the global increase, as well as more than 50% of the world's new energy vehicles. China also sees 25% of the world's green space added since 2000. China will scale up its nationally determined contributions by adopting more vigorous policies and measures, and aim to peak carbon dioxide emissions by 2030 and achieve carbon neutrality by 2060. This further reflects China's willingness to work with other countries to build a vigorous, clean and beautiful world, as well as its responsibility to build a community with shared future for mankind.

2. China's Actions of Green Development

Since the ecological civilization was included in the “five-sphere integrated plan”, China has basically achieved the holistic green development, namely, systematically including green factors in the country's developing process, specifically reflecting in the greening of development pattern, actively responding to climate change, increasing the protection of the ecological environment, systematic implementation of pollution prevention and control, accelerating the energy transformation, and emphasizing the security work of transformation, etc.

(1) Change development models

China's economic development model is continuously and resolutely transforming to a green development direction. China's legal system and policy orientation are accelerating the transformation into the direction of green production and consumption, and promoting the green transition of institutions and mechanisms, and the establishment and improvement of the national economic system of green, low-carbon, and circular development. We will establish a green technology innovation system to develop green finance, and promote the green and efficient development of energy conservation and environmental protection industries, clean production industries, clean energy industries, and circular economy, etc. We will launch a revolution in energy production and consumption, and build a clean, low-carbon, safe, and efficient energy system by phasing out backward technologies and applying advanced green technologies on a large scale. We will accelerate the overall conservation and recycling of resources, develop garbage classification and recycling, reduce energy and material consumption, and promote circulation links between production and living systems. We will advocate a simple, moderate, green, and low-carbon lifestyle and oppose extravagance, waste, and unreasonable consumption.

(2) Respond to climate change

China has made positive contributions to global efforts in tackling climate change, and actively fulfills its international commitments. By the end of 2019, China had reduced its carbon intensity by 48.1% compared with 2005, the share of non-fossil fuels in China's primary energy consumption is as large as 15.3%, accomplished the 2020 target China has promised globally

ahead of schedule and reversed the rapid growing pattern of carbon dioxide emissions. China's forest stock volume has increased by 2.1 billion cubic meters, exceeding the target of 1.3 billion cubic meters by 2020. In addition, China has actively constructed the world's largest carbon trading market, and by June 2019, the cumulative volume of quota transactions in seven pilot carbon emissions trading regions is about 330 million tons of carbon dioxide equivalent, with a cumulative turnover of about 7.1 billion yuan (about 900 million euros). The total amount of enterprise carbon emissions to be included in the future is expected to exceed 3 billion tons, and China will then become the world's largest carbon trading market.

(3) Protect the ecological environment

China has continued to invest in ecological governance at a high rate, achieving the 17% protected area target set by the Convention on Biological Diversity for 2020 ahead of schedule. In 2017, China's total investment in environmental pollution control was 953.9 billion yuan (about 120 billion euros), 7.2 times that of 2001, and with an average annual growth rate of 14%. China has implemented major projects for the protection and restoration of important ecosystems. Since 2017, China has completely stopped the commercial logging of natural forests. In 2019, the British journal Nature pointed out that from 2000 to 2017, about a quarter of the world's new green area came from China, which was the number one in the world. Within 17 years, the area of nature reserves increased by 50%; the number of nature reserves in China reached 2,750, increasing by 1,523 compared with 2000; the area of nature reserves was 147.17 million hectares, with an increase of 49.9% over 2000.

(4) Advance pollution prevention and control

China has incorporated pollution prevention and control into the "three major challenges" of building a moderately prosperous society in all respects. It has initially established a comprehensive governance system based on the management of atmosphere, water, soil, solid waste and waste disposal. In the "Action Plan on Air Pollution Prevention and Control", China has proposed to invest 1.7 trillion yuan (about 210 billion euros) in air pollution control. In 2018, 121 out of 338 cities at the prefecture-level and above met the air quality standard, accounting for 35.8%, and was 14.2% higher than that of 2015. For water pollution control, urban sewage treatment plants were constructed on a large-scale, and the implementation of the set of heads of rivers and lakes, incorporated the environmental governance into the government performance assessment indicator, and increased environmental protection supervision and pollution penalties. In 2018, China's environmental administrative penalties fines were 15.28 billion yuan (about 2 billion euros), with a year-over-year increase of 32%, and was 4.8 times higher than that of 2014.

(5) Accelerate the energy transformation

We promote a revolution in energy production and consumption, increasing renewable energy supply, significantly reducing energy intensity, and decarbonizing the transportation system. For the seventh consecutive year, China has become the largest investor in renewable energy,

and China's installed capacity of wind power, solar energy and other renewable energy is the world's first. In 2018, China's investment in renewable energy accounted for almost one-third of the world, amounting to 91.2 billion dollars, and economic unit energy consumption decreased by 0.9% per year. From 2016 to 2018, China has cut backward coal production capacity by 810 million tons, completed a total of 810 million kilowatts of ultra-low emission transformation of coal power, and eliminated more than 20 million kilowatts of backward coal power production capacity. In 2018, energy consumption per unit of GDP decreased by 0.9% compared with 1953. The decarbonization of the transport sector is remarkable. In 2018, China's sales of new energy vehicles reached 1.256 million, has ranked the first in the world's new energy vehicle sales for four years in a row, accounting for 50% of global scale holding.

(6) Focus on transformational security

China has been strengthening the guarantee and support for the green transition, and working to alleviate the problem of uneven development. China has elevated the eradication of absolute poverty to a strategic goal that must be achieved by 2020, achieving the goal of the 2030 Agenda for Sustainable Development 10 years ahead of schedule. The social security system has been comprehensively improved, and China has built the world's largest and most populous social security system, covering nearly one billion people; life expectancy per capita has increased significantly; education penetration and educational attainment have improved dramatically.

3. China's Green Policies and Measures after the Epidemic

While actively responding to the impact of the epidemic, the Chinese Government has introduced a series of regulations and systems to promote green development from the central to regional, local, and industrial levels, providing a strong guarantee for green development and green production.

We will promote the transformation of production and consumption patterns to provide an institutional guarantee for the green transformation of economic and social development. On March 11, 2020, the National Development and Reform Commission issued the provide an institutional guarantee for the green transformation of economic anof Green Production and Consumption” approved by the Central Committee of Comprehensively Deepening Reform, the opinion has been clear about the system framework of green production and consumption regulation and policy system, proposed 27 key tasks around the key areas and key sectors of current green production and consumption, at the same time strengthened the incentive and constraint measures combining the economic and administrative means.

We will establish and improve a modern environmental governance system, and define specific construction paths and supporting systems. In March, 2020, the General Office of the CPC Central Committee and the General Office of the State Council of CPC issued “the Guiding Opinions on Building a Modern Environmental Governance System”, promoting the building of a modern environmental governance system featuring leadership by party committee, guidance by government, and extensive participation of corporate entities, social

organizations and the public. In the clear construction direction of the 19th National Congress of the Communist Party of China, the guideline determined the specific construction path of the ecological environmental governance system, stipulated the responsibilities and obligations of all parties in the governance system and supporting systems, and the construction of modern environmental governance system has entered the fast lane.

We will take stern actions to promote the development of green finance and make positive progress in the development and innovation of green finance. On July 21, 2020, the People's Bank of China issued the "Notice on the Issuance and Distribution of the Green Finance Performance Evaluation Program for Banking and Depository Financial Institutions (Draft for Comments)", in which green loans are upgraded into green finance, representing a major adjustment made by financial regulators to adapt to the development trend of green finance, and also a further improvement in banking green finance system in China. On July 8, 2020, the People's Bank of China, National Development and Reform Commission and China Securities Regulatory Commission jointly issued the "Notice on Printing and Distributing the 'Green Bond Support Project Catalogue (2020 Edition)' (Draft for Comments)", to further integrate China's green bonds with the international community and increase support for the development of green industries.

We will promote ecological environmental improvement and economic recovery through major projects of protecting and restoring ecosystems. On June 12, 2020, the National Development and Reform Commission, Department of Natural Resources jointly issued the "National Major Ecosystem Protection and Restoration Project Master Plan (2021-2035)". It made clear that in 2035, by the vigorous implementation of the major projects of important ecosystem protection and restoration, we will comprehensively strengthen ecological protection and restoration. The national forests, grasslands, deserts, lakes, wetlands, oceans, and other natural ecological systems will achieve a fundamental improvement, and the ecosystem quality will be markedly improved. High-quality ecological products supply ability will satisfy people's basic needs, and the human and nature harmonious coexistence will be basically achieved. The investment of major projects will promote the further improvement of the ecological environment, drive the economic growth and the innovative application of relevant technologies, and realize the unity of the growth of green public product supply and green development.

(1) Significant progress has been made in carrying out the "two new and one major"

Facing the epidemic, China has actively sought opportunities in the midst of the crisis, and promoted the resumption of work and production under the epidemic prevention and control on a regular basis, while actively promoting the development of the Chinese economy towards higher quality. We will promote economic growth through active and effective investments and emphasize that new government debt funds will be invested in the "two new and one major", namely, the construction of new infrastructure, new urbanization and major projects such as transportation and water conservancy.

In terms of new infrastructure, on March 4, 2020, the Standing Committee of the Political Bureau of the CPC proposed to “accelerate the construction of major projects and infrastructure which were clearly defined in national plans, and speed up the new infrastructure construction of 5G network, data centers, etc.”. The new infrastructure mainly includes three aspects: first, information infrastructure mainly including 5G, data center, Internet of Things, industrial Internet and artificial intelligence; second, the integration infrastructure represented by intelligent transportation infrastructure and intelligent energy infrastructure; third, innovation infrastructure represented by major science and technology infrastructure, science and education infrastructure, and industrial technology innovation infrastructure. The new infrastructure will stimulate new consumer demand, help industrial upgrading, and promote the digital and clean development of the economy.

In terms of new urbanization, on April 3, the National Development and Reform Commission issued a notice titled “Key Tasks for the Construction of New Urbanization and Integrated Development of Urban and Rural Areas in 2020” to further promote new urbanization. We will vigorously improve the public facilities and service capacities in county towns. In 2020, newly started reconstruction of old residential areas in cities and towns are 39, 000, involving nearly 7 million households. This action will effectively raise the level of building energy consumption and improve the living environment of residents.

In terms of major projects construction, on June 3, the National Development and Reform Commission and the Ministry of Natural Resources issued the “Master Plan for Major Projects for the Protection and Restoration of Important Ecosystems Nationwide (2021-2035)”, which included ecological and environmental protection systems in major projects.

(IV) High Risks of Carbon Lock-in in China's Economic Recovery

There is still room for improvement in the quality of China’s economic recovery, and the risks resulting in high carbon lock-in effect may also arise to some extent. Some governments and departments are path-dependent on making economic recovery decisions and lack a clear understanding of the effectiveness of new infrastructure, which leads to the blind implementation of some infrastructure projects and is not conducive to decarbonization and high-quality economic development. Among provinces announcing new investment plans, the share of green projects planned in these provinces in total investment has not increased compared to five and ten years ago.

The reliance on coal power in the investment stimulus has not diminished. At the macro level, according to the “Notice on Risk Early Warning for Coal Power Planning and Construction” issued by the National Energy Administration this year, the number of provinces with a red alert for installed coal power sufficiency in 2020, i.e., withholding approval of coal power projects, is five fewer than in 2018. At the implementation level, the approval pace of coal power projects has been significantly accelerated after the epidemic. By July, no less than 15 large-scale coal power projects had been approved in China. The national infrastructure is expected to add about 130 million kilowatts of new power generation capacity in this year, of

which 86 million kilowatts of non-fossil energy power generation installed in operation. The continuation of the old development model under the situation that coal power overcapacity is expected to ease will delay the process of low-carbonization of China's energy system.

Infrastructure leads to massive resource consumption. Infrastructure investment needs to consume a large number of resources. Steel consumption of the infrastructure may reach 182 million tons in 2020, up 3.86% compared to 2019, and is expected to contribute 46.55% to the annual steel consumption; cement production has bounced back after the epidemic shock, and the growth rate in April-July 2020 is higher than that of the same period in 2018 and 2019, and the cement production has picked up significantly. The production process of building materials requires the generation of large numbers of carbon emissions and energy consumption, which is not conducive to reduce emissions in the construction sectors.

There is a risk of overheating in new infrastructure investment. China's official understanding of new infrastructure is still unclear, and the industrial directory of new infrastructure has not yet been launched. A large number of projects have been launched in the name of new infrastructure, taking up resources for the development of other industries; at the same time, some new infrastructure with clear understanding are blindly built ahead of others without considering the characteristics of potential application scenarios, leading to waste of energy and idle equipment, taking up opportunities for the application of subsequent technologies and leading to dependence on the path of new infrastructure.

Some of the new infrastructure hinders energy conservation and emission reduction. New infrastructure, represented by 5G and data centers, has yet to effectively address energy consumption and consumes significant amounts of energy during operation. Before the completion of the low-carbon transition of the power system, the expansion of new infrastructure will lead to an increase in carbon emissions.

II. Latest Developments of Green Investment and Financing in China

(I) Institutional Arrangements of Green Finance

According to a UNEP report, to achieve the Sustainable Development Goals (SDGs) of the UN, the annual investment demand in major green fields (such as energy, construction, infrastructure, water and pollution control, etc.) all over the world will reach tens of trillions of dollars in the next decade. As a financial solution to promote the development of global green economy, the concept of green finance has risen in the world. In 2016, China introduced the topic of green finance into the G20 Agenda for the first time and established a Green Finance Study Group. The first G20 Green Finance Synthesis Report was adopted at G20 Hangzhou Summit, which clarified the definition, objective, scope and challenges of green finance, and provided suggestions for the development of green finance in various countries to support the global sustainable development.

China took the lead in establishing the sound green finance policy framework. The first top-level system of green finance in the world issued by the Chinese government in 2016, namely

the *Guidance on Building a Green Financial System* jointly issued by the People's Bank of China and other departments, as well as a series of specific policies comprehensively put forward the top-level design scheme of China's green financial system. The *Guidance* explicitly takes environmental improvement, climate change response and resource conservation and efficient utilization as the support objects of green finance to promote the green and low-carbon development of economy through the top-level design. **The *Guidance* contains a series of specific policies on green bonds, green credit, evaluation and certification and information disclosure, etc, providing institutional guarantee for the standardized development of green finance.** On this basis, seven ministries have successively introduced a number of detailed rules on green credit, green insurance and green bonds, and facilitated the establishment of “four pillars” for sustainable development of green finance. The first is the construction of standard system for green finance. We should establish a green financial standard which is unified in the whole country and can be in line with the advanced international practices, so as to have a better dialogue with the international community and attract more international investment. The second is the construction of digital infrastructure for green finance. Digital technology and financial technology will be used to promote the development of green finance, and expedite the construction of digital infrastructure of green finance. The third is the innovation system of green financial products. We are committed to developing more green financial products to guide more capital flow to green development fields. The fourth is the incentive and restraint mechanism of green financial development. The financial institutions are encouraged to pay more attention to the development of green finance by implementing the effective incentive and restraint mechanism. For example, those with good performance will be treated differently in the process of Macro Prudential Assessment of the People's Bank of China.

(II) Governance Framework of Green Finance

The lead financial regulator of green finance in China is the People's Bank of China and its responsibilities in green finance are embodied in the following: 1) Establishing a top-level framework of green financial regulation in conjunction with other departments. In August 2016, the People's Bank of China, together with seven ministries, issued the *Guidance*, which comprehensively puts forward the top-level design scheme of China's green finance, so as to provide a basis for the development of green finance. 2) Guiding the implementation of a series of detailed rules for the green finance. Guide by the *Guidance*, the specific policies on green bonds, green credit, environmental information disclosure, green industry standards, green financial policy incentives and third-party evaluation and certification have been gradually implemented. 3) Promoting multilateral or bilateral cooperation in global green finance. Through G20, NGFS and China-UK Economic and Financial Dialogue, the People's Bank of China has been extending the green financial consensus across the world.

China Banking and Insurance Regulatory Commission (CBIRC) has made positive innovations and formulated a series of policies on green credit and green insurance to promote the industry development. 1) The CBIRC has actively promoted the development

of green credit. In January 2020, the CBIRC issued the *Guidance on Promoting High-quality Development of Banking and Insurance Industries* to encourage banking financial institutions to actively develop special financing for encouraging energy efficiency, green bonds and securitization of green credit assets and emphasize the integration of ESG requirements into the whole process of credit granting for further convergence with international practices. 2) The CBIRC has pushed the development of green insurance. In June 2017, the Ministry of Environmental Protection and China Insurance Regulatory Commission (CIRC) jointly studied and formulated the *Administrative Measures for Compulsory Liability Insurance of Environmental Pollution (Draft for Comments)*, extending the environmental pollution liability insurance to the whole country from the pilot areas.

China Securities Regulatory Commission (CSRC) has been innovating and practicing in the fields of information disclosure, standardization of green bonds and green investment and so on.

1) The CSRC has enhanced disclosure requirements of ESG related information of listed companies. In 2018, the CSRC revised the *Code of Corporate Governance for Listed Companies*, stipulating the information disclosure by the listed companies to form a basic framework of ESG information disclosure. 2) The CSRC has actively promoted the standardization of green bonds. The CSRC and the People's Bank of China jointly issued the *Guidelines for Evaluation and Certification of Green Bonds (Interim)* to strengthen the due diligence on green projects. In May 2020, the People's Bank of China, National Development and Reform Commission (NDRC) and CSRC issued a new version of *A Directory of Support Projects of Green Bonds (Draft for Comments)*, which eliminated the clean utilization of coal and incorporated the carbon capture, utilization and storage (CCUS) technology for the first time.

The Ministry of Finance is responsible for green Public-Private-Partnership (PPP) projects, national green development fund and financial subsidies for green projects. In July 2017, the Ministry of Finance, the Ministry of Housing and Urban-Rural Development, the Ministry of Agriculture and the Ministry of Environmental Protection jointly issued the *Notice on Full Implementation of PPP Mode in Government-Involved Sewage and Waste Disposal Projects* to facilitate the optimization of service supply of relevant environmental public products.

China's green financial development is not only reflected in the domestic market, but also reflected in the energetic popularization of responsible investment concept in the international investment. We should actively implement the ESG principles in outbound investment related to The Belt and Road Initiative to promote the green and sustainable development in relevant regions.

(III) Green Financial Instruments

Green bonds, green credit, green insurance and other markets have developed rapidly. In 2019, the green bond market in China maintained a strong growth trend, with a total of 339.062 billion yuan of green bonds issued in the whole year and issuing number of 214, increasing by 26% and 48% respectively compared with those in 2018, and accounting for 21.3% of the global

issuing scale of green bonds in the same period. The green loan balance of China has increased year after year. In the first half of 2019, the green credit balance of 21 major banks in China was 10.6 trillion yuan, accounting for 9.6% of all loans of 21 banks. The environmental pollution liability insurance has been extended to the whole country from the pilot areas. As of the end of August 2019, the insurance industry has provided risk guarantee of more than 500 billion yuan for more than 3,700 first major technical equipment projects.

The capitals of traditional financial market are the biggest potential source of funds. The traditional financial market includes direct financing and indirect financing markets, and the funds come from institutions and private investors in essence. With the continuous introduction of supportive policies related to the energy conservation and emission reduction and climate change response, the enterprises and projects in the area of climate change can gradually attract more capital investment. The financial market is becoming an increasingly important source of climate financing.

1. Green Credit

Green credit is an important part of green finance in China and is the earliest, largest and most mature part of green finance in China. Since 2007, China Banking Regulatory Commission (CBRC) has successively issued the *Guidance on Credit Granting for Energy Conservation and Emission Reduction*, *Green Credit Guidelines*, and *Guidelines for Special Financing for Encouraging Energy Efficiency*, and has basically established a green credit system framework mainly based on *Green Credit Guidelines* to clarify the policy boundaries, management methods and assessment policies for the credit granting for energy conservation and emission reduction and green credit carried out by the banking financial institutions so as to ensure that credit funds are invested in green, circular and low-carbon areas. At present, green credit includes loans to support energy-saving and environmental protection projects and services (including 12 project types), and loans to support manufacturing terminals of three strategic emerging industries, including energy conservation and environmental protection, new energy and new energy vehicles. The proportion of green credit balance in various loans continued to increase, reaching 8.7% at the end of 2013, 9.3% in 2014 and 9.7% in 2015. According to the latest data of CBRC, as of the end of June 2016, the green credit balance of 21 major banking financial institutions reached 7.26 trillion yuan, accounting for 9.0% of all loans. Among them, the balance of loans for energy conservation and environmental protection, new energy, new energy vehicles and other strategic emerging industries was 1.69 trillion yuan, and that for energy conservation and environmental protection projects and services was 5.57 trillion yuan. According to the project classifications, the balance of loans for green transportation projects was 2.65 trillion yuan, accounting for 47.6% of the total loans for energy conservation and environmental protection projects and services in the same period; that for renewable energy and clean energy projects was 1.47 trillion yuan, accounting for 26.4%; that for industrial energy conservation, water-saving and environmental protection projects was 404.01 billion yuan, accounting for 7.3%; that for waste disposal and pollution prevention projects was 290.14 billion yuan, accounting for 5.2%; that for natural protection, ecological restoration and disaster

prevention and control projects was 215.04 billion yuan, accounting for 3.9%; that for resource recycling projects was 143.65 billion yuan, accounting for 2.6%; that for rural and urban water projects was 135.35 billion yuan, accounting for 2.4%; that for building energy conservation and green architecture was 106.04 billion yuan, accounting for 1.9%; that for energy conservation and environmental protection services was 61.31 billion yuan, accounting for 1.1%; that for green agriculture projects was 37.64 billion yuan, accounting for 0.7%; that for green forestry projects was 33.39 billion yuan, accounting for 0.6%.

2. Green Bonds

Green bond is a kind of debt financing instrument to provide financing for green projects with environmental benefits. The significant difference between green bonds and general bonds is that the funds raised by green bonds are specially used for projects with environmental benefits, which are mainly to mitigate and adapt to climate change. The funds raised by green bonds can only be used for green projects. The issuers should continuously disclose the information on the use of funds to investors in order to maintain the market reputation. The green label of green bonds provides an identification mechanism for investors. Investors can identify climate-related investments through the green label, thus minimizing the market resistance and promoting the growth of climate-related investments.

In 2016, the global issuing scale of green bonds reached 257.7 billion dollars², largely driven by Chinese issuers. China's green bond issuance began at the end of 2015 when the Agricultural Bank of China issued green bonds in London. In 2019, China issued a total of 192 issues of green bonds, with an issuing scale of 280.344 billion yuan. China is the second largest green bond issuance market in the world, driving the global development of green bonds.

Medium and long-term green projects with stable cash flow are the potential financing subjects in bond market. The bond market accounts for about 1/3 of the global corporate financing, but the proportion of green bond issuance in the total green financing is still small. If all kinds of market and mechanism obstacles restricting the development of green bonds can be solved, the green bond market will have great development potential. For instance, with the global temperature rise limited to 2°C, OECD quantitative analysis shows that by 2030, the potential annual issuing scale of bonds for low-carbon projects such as renewable energy, energy-saving and low-emission vehicles will reach 700 billion dollars in four markets (China, Japan, EU and USA).

In December 2015, the People's Bank of China issued the *Guidelines for the Issuance of Green Financial Bonds*, and the Green Finance Committee, China Society for Finance and Banking issued *A Support Directory of Green Bond Projects*. The verification institutions and third-party certification bodies provide "labeling" services for green bonds and supervise the use of funds,

²China Lianhe Credit Rating Co., Ltd. 2019 Operation Report of Green Bonds

which has become an important lesson for the green bond market.

3. Green Development Fund

The Ministry of Finance, the Ministry of Ecology and Environment and Shanghai Municipal People's Government jointly initiated the establishment of national green development fund, mainly for the investment along the Yangtze River Economic Belt. With abundant reserve projects, it is expected to launch equity investment to drive efficient private capital in the future and to analyze and study more than a dozen industry segments including solid waste treatment, waste incineration, clean energy source, battery recycling and charging pile, etc.; deeply engage in the construction of Demonstration Zone of Integrated Development of the Yangtze River Delta and Lin'gang Section of Shanghai Pilot Free Trade Zone; accumulate successful experience of green development fund and explore to build a paradigm to radiate to other regions of China. In the early stage, project financing is the main task. In the future, equity investment will be tried to promote the sound development of the industry.

4. Green Insurance

In January 2020, the CBIRC issued the *Guidance on Promoting High-quality Development of Banking and Insurance Industries* to encourage banking financial institutions to actively develop special financing for encouraging energy efficiency, green bonds and securitization of green credit assets and emphasize the integration of ESG requirements into the whole process of credit granting for further convergence with international practices. In June 2017, the Ministry of Environmental Protection and the CIRC jointly studied and formulated the *Administrative Measures for Compulsory Liability Insurance of Environmental Pollution (Draft for Comments)*, extending the environmental pollution liability insurance to the whole country from the pilot areas, which promoted the development of green insurance.

5. Financial Innovation

The innovations of green financial products and services are encouraged to enhance the commercial sustainability of green finance. China supports market players to actively innovate green financial products, instruments and business models to effectively improve their green financial business performance³. At present, China's green finance mainly relies on green credit, as well as green bonds, green stock index, green insurance, green fund, carbon finance and other instruments and channels. In March 2019, the NDRC and other seven ministries jointly issued the *Guidance Catalogue of Green Industries (2019 Edition)*, so that the green financial standardization system has been gradually improved.

(IV) Local Practices

From 2017 to 2019, the State Council has built pilot zones for green finance reform and

³Research Bureau of the People's Bank of China, Summary of *China Green Financial Development Report (2018)*

innovations with different focuses and characteristics in Zhejiang, Jiangxi, Guangdong, Guizhou, Xinjiang and Gansu. In the past two years, the pilot zones has accumulated a series of successful experience in green finance reform and innovations: Firstly, reaching a consensus on the development strategy of green finance from the central government to the local governments is crucial; secondly, the financial and non-financial mechanisms and other measures shall be taken to encourage the innovation of green financial products; thirdly, the construction of institutional capacity and supporting facilities is essential for the development of green finance; fourthly, financial innovation is the lasting power to promote the sustainable development of green finance based on the market; fifthly, incentives and regulation shall be implemented simultaneously to realize the benign development of green finance.

(V) Capacity Building

In April 2015, the China Society for Finance and Banking established the Green Finance Committee (hereinafter referred to as “GFC”). The professional institutions for the research and promotion of green finance have been set up in succession, important progress has been made in the research and development of green finance standards, assessment mechanism and environmental risk analysis, and the capabilities of green finance have been strengthened, effectively promoting the development of green finance. To better give play to the role of green finance in climate change mitigation, in 2019, the Ministry of Ecology and Environment, together with the People’s Bank of China, CBIRC, NDRC and the Ministry of Finance, established Climate Investment and Finance Association to set up a good platform for the information exchange, product docking and international cooperation.

After several years of development, the scale of China’s green financial market has been expanding, and product and service innovations have been emerging. In 2019, China issued a total of 386.2 billion yuan of green bonds, ranking first in the world. The stock scale of green bonds was 977.2 billion yuan, ranking the top in the world (Climate Bonds Initiative (CBI) and China Bond Research and Development Center, 2020). According to the statistics of the People’s Bank of China, by the end of 2018, the green credit balance of banking financial institutions in China was 8.23 trillion yuan, with a year-on-year growth of 16% and annual increase of 1.13 trillion yuan, accounting for 14.2% of the loan increments of enterprises and other units in the same period. In 2018, the listing financing and refinancing of green enterprises totaled 22.42 billion yuan. Green fund, green insurance, green trust, green PPP, green leasing and other new products, services and new formats are constantly emerging, which effectively broaden the financing channels of green projects and reduce the financing costs and project risks. A series of basic institutional arrangements, such as green finance standards, statistical system, information disclosure, evaluation and certification, have been gradually improved. The local green finance reform and innovations have continued to advance, and a series of useful experience that could be replicated and popularized was initially formed. From the international perspective, the multilateral and bilateral cooperation on green finance has been deepened constantly and China’s influence and voice have been continuously improved. Since 2016, China has actively set up green finance issues on the international stage, giving full play

to its leading role in global green finance. During China's presidency of G20 in 2016, China incorporated "green finance" into the G20 Agenda and facilitated the global consensus building on the development of green finance.

As a part of climate change response under the green financial framework, climate investment and financing can inherit and learn from the policy action framework of green finance in the future development. Relying on the influence of green finance on the stakeholders, especially financial institutions, more efforts shall be made to incorporate the concept of climate into the decision-making framework of financial institutions. What's more, in the follow-up construction of green financial system and mechanism, the climate investment and financing will be better combined with green finance to highlight the mitigation and adaption to the climate change, improve the policy standard system, instrument products and practical application of climate investment and financing and direct more funds to flow into the climate change response field.

(VI) Participation in Global Financial Governance

With the help of multilateral and bilateral platforms such as G20, NGFS, China-UK Economic and Financial Dialogue and China-France High Level Financial Dialogue, the China's policies, standards and best practices of green finance have been publicized and popularized across the world to continuously enhance the recognition of China's green financial market and products by the international community and foreign investors and gradually promote China's green financial market and standards to be geared to international standards.

(VII) Green Finance after the COVID-19 Epidemic

The COVID-19 outbreak did not retard China's determination and action to continuously strengthen green finance and the need to further deepen the green level of financial institutions. On July 21, 2020, the People's Bank of China issued the *Notice on the Issuance of Programme on the Evaluation of Green Finance Performance of Banking Depository Financial Institutions (Draft for Comments)* to solicit public opinion. It also revised the *Programme on the Evaluation of Green Credit Performance of Banking Depository Financial Institutions (Trial)*, firstly, extending the green credit to green finance and further extending the coverage of policies; secondly, considering the development of green loan and green bond as a whole and reserving space for the development and assessment of green equity investment, green trust and other new formats; thirdly, improving the evaluation indicators to be used for the new assessment scope; fourthly, expanding the scope of the application scenarios of the evaluation results, and incorporating the performance evaluation results of green finance into the central bank's financial institutions rating.

Positive progress in the standardization of green finance has been made. On July 8, 2020, the People's Bank of China and other three ministries solicited opinions for *A Directory of Support Projects of Green Bonds (2020 Edition)*. Compared with the 2015 Edition, the 2020 Edition has been revised. Firstly, the production and utilization of coal and natural gas were eliminated

from those to be geared to the international standards; secondly, hydrogen, sustainable agriculture, green consumer finance, green services and manufacturing and other environmentally conscious areas were added; thirdly, this Directory unifies the classification of all green bond issuers.

China has always adhered to the vision of green development in the economic recovery after the epidemic, and the green finance represented by green bonds has a strong development momentum. In the first half of 2020, 101 green bonds were issued in China, with a scale of 108.203 billion yuan and year-on-year issuance increase of 20.24%; the issuance number and scale of green corporate bonds continued to maintain the world's leading status, accounting for 43.56% and 32.12% respectively.

III EU's Experience in Green Recovery

(I) Green Deal and Related Policy Progress

On 11 December 2019, the new European Commission released the European Green Deal, proposing make Europe the first climate-neutral region in the world by 2050. On March 4, 2020, the EC submitted the proposed European Climate Law to the European Parliament and the Council, clarifying the realization of climate neutrality by 2050. As a legal leverage essential to Europe's green transformation strategy, the Law places the fragmented European climate laws and policies under the supervision and evaluation of the EU, and completes the EU's transition from a decentralized legislation model to a coexistence model of decentralized legislation and specialized legislation. The COVID-19 that followed did not slow the European progress, with a series of bills and institutional arrangements successively passed, marking the onboarding of a sustainable development policy system with the Green Deal as the starting point as well as the initialization of the EU green transformation policy system with the overall response to climate change as the orientation.

On 13 February 2020, the European Green Trade Investment Plan and the Just Transition Mechanism were proposed; on 4 March, the European Climate Law was submitted, and a public consultation report on the European Climate Agreement was released; on 10 March, the European Industrial Strategy was adopted, proposing a plan for the future economy; on March 11, the Circular Economy Action Plan was proposed, focusing on the sustainable use of resources; on 20 May, the Farm-to-Table Strategy was released, promoting the sustainable development of food system; on the same day, the 2030 EU Biodiversity Strategy was released, promoting the protection of the fragile earth's natural resources; on 8 July, the EU Energy System Integration and Hydrogen Energy Strategy was officially adopted, providing the impetus for developing a climate-neutral economy.

Known as the new European green agenda, the European Green Deal lays out its medium and long-term strategic plan for addressing climate change in the Post-Paris Era, fully embodies the harmonious unity of green development and high-quality economic development direction, effectively boosts the global ambition and strength in tackling climate change, becomes an

important weathervane for global sustainable development, and definitely has a positive impact on the response to climate change and the formulation of medium and long-term development strategies of China.

(II) Priority Areas for Green Recovery

The Green Deal mainly covers seven areas. **Green and digital industrial strategy:** The European Commission will formulate the EU Industrial Strategy in March 2020, trying to promote the transformation of industrial development mode by the Green Deal and the EU digital strategy; **Whole chain green construction industry:** The European Green Deal calls for a Wave of Innovation in the construction industry by 2020 to build and renovate buildings in a more energy and resources efficient way; **Integrated and hydrogenated energy transformation:** the European Green Deal clearly requires accelerating the issuance and amendments of laws in the energy sector, promoting the interconnection of energy systems, creating an integrated and mutually beneficial energy system, and depending on the overall energy interconnection to evaluate the relevant rules of the pan-European energy network so as to establish the European Clean Hydrogen Energy Alliance; **Decarbonised and efficient green transport systems:** Setting the target of reducing emissions by 90% in the transport sector by 2050, planning to develop a sustainable and smart transport strategy and assess relevant legislative options by 2020, ending fossil fuel subsidies, and ensuring that alternative fuels for different modes of transport are sustainable; **Building a whole chain sustainable food security system:** Requiring that food must be produced in a way that has the least impact on nature, and farmers and fishermen are the key to reform; **Holistic biodiversity conservation:** based on the holistic relationship between ecosystem conservation, biodiversity conservation and climate change response; **Creating non-toxic and pure environmental prevention and control:** Building a systematic ecological environment policy and regulation system, and strengthening the ability to monitor the entire chain of pollution.

(III) Initiatives to Accelerate Green Transformation

1. Green Allocation of Development Resources

(1) Increasing the Supply of Green Finance Funds

To meet current climate and energy targets, an additional Euro 260 billion a year, or about 1.5% of GDP in 2018, is expected. The EU will develop the European Sustainable Investment Plan to address this major challenge, which requires continuous investment by the public and private sectors, in order to promote the green investment; set a climate mainstreaming target of 25% for all EU projects and include in the new revenue stream non-recyclable plastic packaging waste and 20% of the EU emissions trading system auction proceeds; spend at least 30% of investments in EU funds in tackling climate change; establish a Just Transformation Mechanism and a just transformation funds to focus on the development of decarbonized sectors and regions.

(2) Promoting Green Finance Innovation

Introduce a new sustainable financing strategy, launch a catalogue of sustainable development activities, require that sustainability be included in the governance framework of companies and financial institutions, strengthen climate and environmental information disclosure, and review the Guidelines on Non-financial Reporting; strengthen cooperation with the European Investment Bank, development banks of EU member states and other international financial institutions, position the European Investment Bank as the European Climate Bank, and require its Climate Financing Target 2025 to be increased from 25% to 50%; enhance the capacity of the financial system to respond to climate and environmental risks, integrate risks into the EU's prudential framework, and assess the applicability of existing capital requirements for green assets; develop the EU green bond standard to label investment products and make it easier for investors to identify sustainable investments and ensure their credibility.

(3) Establishing a Green Fiscal and Taxation Mechanism

The first is to use green budget tools to promote green issues in public investment, consumption and taxation. The European Commission will monitor and evaluate the implementation of green projects to ensure that green investments are made within EU fiscal rules while preventing debt sustainability risks; the second is to promote tax reforms, such as abolishing fossil fuel subsidies, shifting the tax burden from workers to polluters, and reflecting environmental goals through value-added tax rates. The third is to complete the revision of national aid guidelines including environment and energy by 2021 so that they can reflect the Green Deal. Its purpose is to ensure the cost-effective completion of the climate-neutral transformation by 2050, and to lay the foundation for the phasing out of fossil energy and the removal of entry barriers for clean energy applications.

2. Focusing on Green Research and Innovation

Propose or strengthen a number of research funding plans. It is recommended that 35% of the budget of the Horizon Europe Program be used for climate research, and countries and industries are encouraged to participate in innovations and researches in the fields of batteries, clean hydrogen energy, low-carbon steelmaking, and renewable biology. Strengthen the cooperation between the European Institute of Innovation and Technology and enterprises and educational research institutions in the fields of climate change, sustainable energy, future food, smart and environmentally friendly cities, and integrated urban transport. The European Innovation Council will support start-ups and SMEs through financing, equity investment and business services.

Break the traditional R&D and innovation methods. Encourage cross-departmental and cross-disciplinary experiments; establish data-driven innovation, and use data infrastructure and artificial intelligence solutions to improve the understanding and response to environmental problems.

3. Promoting Green Education and Training

Building a multi-level green transformation education system for different groups. Guided by the European Competency Framework, fund citizens to improve their knowledge and skills in addressing climate change, and enhance teachers' green education skills; provide financial support for green school construction and operation, and leverage Euro 2 billion for investment in learning facilities in 2020;

The European Social Fund will help European laborers acquire the skills necessary for industrial transformation, and update the European Skills Agenda and Young People Guarantee Program to improve the employability of the people in a green economic environment. With the European Social Fund plus as the core, provide the labor force with skills reshaping and upgrading in response to the needs of ecological transformation, and the Skills Agenda and Young People Guarantee Program will also be updated to meet the needs.

4. Building a Green Guarantee Mechanism

The European Commission will use better regulatory tools to ensure the effective implementation of the Green Deal, use public consultation to identify environmental, social, and economic impacts and development barriers, support efficient decision-making and ensure the consistency of decision-making processes; solve conflicts by inviting stakeholders to participate in negotiation; the European Commission will continue to improve its regulatory guidelines and support tools on sustainability and innovation issues based on the assessment results.

5. To Be a Global Green Leader

The EU will forge a stronger Green Deal Diplomacy, focusing on persuading and assisting other countries to take more constructive actions on sustainable development. The EU will promote sustainable development advocacy by setting a credible example and by means of diplomacy and trade policy, development support and other external policy follow-ups; it will ensure the necessity and effectiveness of the Paris Agreement and promote effective responses to climate change in other regions; it will also work bilaterally with partner countries to develop differentiated geo-foreign policies for countries with different levels of emissions.

Both trade policy and market access policy will take climate factors into consideration. In 2020, a special China-EU Summit and an EU-AU Summit will be held, the EU will use diplomatic and financial tools to promote the formation of a green alliance among all parties; in order to ensure that EU companies enjoy a fair competition in the market environment, the EU intends to adopt a carbon border adjustment mechanism to enable imported commodity prices to more accurately reflect their carbon content, so as to ensure that EU companies with an important tool for fair competition; using trade policy as a starting point, the EU intends to establish emission reduction plans covering major countries in the world, and proposes to make compliance with the Paris Agreement a core element of all future comprehensive trade agreements; all chemicals, materials, foods and other products on the European market must

meet relevant EU regulatory requirements and standards, and partners are encouraged to set goals similar to those of the EU; the trade agreements will be included with binding commitments, that is, requiring all parties to approve and effectively implement the Paris Agreement; use the experience in “Green” supervision to encourage partners to set goals similar to those of the EU, promote trade facilitation in these countries, strengthen their environmental protection and improve their ability to respond to climate change.

(IV) Enlightenment of European Green Deal to China

1. Reshaping the Development System with the Concept of Green Development

The EU has raised the importance of green development and climate-neutral goals to a very high level, striving to achieve an overall response to climate change, and reshaping the development system with green development as the core concept in the course of action. Even in the face of the impact of the pandemic, Europe has rapidly made significant progress in its legislation, policies, action plans, safeguard programs, and foreign affairs; an ambitious investment plan is proposed, which is expected to reach a total investment of at least Euro 10 trillion through direct investment and leveraged investment within 10 years, and the contribution subjects and amounts have been clarified.

2. Ensuring a Fair and Just Green Transformation

The EU pays attention to avoiding possible unfairness in the process of transformation, especially for countries with high carbon emission paths and industries that may be eliminated in the process of transformation. In this connection, it has introduced a Just Transformation Mechanism to ensure fairness in the transformation process through financial support, setting up transformation plans, providing preferential conditions, and technological support, etc., and prepared at least Euro 100 billion for the Mechanism to help countries, regions, industries, and groups that may fall behind in the transition process.

3. Focusing on Green Capacity Building to Support Transformation Realization

Improve EU's green innovation capabilities. The EU is soberly aware that the realization of the green transformation cannot be achieved without the green transformation of development capabilities. Through green innovation and investment covering the entire education and scientific research system, lasting development momentum for green transformation can be provided; through improved skill education for the working population, the unemployment problem caused by the withdrawal of the brown industry can be solved, and laborers and talents for the green transformation can be provided; through the application of green technology, the investment in educational facilities may catalyze a large number of employment opportunities and green scenarios.

4. Building a Diplomatic Strategy with Green as the Connotation

The EU will become the first climate neutral region in the world by 2050 and to become a global leader in green transformation. In order to reflect its leadership status, the EU will

promote other countries to incorporate green transformation into the diplomatic concept of Green Strength. In multilateral diplomacy, the EU will maintain the authority of the Paris Agreement and promote the signing and implementation of multilateral green transformation agreements; in bilateral relations, the EU will use trade relations as a starting point, establishing a carbon border adjustment tax and incorporating green transformation into trade agreements to promote the transformation of other countries.

IV. Opportunities and Challenges of China's Economic Green Recovery

(I) Intensified De-globalization under COVID-19, In-depth Uncertainty of International Political and Economic Landscape

The impact of COVID-19 on the global economy and society is becoming more evident, the IMF and the World Bank forecast that the global economy will shrink by 3% and 5.2% this year, and uncertainties in the global political landscape, economic order, industrial chains, value chains, international trade and employment due to the pandemic are increasing.

Profound changes are taking place in the international political economy and the strategic landscape and tackling climate change. In 2020 US presidential election, Biden is likely to be elected as the new President. However, the long-term and fundamental as well as structural changes taken place in China-US relationship cannot be changed. At present, populism and anti-globalization are prevalent, and the international tensions have weakened global efforts to jointly tackle the environmental and climate crisis. After the outbreak of COVID-19, the international negotiation agenda in the field of global environment and climate has been forced to delay, with less attention paid, prolonged transition period, lack of leadership, weak supply of global public goods, new difficulties faced by the governance model, and the prospect of international cooperation and joint action in the future is not optimistic.

It is worth mentioning that, on 14 September 2020, Chinese President Xi Jinping held a video meeting with the rotating presidency of EU - German Chancellor Angela Merkel, President of the European Council Charles Michel and President of the European Commission Ursula von der Leyen, officially signed the Agreement on Geographical Indications between China and the EU. Meanwhile, the leaders of China and the EU also made three major decisions, namely, to establish the China-EU High Level Dialogue on Environment and Climate and the China-EU High Level Dialogue on Digital Field, to build China-EU Partners in green and digital cooperation, to accelerate negotiations on an investment agreement between China and the EU and achieve the goal of completing the negotiations within this year. This move by China and EU will bring major benefits to the green recovery of the global economy, which is expected to strongly promote global green cooperation, and contributes to the consolidation and improvement of the global environment and climate governance system under the multilateral framework.

(II) Deterioration in Sino-US Relations and COVID-19 Intensifying Downward Pressure on Economy, Slower Consumption Growth and Weak Growth in Effective Investment of

China

Impacted by downward pressure on the world economy and internal structural problems, the foundation for China's economic growth is still not solid, and the economy faces considerable downward pressure. In the future, as the volume of China's economy continues to increase, its economic growth will shift to a high-quality development stage, together with the deteriorating Sino-US relations, the slowdown trend in its GDP growth has become more obvious. At present, downward pressure on the domestic economy is increasing, with slowing consumption growth and weak effective investment growth. This is due to cyclical factors, but more to structural and institutional factors.

The sudden COVID-19 in 2019 has intensified the negative impact on the economy and society. According to the Global Economic Outlook released by the World Bank on June 8, China's economy will grow by only 1% in 2020. This year's government work report also made it clear that China will not set a GDP growth target for 2020, the first time since China began setting economic growth targets in 1994 that it has not set a specific target.

In China's economic growth structure, fixed asset investment has always been an important force to promote economic development. In recent years, however, the lack of investment demand in China, especially the weak willingness of industrial investment, makes the investment growth lower than the economic growth, which further affects the residents' employment, income and consumption expectations. The delay in the resumption of work and production caused by the outbreak of the pandemic has also had a major impact on the manufacturing industry, there are still many uncertainties in promoting a full return to normal business activities, and the lack of effective investment has become a major obstacle to economic growth.

(III) Accelerated Transformation of Green Technologies, Global Consensus on Green and Low-carbon Growth

At present, the world is in the midst of a new round of technological and energy revolution, and the global industrial chain is facing green restructuring. Development in key low-carbon technologies such as energy efficiency, energy storage and negative emissions, as well as deep integration of digital technologies with the economy and society, have laid a foundation for green and low-carbon growth. In the context of the difficult recovery and deep adjustment of the global economy, the EU upholds the Green Deal, aiming to bring global industry into a green development path by developing new green industries, reshaping the global industrial chain, and exploring new green growth points. The development of green technologies and industries is conducive to improving the efficiency of the use of natural resources and providing new drivers for the economy, and also favorable for solving environmental pollution and ecological damage caused by the consolidation of industrial and energy structures, and improving public health. In addition, green technology and industrial development will effectively boost employment. According to the ILO 2018 Report, by 2030, innovative emerging industries such as electric vehicles, clean energy and green finance will create 24

million jobs globally, while high-carbon industries such as coal and oil exploration will lose only 6 million jobs over the same period.

(IV) Green and low-carbon development is an important component of high-quality development. The degree of green low-carbon economic development in the "14th Five-Year Plan" period will affect the realization of NDC targets.

Different from SARS and the financial crisis in 2008, the COVID-19 epidemic occurred when many negative conditions existed in China, such as increasing economic downturn pressure, declining employment rate, rising prices, currency depreciation, tight financial conditions and increasing financial risks, which increases the difficulty of economic recovery. At present, China is mainly relying on prudent monetary policy and active fiscal policy to activate the production and consumption activities which were weak during the epidemic. How to achieve both economic growth and environmental & climate improvement in the process of economic recovery has become an important topic of concern for the following economic stimulus activities. The high-carbon emission and environmental pollution caused by the large-scale RMB4-trillion economic stimulus in 2008 are still fresh in our memory. Under China's great achievement of fulfilling its international carbon emission reduction commitments ahead of schedule in 2019, there are signs of relaxing environmental and climate policies. The "14th Five-Year Plan" period is an important time for China to promote high-quality development and build a beautiful China as well as a crucial time for the fulfillment of DNC targets. Reducing climate control efforts in the period will bring great pressure to the "15th Five-Year Plan" period and have a huge impact on the realization of NDC commitments in 2030.

Generally speaking, the COVID-19 epidemic has brought a great shock to the economic and social order, but there are opportunities amid the crisis. In the short term, the epidemic reduced the urgency of carbon emission reduction, but in the medium and long term, green and low-carbon development is still one important direction of future development. Despite the impact on economic growth, the epidemic brings opportunities for structural adjustment. Due to the epidemic, many traditional industries are facing crisis, but emerging industries such as information industry show strong vitality, which greatly broadens the space for green economic growth and makes upholding green development possible. It can be said that the epidemic provides us with an excellent opportunity to upgrade the industrial structure. The epidemic drives the whole society reflect on the development model characterized by excessive pursuit of speed and scale, and is undoubtedly conducive to the formation of the concept of paying more attention to green development and harmonious coexistence between man and nature in the whole society, thus creating favorable conditions for maintaining green development under the impact of the epidemic. At the same time, the economic downturn will slow down the growth of energy consumption, which will be an opportunity to accelerate the energy transformation as the new energy demand can be more satisfied with renewable energy. China should seize the opportunity of restructuring the current economic and energy system to provide support for the carbon-neutral future and lead the efforts to build a greener and more resilient world.

V. Suggestions on Green Recovery of China's Economy

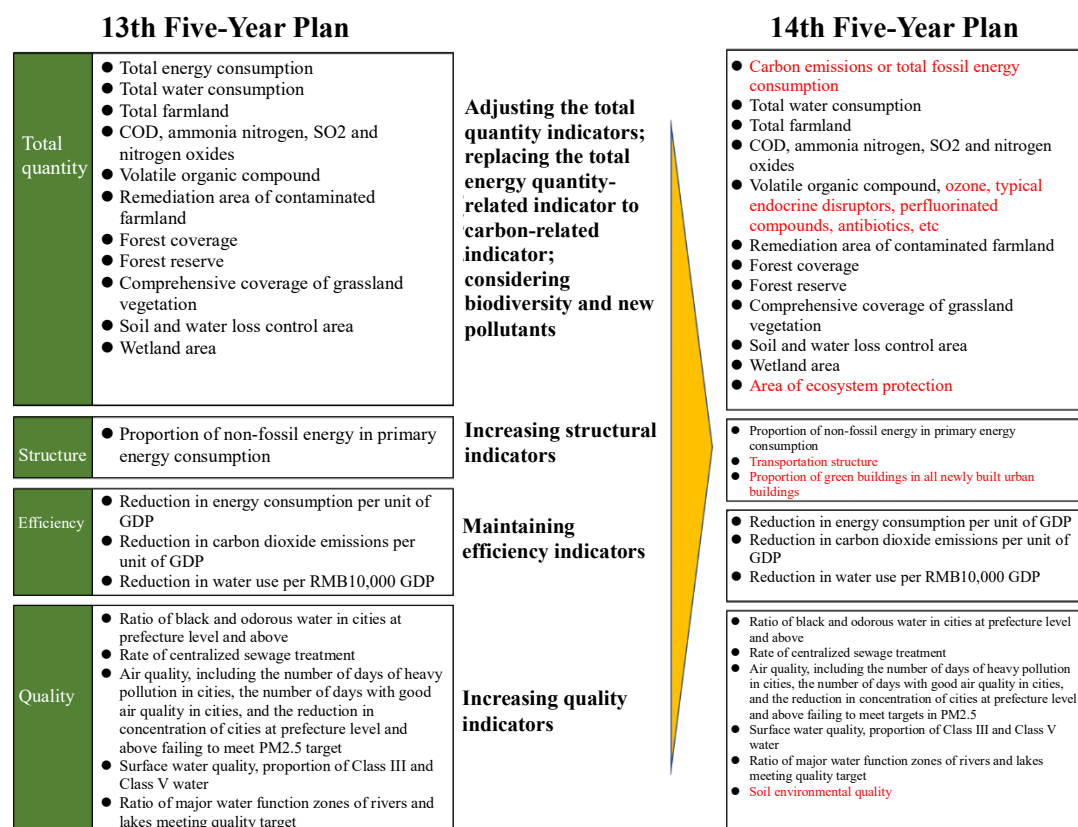
The "14th Five-Year Plan" period is an important time for China to promote high-quality development. During the period, China should avoid the high-carbon lock-in effect of short-term economic stimulus plan. Instead, in the economic plans China should fully reflect and support the vision of Beautiful China 2035 and the long-term global strategy presented in the Paris Agreement for addressing climate change, uphold clean and low-carbon development and take addressing climate change as a new impetus for the transformation of economic development mode to accelerate the pace of economic and energy transformation & upgrading with strategy stability and confidence.

(I) Green strategy: incorporating green recovery into the economic recovery plan, combining climate change with green recovery and highlighting the role of low-carbon development. Although facing severe impacts of the epidemic on economic and social development, China should not change the direction of high-quality development, the concepts of green development, low-carbon development and circular development, and the determination to accelerate ecological civilization construction. In order to achieve the goals of ecological civilization and beautiful China construction in the new era, China shall formulate clear green development strategies, goals and roadmaps, coordinate short-term growth stimulus and medium- and long-term green and low-carbon transformation goals, avoid the high-carbon lock-in effect. To make better use of the coordination role of the National Leading Group on Climate Change and Energy Conservation and Emission Reduction, it is recommended that NDRC and MEE formulate a special action plan for green recovery.

In the short term, along with the formulation of green standards, performance of green assessment and improvement of green financing mechanism, China should take full into account of the need for economic recovery, and select and assign priority to a number of advantageous industries, technologies and projects in development to avoid new investment flowing to into infrastructure construction, especially high-carbon infrastructure construction, as it was in the past. While incorporating environmental infrastructure and high-proportion renewable energy infrastructure into the scope of new infrastructure and in key support projects during the 14th FYP period, efforts shall be made to prudently assess the risk of asset stranding of heavy investment (including overseas investment) in traditional industries such as coal power and coal chemical, clarify the green investment standards, green capital mechanism and relevant responsibilities & obligations in order to regulate and lead the investment direction of local governments and enterprises and ensure the return of investment and financial sustainability. **In the medium term**, China should promote green transformation through structural adjustment and systematic innovation, continue to deepen the reform of industrial structure, energy structure, transportation structure and land use structure, promote the in-depth integration of digital intelligent technology into all economic and social fields, and develop an industrial ecosystem and sustainable business model. **In the long term**, China should drive the supply-side green structural change, promote the construction of green, circular and low-carbon

economic system, cultivate the sense of green consumption and develop sustainable consumption patterns.

(II) Green target: maintaining the intensity and pace of eco-environmental protection and green development, innovate the indicators for green economy target in the 14th Five-Year Plan, expanding the scope of nationally determined contribution (NDC), and demonstrating China's influence and leadership. **First**, a sustainable and effective green economy indicator system considering the total size, structure, efficiency and quality indicators shall be presented for the "14th Five-Year Plan" period with flexible arrangements on the scope and priority of targets and a reasonable increase in the scope of targets. **Second**, we should adopt more flexible manners and incentive mechanisms for the implementation of binding indicators, such as adopting inter-regional emission trading, clean development (CDM) and horizontal compensation and combine such mechanisms appropriately under the support of necessary administrative measures and supervisions. **Third**, existing indicators shall be enhanced. For example, in climate change control, we may replace the total energy consumption indicator with the total carbon dioxide emission and formulate the total quantity control system properly to drive the control of carbon emission peaks in key areas and industries. In biodiversity conservation, the area of ecosystem protection may be included in the indicator system. In pollution control, we may consider setting indicators for the control of new pollutants such as ozone, typical endocrine disruptors, perfluorinated compounds and antibiotics, and formulate more detailed indicators for the improvement of soil environmental quality on the basis of the *Action Plan for Soil Pollution Prevention and Control*. Please see the figure below for details:



(III) Key areas: In the field of production, focus shall be placed on integrating concepts and standards of green development into the construction of new infrastructure, new urbanization and key projects. New infrastructure includes information infrastructure represented by 5G base stations, data centers, industrial Internet and artificial intelligence, converged infrastructure represented by intelligent transportation infrastructure and intelligent energy infrastructure, and innovation infrastructure represented by key technology infrastructure, scientific education infrastructure and industrial technology innovation infrastructure. **New urbanization** includes energy-saving renovation of existing buildings, construction of high-speed railway in urban agglomerations, intercity and suburban railway networks, green logistics system, renovation of urban green spaces, building of public service facilities, and development of urban capacity to cope with natural disasters. In terms of **key project construction**, the focus shall be placed on the investments in nature, including ecological restoration, construction of climate adaptation infrastructure and national parks, comprehensive enhancement of key ecological zones.

In the field of consumption, we should lead the development of the sense of green consumption and drive the establishment of green, low-carbon, healthy and economical consumption model and lifestyle. Efforts shall be made to increase the supply of green products in the market, and enhance the market development and economic stimulus policies for green consumption. In particular, economic stimulus and market promotion system shall be established through price, tax, loan, supervision and market credit to drive the supply of green

ecological products and services and the selection of green products in consumption. Besides, work shall be done to promote the formation of green supply chain of soft goods

(IV) Key policies: Relevant environmental protection laws and standards shall be revised and enhanced. The legal system shall be improved according to the needs of practice, such as fundamental laws related to the title to natural resource assets, land development & protection and climate change control, and the rules that are proven in practice (such as environmental protection supervision) shall be vigorously extended in order to eliminate the fragmentation, repetition and conflict of legal provisions. **The emission reduction agenda of major conventional pollutants shall be formulated oriented towards the fulfillment of environmental quality target.** Considering the unbalanced development of different regions in China, it is recommended to set different time limits for the fulfillment of environmental quality target for different regions. **The green fiscal and taxation system and green finance system shall be improved** by establishing incentive policies consistent with green development, establishing carbon pricing system as soon as possible and accelerating the construction of carbon market. **The use of coal shall be further controlled** by strengthening economic evaluation of coal power, formulating the road map for gradually reducing and finally eliminating coal power, vigorously promoting the replacement of bulk coal and industrial process coal, strictly controlling the size of high-carbon industries such as coal chemical in order to the high-carbon lock-in effect and high cost caused thereby. We should work to **accelerate the establishment of power grid system and policy system supporting the use of more renewable energy**, implement the renewable energy quota system, promote the use of centralized and distributed renewable energy according to actual situation, and improve the flexibility of grid connection of renewable energy. **The supporting role of "new infrastructure" for green development shall be strengthened, and environmental impact assessment shall be performed on green recovery plans and projects. Supports should be provided to fair and just green and low-carbon transformation** by helping provinces with greater difficulties in green transformation to carry out skills upgrading training on labors. **The construction of green "Belt and Road" should be advanced** by accelerating the "going-out" of green industry and technologies to help the economic recovery of countries along the "Belt and Road" and promote regional economic integration. **Climate-related foreign policies shall be formulated to improve China's leading role in global climate control.** On the basis of multilateralism, we should strengthen the coordination with European and developing countries to jointly develop new political leading forces for global climate control, promote the coordinated governance of health, climate and biodiversity systems, and continue to effectively implement the Paris Agreement.

VI. Suggestions on Strengthening Green Cooperation between China and EU

2020 marks the 45th anniversary of the establishment of diplomatic relations between China and EU, two major forces in world economic system and international structure. On September 14th, the leaders of China, Germany and EU held a meeting to set the direction of China-EU relations in the next stage and identify key areas of cooperation, which especially stressed the

mutual support, solidarity and cooperation in the context of the global COVID-19 epidemic to promote the healthy and stable development of the comprehensive strategic partnership between China and EU. In economic recovery, both China and EU advocate green recovery and are willing to cooperate to promote green and low-carbon development, which is of great significance for the rational and efficient use of resources, comprehensive improvement of climate resilience and the fulfillment of targets of economic recovery and sustainable development.

(I) Taking the green recovery as an opportunity, the two sides shall establish a high-level dialogue mechanism on environment and climate, and build a green cooperative partnership between China and EU. The comprehensive socio-economic recovery after the COVID-19 epidemic is a common challenge for both China and EU, but to some extent, it also opens a new window for the energy transformation and realization of green and sustainable economic development. The China-EU green cooperation not only helps to jointly address global environmental challenges, but also brings the much-needed positive impetus to global geopolitics. In 2005, China and the EU established the climate change partnership for the first time, issued the *EU-China Joint Statement on Climate Change*, established cooperation and bilateral dialogue mechanisms on clean energy, technology and projects, and held the first China-EU energy dialogue. Thereafter, the cooperation in climate change has been discussed at the China-EU leaders' meetings every year. EU also has put forward cooperation intentions consistent with China's domestic policies in the field of climate change with the areas of cooperation expanding from clean energy to carbon sequestration, greenhouse gas emissions, and low-carbon economic transformation. In 2010, under the background that the Copenhagen Conference failed to achieve the expected results, China and the EU issued the *EU-China Joint Statement on Dialogue and Cooperation on Climate Change*, which established the "high-level strategic dialogue mechanism" and "climate hotline" for the first time in order to conduct further close dialogues on the positions of the two sides in multilateral climate negotiations, domestic policies and measures, and the operation and management of cooperative projects. To reach a legally binding "new agreement", the *China-EU Leaders' Statement on Climate Change and Clean Energy* was issued in 2018, which re-emphasized the willingness of both sides to promote global greenhouse gas emission reduction, climate adaptation and sustainable development. In the future, based on the establishment of high-level dialogue mechanism on environment and climate, China and the EU should continue to deepen the cooperation between the two sides in the field of green development and promote positive actions for the common interests of China and the EU to develop a good momentum of China-EU cooperation and jointly address challenges to multilateralism in the world. It is suggested that on the basis of the results of the China-Germany-European summit on September 14, China and the EU should work together to reach a new consensus and joint statement on climate change, so as to further implement the Paris Agreement and propose stronger low-carbon targets.

(II) Starting from utilizing the advantages of both sides and safeguarding common

interests, China and EU should carry out active technical cooperation in green industry and technologies and promote scientific and technological innovation in green development. The development of the emerging green industry is conducive to promoting high-quality economic development and creating new green transformation opportunities for China and Europe through dialogue and cooperation. Innovating clean, safe and affordable energy technologies and building sustainable infrastructure are essential for energy transformation. The EU has leading technologies and practical experience in **smart grid, hydrogen energy network, carbon capture and storage, and the building of a safe, recyclable and sustainable battery value chain.** Starting from the green finance reform and innovation pilot projects in Beijing and Guangzhou, China and the EU may expand cooperation in the field of low-carbon technology on the basis of green finance cooperation between China and France and China and Germany in order to further promote green and low-carbon transformation between China and EU. Besides, **China and EU should continue to promote the comprehensive support of digital technology for green development.** Digital technology is a key factor for green development. The EU has proposed to study digital technologies such as artificial intelligence, 5G, cloud computing and Internet of Things to maximize their influence on climate change and environmental protection policies. In the process of green transformation and development, China is paying more and more attention to the important role of digital technology in promoting the combination of intelligent manufacturing and green manufacturing, remotely monitoring air and water pollution, monitoring and optimizing the utilization of energy and natural resources, etc. In the future, China and the EU have broad space for cooperation in green digital infrastructure connection, research on carbon tracking and carbon emission measurement technologies, and improvement of ecological value assessment capabilities.

(III) China and EU should strengthen third-party market cooperation in key countries in Southeast Asia, Africa, and Central Asia, assist developing countries in achieving low-carbon transformation and sustainable development, and promote the reform of the global climate governance system. The “Belt and Road” has influences over the entire Asia, extends to the western end of Eurasia, and takes Europe as an important market. The "Belt and Road" initiative shares the green sustainable development concept with EU's *European Green Deal*. China and the EU should build a multi-level cooperation platform to jointly promote the construction of green "Belt and Road". **On the one hand, multi-level cooperation mechanisms should be established between the government departments of China and EU and its member states, and between the associations of enterprises and industries of China and Europe,** so as to build a market-oriented technological innovation system relying on enterprises in new energies such as wind energy, solar energy, bioenergy and nuclear energy, jointly develop technical products in new energies, and promote the transformation and application of technical research results in the construction of "Belt and Road". **On the other hand, China and EU should strengthen the alignment of green standards, jointly develop the national markets along the “Belt and Road”, and formulate international rules together.**

Besides, efforts shall be made to promote the communication between developed and developing countries on global environmental governance issues, advance the construction of cooperation platforms for the six major economic corridors and expand cooperation with relevant international organizations and institutions in order to build a win-win global climate governance system and jointly address challenges in energy security, environmental pollution and climate change.

(IV) China and EU should promote the development of global green finance market based on green finance cooperation to support the green economic recovery after the epidemic. At present, the world is in a special period of accelerating recovery after the epidemic. The green finance cooperation between China and Europe is of positive significance for supporting the green economic recovery and improving the level of sustainable economic and social development. The EU and China have been committed to mobilizing a new round of climate investment by enhancing the capital market framework to comprehensively strengthen green investment in the field of climate change. In the short term, China and EU may, based on promoting the convergence of green finance standards, conduct close communication between the two sides in the green finance markets to lay the foundation for all-round economic and financial cooperation between them. **In the long term, China and EU should gradually promote the convergence of China-EU standards and strive to reach a set of relatively consistent common standards** to avoid additional costs such as repeated certification and enhance the transparency of both markets. As the largest green finance market in the world, China should strengthen cooperation with EU and jointly promote the consistence among international green and sustainable finance standards, so as to reduce the identification cost of green finance and promote international investment in green finance

Please Note:

1. Working Group on Green Recovery of Institutes of Science and Development, Chinese Academy of Sciences (CASISD) is led by Prof. Dr. WANG Yi, and group members include Associate Professor GU Baihe, Associate Professor LIN Hui and Ph.D Candidate LIU Yuxuan.
2. The above report is only the views of the working group and does not represent the opinions of CASISD.
3. To cite the report, please contact Ms. LIN Hui by linhui@casisd.cn.