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Report Highlights:

China is the world's largest livestock and rice producer, as well as a major user and producer of fertilizer, making its agricultural sector a significant source of greenhouse gas emissions. With an average farm size of approximately 1.6 acres (0.65 hectares) and only ten percent of global arable land, climate change is expected to challenge the country's agricultural production systems. Through the lens of the agricultural sector, this report provides and overview of the People's Republic of China (PRC) agencies responsible for developing and implementing climate policy and their international climate engagements. Additionally, this report serves as a compendium of known and published PRC climate policies and goals (including sub-national policies).

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I. PRC Agencies and Climate Responsibilities

The National Steering Group for Climate Change, Energy Conservation, and Emissions Reduction was established in June 2007 to strengthen leadership in addressing climate change. Headed by the Premier of the State Council and composed of ministers from nearly half of all PRC ministries, the committee is a nominal institution. In practice, most work related to climate change is undertaken by the Ministry of Ecology and Environment (MEE) and the National Development and Reform Commission (NDRC), though other ministries including the Ministry of Agriculture and Rural Affairs (MARA) have developed sectoral work plans.

Ministry of Ecology and Environment

As the lead PRC ministry for work related to climate change, MEE's responsibilities include the formulation of major strategies, plans, and policies to address climate change and greenhouse gas emissions. With participation from relevant departments, MEE often leads international negotiations on climate change and represents the PRC under the United Nations Framework Convention on Climate Change (UNFCC).

Within MEE, the Department of Climate Change holds primary responsibility for issues related to climate change. The department's stated responsibilities include:

- The leading role in addressing climate change and greenhouse gas emission reduction;
- Analyzing the impact of climate change on economic and social development;
- Implementing proactive national strategies on climate change;
- The formulation and the implementation of PRC objectives, policies, programs and plans, and institutions on the control of greenhouse gas emissions; the promotion of green and low-carbon development; and adaptation to climate change;
- Providing guidance to other governmental departments, industries, and local governments on such implementation;
- Representing the PRC in the United Nations Framework Convention on Climate Change and work with relevant governmental departments to participate in international negotiations and conferences;
- Promoting bilateral, multilateral, and South-South cooperation and exchanges on climate change;
- Build the capability to face the challenge of climate change, and conduct research and publicity campaigns on climate change;
- Implement cleaner development mechanisms;
- Develop and administer national carbon emission rights trading markets;
- Carry out the daily operations of the National Steering Group for Climate Change, Energy Conservation, and Emissions Reduction;
- Take the leading role in implementing international conventions on the protection of the ozone layer.

National Development and Reform Commission (NDRC)

The NDRC is responsible for comprehensive investment management and formulation of strategy for investment, infrastructure, and other major projects. NDRC responsibilities related to climate change include promoting the implementation of sustainable development strategies, coordinating ecological and environmental protection and restoration, energy and resource conservation and utilization (including energy consumption and control targets), advancing policies and measures to improve compensation mechanisms for ecological protection, and coordinating environmental protection.

Within the NDRC, the Department of Resource Conservation and Environmental Protection holds primary responsibility for work related to climate change. The department's stated responsibilities include:

- Formulate and implement strategies, plans and policies in relation to green development, implement sustainable development strategies, and undertake ecological development and reform work.
- Formulate and implement policy plans for conservation and comprehensive utilization of energy resources and the circular economy, propose and implement objectives for energy consumption control.
- Coordinate the work related to the promotion of green industries and clean production[1].
- Organize and coordinate major energy-saving demonstration projects and the widespread application of new products, technologies, and equipment.
- Undertake specific work of the National Steering Group for Climate Change, Energy Conservation and Emission Reduction in respect of energy conservation.

Ministry of Agriculture and Rural Affairs (MARA)

MARA's responsibilities related to climate change include guiding the development and utilization of rural renewable energy, energy conservation and emission reduction in agriculture and rural areas, agricultural clean production, and the construction of ecological circular agriculture. Within MARA, the Department of Science, Technology and Education holds primary responsibility for work related to climate change.

MARA actively engages in several areas related to climate change and sustainability, including soil protection and health, food loss and waste, biogas promotion, returning straw into the field, and reducing agricultural film pollution. MARA also runs numerous programs to increase agricultural efficiency, such as integrating aquaculture and rice production.

[1] "Clean production" refers to the continuous application of comprehensive preventive environmental protection strategies in the production process in order to reduce the risks to human beings and the environment. It can generally be interpreted as equivalent to "environmentally friendly" in English.

II. The "1+N" Climate Policy Framework

In May 2021, China's Leading Group of Carbon Peaking and Neutrality was established, headed by Han Zheng, who served as Vice Premier at that time[2]. The high-level working group was set up to lead the PRC's emission peaking efforts. Since then, PRC central and provincial officials have successively issued a series of policies under the "1+N" policy framework for carbon dioxide peaking and carbon neutrality.

Under the framework, the "1" refers to guidance and top-level design for carbon dioxide peaking and carbon neutrality, which is outlined in the Working Guidance for Carbon Dioxide Peaking and Carbon Neutrality in Full and Faithful Implementation of the New Development Philosophy (hereafter "Working Guidance") jointly released by Chinese Communist Party (CCP) Central Committee and the State Council on October 24, 2021.

The "N" portion of the policy refers to implementation schemes in key areas and sectors, as outlined in the Action Plan for Carbon Dioxide Peaking Before 2030 (hereafter Action Plan), released by the State Council on October 26, 2021. The Action Plan covers energy, industry, urban and rural development, transport, agriculture and rural areas, and other key sectors, as well as supporting work plans that focus on areas such as technology, finance, statistics, and accounting. Taken together, the Working Guidance and Action Plan articulate the schedules, road maps and working procedures for carbon dioxide peaking and carbon neutrality.

According to the Important Achievements of the 3rd Anniversary of Carbon Peak and Carbon Neutrality Announcement (link in Chinese), released by the NDRC on August 15, 2023, relevant departments have issued 12 implementation plans for key areas and key industries, 11 support plans, and 31 provincial or autonomous regions implementation plans for carbon peaking in their respective regions.

In November 2021, the PRC Embassy in the United States published on its website China's "1+N" Policy Framework, which provides background on the carbon peaking and neutrality policy.

Note:

- See Appendix I for additional information and links to PRC "N" policies for key areas and sectors.
- See Appendix II for PRC "N" policies for provincial and municipal regions.
- See Appendix III for infographics on China's climate polices published on the PRC Embassy in the United States website.

[2] Han Zheng was elected as Vice President of China in March 2023.

III. PRC Climate Goals

2015 Nationally Determined Contribution

On June 30, 2015, the PRC submitted its Nationally Determined Contribution (NDC) to the UNFCCC, pledging that by 2030 it would:

1) Strive to achieve the peaking of carbon dioxide (CO_2) emissions by 2030 and make best efforts to peak earlier;

2) Lower CO_2 emissions per unit of gross domestic product (GDP) by 60-65 percent from 2005 levels;

3) Increase the share of non-fossil-fuel in primary energy consumption to around 20 percent;

4) Increase forest stock volume by around 4.5 billion cubic meters (m^3) over 2005 levels; and,

5) Take adaptation actions to enhance mechanisms and capacities in key fields such as agriculture, forestry, and water resources and key areas such as cities, coastal areas, and ecologically fragile areas to effectively defending against climate change risks.

2020 Announcements and 2021 Updated Nationally Determined Contribution

On September 22, 2020, President Xi Jinping announced at the 75th session of the United Nations General Assembly that China "will scale up its Intended Nationally Determined Contributions by adopting more vigorous policies and measures. We aim to have CO2 emissions peak before 2030 and achieve carbon neutrality before 2060."

On December 12, 2020, President Xi announced at the Climate Ambition Summit (Xi's remarks in English) that, by 2030, China will:

1) lower its carbon dioxide emissions per unit of GDP by over 65 percent from the 2005 level;

2) increase the share of non-fossil fuels in primary energy consumption to around 25 percent;

3) increase forest stock volume by 6 billion cubic meters over 2005 levels, and

4) bring total installed capacity of wind and solar power to over 1.2 billion kilowatts.

On October 28, 2021, the PRC formally submitted its updated NDCs to the UNFCCC, outlining the abovementioned targets.

14th Five-Year Plan Climate Goals

The 14th Five-Year Plan for National Economic and Social Development and Vision 2035 of the People's Republic of China sets climate related targets for 2025:

1) Reduce carbon intensity by 18 percent from 2020 levels;

2) Reduce energy intensity by 13.5 percent from 2020 levels;

3) Increase forest coverage to 24.1 percent.

Climate Goals in CCP Documents

Under the Working Guidance, the PRC established the following top-level carbon peaking and neutrality guidance for national and international development strategy (see page 6 of text):

- By 2025, China will have created an initial framework for a green, low-carbon and circular economy and greatly improve the energy efficiency of key industries. Energy consumption per unit of GDP will be lowered by 13.5 percent from the 2020 level; carbon dioxide emissions per unit of GDP will be lowered by 18 percent from the 2020 level; the share of non-fossil energy consumption will have reached around 20 percent; the forest coverage rate will have reached 24.1 percent, and the forest stock volume will have risen to 18 billion cubic meters. All the above will lay a solid foundation for carbon dioxide peaking and carbon neutrality.

- By 2030, China will see significant accomplishments from the comprehensive green transformation in economic and social development, with energy efficiency in key energy-consuming industries reaching advanced international levels. Energy consumption per unit of GDP will have declined significantly; carbon dioxide emissions per unit of GDP will have dropped by more than 65 percent compared with the 2005 level; the share of non-fossil energy consumption will have reached around 25 percent; total installed capacity of wind power and solar power will have reached over 1.2 billion kilowatts; the forest coverage rate will have reached about 25 percent, and the forest stock volume will have reached 19 billion cubic meters. Carbon dioxide emissions will reach peak and stabilization and then decline.

- By 2060, China will have fully established a green, low-carbon and circular economy and a clean, low-carbon, safe and efficient energy system. Energy efficiency will be at the advanced international level, and the share of non-fossil energy consumption will be over 80 percent. China will be carbon neutral, and it will have achieved fruitful results in ecological civilization and reached a new level of harmony between humanity and nature.

The below table summarizes and compares key goals from the various PRC climate plans:

Table 1. China: PRC Climate Goals Comparison Table

	2015 NDC	2021 NDC	14th Five-Year Plan Climate Goals	Climate Goals in "Working Guidance"
CO2 Emissions	By 2030, lower CO2 emissions per unit of GDP by 60-65 percent from the 2005 level.	By 2030, lower CO2 emissions per unit of GDP by over 65 percent from the 2005 level.	By 2025, reduce carbon intensity by 18 percent from 2020 levels.	By 2025, lower CO2 emissions per unit of GDP by 18 percent from the 2020 level. By 2030, lower CO2 emissions per unit of GDP by more than 65 percent compared with the 2005 level.
Non-fossil Fuel Consumption	By 2030, increase the share of non-fossil fuel in primary energy consumption to around 20 percent.	By 2030, increase the share of non-fossil fuels in primary energy consumption to around 25 percent.	N/A	By 2025, share of non-fossil energy consumption will have reached around 20 percent. By 2030, share of non-fossil energy consumption will have reached around 25 percent. By 2060, share of non-fossil energy consumption will be over 80 percent.
Forest Stock Volume	By 2030, increase forest stock volume by around 4.5 billion cubic meters (m3) over 2005 levels.	By 2030, increase forest stock volume by 6 billion cubic meters over 2005 levels.	By 2025, increase forest coverage to 24.1 percent.	By 2025, the forest coverage rate will have reached 24.1 percent and the forest stock volume will have risen to 18 billion cubic meters. By 2030, the forest coverage rate will have reached about 25 percent, and the forest stock volume will have reached 19 billion cubic meters.

Wind and Solar Power	N/A	By 2030, bring total installed capacity of wind and solar power to over 1.2 billion kilowatts.	N/A	By 2030, total installed capacity of wind power and solar power will have reached over 1.2 billion kilowatts.
Energy Intensity	N/A	N/A	By 2025, reduce energy intensity by 13.5 percent from 2020 levels.	By 2025, energy consumption per unit of GDP will be lowered by 13.5 percent from the 2020 level. By 2030, energy consumption per unit of GDP will have declined significantly.

PRC Reports on Meeting Climate Goals

On November 11, 2022, the PRC provided a Progress Report on the Implementation of China's Nationally Determined Contributions (2022), hereafter referred as "Progress Report 2022", to the secretariat of the UNFCCC. The report updates China's climate progress since 2020.

According to 2022 National Economic and Social Development Statistical Bulletin and an official report from the Chinese government, in 2022, China's carbon dioxide emissions per unit of GDP was reduced by 0.8 percent compared with 2021, and 51.2 percent compared with 2005[3]; the share of non-fossil-fuel in primary energy consumption was 17.5 percent; and the installed capacity of wind and solar power totaled 758 million kilowatts. According to a China Daily report, by the end of 2022, China's forest coverage rate reached 24.02 percent, and forest stock volume amounted to 19.5 billion m3, up 5.8 billion m3 from 2005[4].

[3] The data compared with 2005 is calculated by Post based on official data available.
[4] In 2014, an official press conference on China's forestry resources stated that the forest stock volume in 2005 was 13.7 billion cubic meters.

Table 2. China: Comparison of 2020 NDC Goals and 2022 Data

	2020 NDC	2022 Data
CO2 emissions	By 2030, lower its carbon dioxide emissions per unit of GDP by over 65 percent from the 2005 level	China's carbon dioxide emissions per unit of GDP in 2022 dropped by 50.8 percent[5] compared with 2005
Non-fossil-Fuel Consumption	By 2030, increase the share of non-fossil fuels in primary energy consumption to around 25 percent;	In 2022, the share of non-fossil-fuel in primary energy consumption is 17.5 percent
Forest Stock Volume	By 2030, increase forest stock volume by 6 billion cubic meters over 2005 levels	By the end of 2022, China's forest coverage rate is 24.02 percent, and forest stock volume amounts to 19.5 billion m3, increasing 5.8 billion m3 from 2005[6].
Wind and Solar Power	By 2030, bring total installed capacity of wind and solar power to over 1.2 billion kilowatts.	By the end of 2022, China's installed capacity of wind and solar power totaled to over 758 million kilowatts.

Source: 2022 National Economic and Social Development Statistical Bulletin; the Important Achievements of the 3rd Anniversary of Carbon Peak and Carbon Neutrality Announcement released by NDRC in August 2023; China's renewable energy development in 2022 released by NDRC in February 2023

On October 27, 2021, the State Council Information Office released a white paper titled "Responding to Climate Change: China's Policies and Actions", showcasing progress on climate change and actions undertaken. According to the white paper, China's carbon intensity in 2020 was 18.8 percent and 48.4 percent lower than that in 2015 and 2005, respectively. This is below the target of 18 percent lower than 2015 set in the 13th Five-year Plan. Preliminary calculations show that in 2020, non-fossil energy contributed 15.9 percent to China's total energy consumption, a, 8.5 percent increase compared to 2005.

The white paper also highlighted efforts to promote climate change adaptation key sectors. In the agricultural sector, the paper notes that the PRC has promoted sustainable agricultural development by transforming agricultural growth models. Although the paper does not detail how agricultural growth models are being transformed, it does outline five major areas where the capacity for agricultural emissions reduction and carbon sequestration have been strengthened[7]. The paper also highlights government efforts to "develop and promote new technologies for the prevention and adaptation of agrometeorological disasters, such as those related to preventing and mitigating disaster, increasing production, and utilizing climate resources."

[5] According to the White Paper, China's carbon intensity in 2020 was 48.4 percent lower than that 2005; according to Progress Report on the Implementation of China's Nationally Determined Contributions (2022), in 2021, China's carbon intensity was 3.8 percent lower than the level in 2020; according to 2022 National Economic and Social Development Statistical Bulletin, in 2022, China's carbon intensity dropped by 0.8 percent compared with 2021. Based on FAS China's calculation, China's carbon intensity dropped by 50.8 percent from 2005.

[6] In 2014, an official press conference on China's forestry resources stated that the forest stock volume in 2005 was 13.7 billion cubic meters.

[7] Launched in April 2017, the five major actions of agricultural green development include 1) resource utilization of livestock and poultry manure; 2) replacing chemical fertilizer with organic fertilizer for fruit, vegetable, and tea production; 3) straw treatment in Northeast China; 4) recycling agricultural film, and 5) protecting aquatic organisms with a focus on the Yangtze River.

IV. Agriculture and Climate Change

Globally, agriculture accounts for about 11 percent of total greenhouse gas emissions, second only to the energy sector. In addition to carbon dioxide, major agricultural greenhouse gas emissions include methane emissions from livestock, particularly ruminants, and rice production, as well as nitrous oxide from fertilizer, and animal waste. As the world's largest livestock and rice producer, as well as a major user and producer of fertilizer, China's agricultural sector is a major source of greenhouse gas emissions. Although PRC officials frequently cite that their ten percent of arable land and nine percent of usable water supports roughly 19 percent of the world's population, climate change is providing additional stress on a system already under strain from overuse of soils, water scarcity, pest pressure on crops, and animal disease concerns.

Prior to 2022, The PRC had not issued a climate change policy or strategy specific to agriculture. Instead, the role of agriculture in climate change was highlighted under various national strategies and plans that broadly set guidelines, principles, goals, and mitigation and adaptation measures in key areas. These include the National Strategy on Climate Change Adaptation 2035 (see GAIN Report CH2022-0079 - PRC National Strategy on Climate Adaption Offers more of the Same for Agriculture for more information) or in general guidance in documents like the annually issued "Number One" Document (see GAIN Report CH2022-0029 – PRC Emphasizing Grain and Food Security in 2022) where programs supporting conservation tillage are introduced. The agriculture and food security components of the aforementioned strategy rehash themes from the PRC's 2013 National Climate Change Adaptation Strategy (link in Chinese), including the role of technology in promoting plant and animal resilience, land utilization, risk management, and international cooperation.

On June 30 2022, MARA and the NDRC jointly released an Implementation Plan for Carbon Reduction and Carbon Sequestration in Agriculture and Rural Areas (link in Chinese – see Appendix VI for an unofficial translation of the document). To date, the plan serves as the PRC's most important policy document for addressing climate change in the agricultural sector and is critical for understanding what ag-related areas the government intends to focus resources.

The plan explicitly links climate goals in the agricultural sector to the PRC NDC goals of achieving peak of carbon emissions by 2030 and carbon neutrality by 2060, as well as the goals outlined in the 14th Five-Year Plan. The plan highlights emission reduction and carbon sequestration in agriculture and rural areas as important task in promoting rural revitalization, outlines key actions for carbon reduction and sequestration in the agricultural sector (including areas such as crop planting, animal husbandry, fisheries, agricultural machinery, fertilization, and renewable energy) and provides broad sectoral goals for 2025 and 2030.

Key objectives of the plan include:

- Energy conservation and emission reduction in crop planting with an emphasis on promoting high-quality varieties and efficient cultivation and fertilizer utilization techniques to reduce nitrous oxide emissions.
- Reduced emissions from animal husbandry through precision feeding technology, improved breeding, greater yields per unit of livestock and poultry, and reduced intensity of ruminant enteric methane emissions, and lower methane and nitrous oxide emissions from livestock and poultry through improved manure management.
- Reduced fisheries emissions through production models that integrate rice and fish farming, large-water ecological fisheries, and multi-trophic integrated farming to reduce methane emissions.
- Implement measures supporting conservation tillage, straw returning, protection of black soils and treatments for degraded farmland.
- Promote the application of biomass energy and other renewable energy sources for agricultural production and renewal of agricultural machinery.

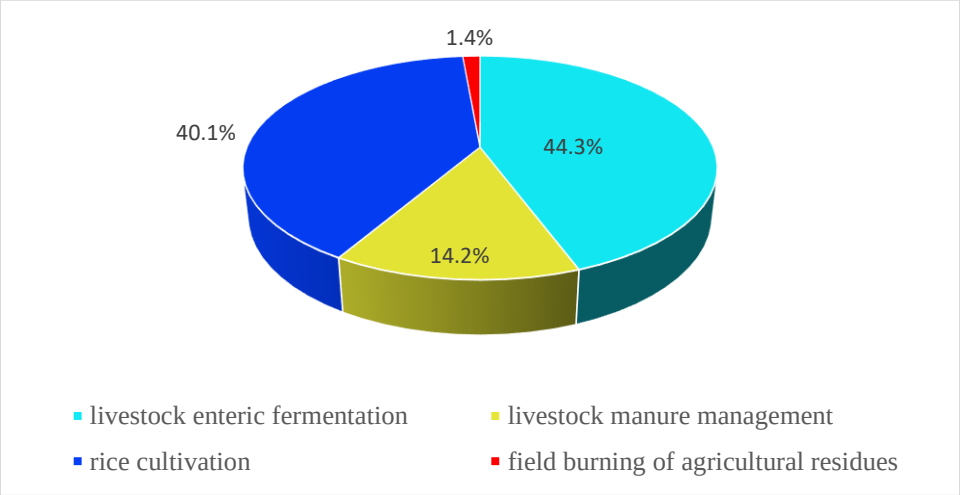
To meet these objectives, the plan highlights serval guiding principles, including ensuring food security, consideration of regional differences in terms of resources, adoption of innovation-driven approaches to reducing carbon emission reduction and supporting carbon sequestration, the establishment of monitoring systems, and the need for "strong incentives and constraints for agricultural and rural emission reduction and carbon sequestration in terms of funds and projects."

Data on Agricultural Emissions

There is a lack of updated official data on China's agricultural emissions. According to the People's Republic of China Second Biennial Update Report on Climate Change (hereafter referred as the Biennial Report), which was last published in 2018, China's greenhouse gas emissions in 2014 from agriculture were around 830 million tons of carbon dioxide equivalent[8] (CO_2 eq), of which 467 million tons were methane (CH_4) and 363 million tons were nitrous oxide (N_2O). See Figures 1 and 2 below on the composition of China's agricultural CH_4 and N_2O emissions in 2014.

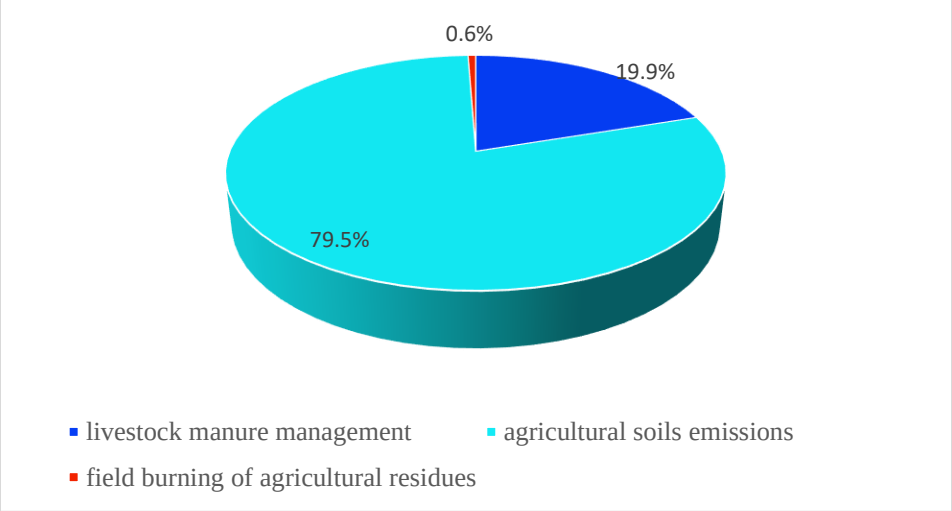
[8] The Global Warming Potential (GWP) value for methane is 21, and nitrous oxide is 310.

Figure 1. China: Composition of Agricultural Methane (CH_4) Emissions (2014)



(Source: The Biennial Report by Ministry of Ecology and Environment)

Figure 2. China: Composition of Agricultural Nitrous Oxide (N_2O) Emissions (2014)



(Source: The Biennial Report by Ministry of Ecology and Environment)

In recent years, the PRC has issued several reports that highlight climate related work conducted in the agricultural sector. In the report Progress on the Implementation of China's Nationally Determined Contributions (2022), the PRC lists improving efficiency and reducing emissions in agriculture as one of its achievements in controlling GHG emissions. The report notes efforts in the following areas (see page 10 of text):

Promoting energy conservation and emission reduction in crop farming. *Demonstrative projects have been launched to promote rice production technologies to produce a high yield and low methane emission in rice paddles. China has developed a new rice production mode featuring high yield and low methane emission by means of straw mulching (SM), which has obtained some encouraging results: rice yield increased by 4.1-8.8 percent; efficiency of nitrogen fertilizer increased by 30.2-36.0 percent; rice production cost reduced by 8.3 -9.7 percent and methane emission decreased by 31.5 -71.7 percent. It has also cultivated and promoted water saving and drought-resistant rice, which reduces methane emission by 90 -95 percent, and has been planted in Anhui, Hubei, Zhejiang and Hainan provinces for more than 200,000 ha every year. Efforts have been made to reduce the use of fertilizers with higher efficiency in order to cut the mission of nitric oxide in farmlands. In 2020, the national use of fertilizers shrank by 12.8 percent compared with 2015; the fertilizer utilization rate of the three major grain crops was 40.2 percent, five percentage points higher than in 2015; formula fertilization based on soil testing was applied to 128.67 million ha, an increase of 17.7 percent over 2015.*

Reducing carbon emissions in husbandry. *Eco-friendly and modern methods of livestock waste recycling have steadily increased. In 2021, 96 counties received support in recycling livestock manure production, building infrastructure for airtight processing and manuring, and developing demonstration bases for animal manure management. As a result, the emission of non-CO_2 GHG related to manure management has also been reduced.*

Reducing emissions and increasing carbon sink in the fishery. *China has built 136 national demonstration aquafarms, released 20.93 million m^3 of artificial reefs, and used over 2,336 km^2 of sea areas to help to contribute to marine carbon sequestration.*

Promoting energy-saving and emission-cutting agricultural machinery. *In 2021, the government provided a support package of 266 million yuan ($41 million)[9] to scrap more than 30,000 agricultural machines, which significantly speeded up the process of phasing out old and adding new equipment to transform modern agriculture with high-yield farming, optimized energy conservation, and emission reduction.*

V. PRC International Engagement on Climate Change

The PRC is a party to several major multilateral climate agreements, including the UNFCCC, signed in June 1992, the Kyoto Protocol, adopted in December 1997 and ratified by the PRC in May 1998, and The Paris Agreement, adopted in December 2015 at COP 21, and ratified by the PRC in September 2016.

The PRC has not joined recent efforts to reduce methane emissions (considered to be the second-most important greenhouse gas after carbon dioxide due to its greater heat-trapping potential), such as the Global Methane Pledge (GMP). Initially launched at COP 26 in November 2021, the GMP currently has over 150 country participants. By joining, countries commit to work together in order to collectively

[9] The average currency rate in 2021 is U.S.$1=6.45 yuan

reduce methane emissions by at least 30 percent below 2020 levels by 2030. At COP 27, the PRC's top climate official, Xie Zhenhua, said that China has completed a national action plan to strictly control and reduce methane emissions but, to date, a draft of the plan has not been released. A PRC media report at the time suggested the plan would cover three main sectors: 1) energy and natural gas; 2) agriculture; and 3) waste disposal. Specific to agriculture, the plan is expected to focus on resource utilization for livestock and poultry waste and zero-growth of chemical fertilizer use. Notably, these are two areas where MARA and the General Office of the State Council had already released plans in 2017. Measuring and mitigating methane emissions was also a key part of the U.S.-China Joint Glasgow Declaration on Enhancing Climate Action in the 2020s, issued at COP 26 (see section VI below).

In addition to multilateral treaties, the PRC has signed numerous bilateral statements and joint declarations on climate change. On November 11, 2014, the PRC signed its first bilateral communique on climate change under the U.S.-China Joint Announcement on Climate Change. The PRC has since signed climate specific bilateral statements and declarations with multiple countries, some of which reference agriculture and forestry.

Note:

- See Appendix V for additional information and links to PRC bilateral statements and joint declarations on climate change, including agriculture and forestry references.

Appendix I: PRC "N" Policies for Key Areas and Industries

The Implementation Plan for Carbon Peaking in the Industrial Field (link in Chinese) was jointly released by the Ministry of Industry and Information Technology (MIIT), the NDRC, and MEE on August 1, 2022;

The Implementation Plan for Carbon Peaking in Urban and Rural Construction Field (link in Chinese) was jointly released by Ministry of Housing and Urban-Rural Development (MHURD) and NDRC on July 13, 2022;

Implementation Plan for Carbon Reduction and Carbon Sequestration in Agriculture and Rural Areas (link in Chinese) was jointly released by Ministry of Agriculture and Rural Affairs (MARA) and NDRC on June 30, 2022;

Implementation Plan for Synergistic Efficiency of Pollution Reduction and Carbon Reduction (link in Chinese) was jointly released by seven ministries including MEE, NDRC, MIIT, MHURD, Ministry of Transport (MOT), MARA, and National Energy Administration (NEA) on June 13, 2022;

Implementation Plan for Carbon Peaking in Non-ferrous Metal Industry (link in Chinese) was jointly released by MIIT, NDRC, and MEE on November 10, 2022;

Implementation Plan for Carbon Peaking in Building Material Industry (link in Chinese) was jointly released by MIIT, NDRC, MEE, and MHURD on November 2, 2022;

The Implementation Plan for Science and Technology Supporting Carbon Peaking and Neutrality (2022-2030) (link in Chinese) was jointly released by MOST, NDRC, MIIT, MEE, MHURD, MOT, Chinese Academy of Sciences, Chinese Academy of Engineering and NEA on August 18, 2022;

Opinions on Financial Support to Carbon Peaking and Carbon Neutrality (link in Chinese) was released by Ministry of Finance (MOF) on May 31, 2022;

Opinions of the National Development and Reform Commission and the National Energy Administration on Improving the System, Mechanism, and Policy Measures for Green and Low-Carbon Transition of Energy (link in Chinese) issued on February 10, 2022;

Implementation Plan for Promoting Green Consumption (link in Chinese) was jointly released by NDRC, MIIT, MHURD, MOFCOM, State Administration for Market Regulations (SAMR), Government Offices Administration of the State Council, and Administration of Organs Affairs Directly under the Central Committee of the Communist Party of China on January 18, 2022;

Accelerating the Establishment of Implementation Plan for a Unified and Standardized Carbon Emission Statistical Accounting System was jointly released by NDRC, National Bureau of Statistics (NBS) and MEE on April 22, 2022;

Establish and Improve the Implementation Plan of Carbon Peak Carbon Neutrality Standard Measurement System (link in Chinese) was jointly released by SAMR, NDRC, MIIT, Ministry of Natural Resources (MNR), MEE, MHURD, MOT, China Meteorological Administration, and State Forestry and Grassland Administration (SFGA) on October 18, 2022;

Implementation Plan for Construction of Green and Low-carbon Development of the National Education System was released by the Ministry of Education on October 26, 2022;

Opinions of China's Supreme People's Court on the Complete and Accurate Implementation of the New Development Concept and the Provision of Judicial Services to Actively and Steadily Promote Carbon Peaking and Carbon Neutrality (link in Chinese) was released by China's Supreme People's Court on February 17, 2023;

Notice on Further Strengthening the Update, Upgrade and Application Implementation of Energy Conservation Standards (link in Chinese) was jointly released by NDRC and State Administration for Market Regulation (SAMR) on March 8, 2023;

Appendix II: PRC "N" Policies – Provincial and Municipal Regions Carbon Peak Plans

(with highlighted agriculture and forestry references)

Note: The NDRC previously announced that all 31 provincial and municipal region carbon peaking plans have been issued. This appendix contains 25 plans that were published online at the time of this report. Plans for Chongqing, Heilongjiang, Hubei, Chongqing, Tibet and Xinjiang, and Zhejiang were not available online at the time of publication.

Anhui Province Carbon Peak Implementation Plan

Agriculture and Forestry References:

6. Actions to reduce emissions and sequester carbon in agriculture and rural areas.

Guided by the implementation of the "two strong and one increased" action plan for one industry, we will deepen the green transformation of agriculture, optimize the rural energy consumption structure, and enhance the ability of agriculture and rural areas to reduce emissions and sequester carbon.

(1) Develop green, low-carbon circular agriculture. Cultivate and develop the entire agricultural industry chain and create a number of green food industries worth hundreds of billions. Strengthen the protection and utilization of germplasm resources, and cultivate high-quality varieties of grain, livestock, poultry, aquatic products, and specialty products. Focus on the research and development of agricultural technology that increases income and build a green agricultural development technology system. Accelerate the upgrading of agricultural machinery, adjust and optimize support policies such as agricultural machinery purchase and scrap renewal subsidies, and gradually phase out old machinery. By 2025, the proportion of large-scale duplex intelligent and efficient machinery will reach 30 percent. Accelerate the construction of a modern aquaculture system and develop ecologically healthy fisheries such as integrated rice and fish farming and large water surface ecological fisheries. Accelerate the integrated development of primary, secondary, and tertiary industries and promote the in-depth integration of agriculture with tourism, culture, health and other industries.

(2) Improve the carbon sequestration capacity of farmland. Implement actions to improve the quality of farmland, promote the construction of high-standard farmland, and strengthen the management of degraded farmland. Implement conservation tillage and promote conservation tillage measures such as returning straw to fields and less (no) tillage according to local conditions. Reasonably control the amount of chemical fertilizers, pesticides, and mulch used to increase soil organic matter content. Breed and promote low-emission rice varieties, optimize water management in rice fields, and reduce methane emissions in rice fields. Implement actions to improve the comprehensive utilization of crop straw and resource utilization of livestock and poultry breeding waste.

(3) Promote renewable energy substitution in rural areas. In conjunction with the implementation of the rural revitalization strategy, we will promote the clean and low-carbon transformation of rural

construction. Develop energy-saving and low-carbon agricultural greenhouses, promote clean heating in rural areas, promote energy-saving and environmentally friendly stoves, and accelerate the application of renewable energy sources such as biomass and solar energy in agricultural production and rural life. Implement the "gasification of rural areas" project to expand the utilization of natural gas in rural areas and promote the extension of urban natural gas pipeline networks to surrounding towns and rural areas. Make overall plans to ensure rural power supply, collect and absorb new energy power, and build new rural power grids.

Beijing Carbon Peak Implementation Plan:

Agriculture and Forestry References:

6. Promote low-carbon development in key areas and enhance ecosystem carbon sink capabilities

(17) Consolidate and improve ecosystem carbon sink capabilities. Coordinate and promote the reduction of construction space and the increase of ecological space, continue to implement major projects to protect and restore important ecosystems, and form a city with rich biodiversity with ecological conservation areas as barriers, forests as the main body, rivers as the veins, and farmland and lakes as embellishments. Ecosystem, promote the increase of forest land and green space. Strengthen the management and protection of forestry ecosystems, and research and establish a tree species bank with high carbon sinks and low volatile organic matter emissions suitable for local ecosystems. Strengthen wetland protection and gradually improve the carbon sink function of wetlands. Establish an ecologically efficient farming system, protect farmland resources, strengthen soil fertilization, increase soil organic carbon storage, and improve farmland soil carbon sink capacity. Strengthen the protection and restoration of water ecosystems and improve the system for the protection and restoration of rivers and lakes. By 2025, the forest coverage rate will reach 45 percent and the forest stock volume will reach 34.5 million cubic meters. During the "15th Five-Year Plan" period, forest coverage continued to grow.

(18) Control non-carbon dioxide greenhouse gas emissions. Strengthen the monitoring statistics and emission control of non-carbon dioxide greenhouse gases such as methane, sulfur hexafluoride, nitrous oxide, and perfluorocarbons in this city. Research and formulate emission control targets and standards for non-carbon dioxide greenhouse gases such as methane and carry out the construction of demonstration projects such as gas leakage, methane emission control during domestic waste treatment, and methane collection and utilization in sewage treatment facilities. Promote sewage treatment plants to adopt comprehensive measures such as energy conservation, sewage waste heat utilization, renewable energy utilization and methane recovery to reduce greenhouse gas emissions. Reduce the intensity of use of pesticides and chemical fertilizers and reduce methane and nitrous oxide emissions in the agricultural sector.

Fujian Province Carbon Peak Implementation Plan:

Agriculture and Forestry References:

2. Main objectives

By 2025, an economic system of green, low-carbon and circular development will be initially formed, and the energy utilization efficiency of key industries will be greatly improved. The reduction of energy consumption and carbon dioxide emissions per unit of regional GDP has completed the national goals; the proportion of non-fossil energy consumption has reached 27.40 percent; the forest coverage rate has increased by 0.12 percentage points compared with 2020, and the forest stock volume has reached 779 million cubic meters. In order to achieve the carbon peak Carbon neutrality lays a solid foundation.

By 2030, the green and low-carbon transformation of economic and social development will achieve remarkable results, and the energy utilization efficiency of key energy-consuming industries will reach the internationally advanced level. Energy consumption per unit of GDP has dropped significantly; carbon dioxide emissions per unit of GDP have dropped by more than 65 percent compared with 2005; the proportion of non-fossil energy consumption has reached more than 30 percent; the total installed capacity of wind power and solar power has reached more than 20 million kilowatts; forest coverage The rate increased by 0.19 percentage points compared with 2020, the forest stock volume reached 800 million cubic meters, and carbon dioxide emissions reached a peak and achieved steady but declining decline.

9. Continue to consolidate and improve carbon sink capabilities

(21) Consolidate and improve forestry carbon sink capacity. Implement the forest ecosystem protection and restoration project in the Wuyi Mountains and Daiyun Mountains, promote the integrated protection and restoration of mountains, rivers, forests, fields, lakes, grass and sand in key watersheds, establish and improve the ecological protection and restoration support system, and strengthen the construction of the ecological security barrier system. Implement key ecological projects for forest carbon sequestration, comprehensively strengthen forest management, adjust and optimize forest structure, strengthen the protection and restoration of natural forests and ecological public welfare forests, and build coastal protection forest systems, scientifically promote the care and transformation of degraded forests, low-yield and low-efficiency forests, and increase the forest area and storage capacity to enhance the carbon sequestration capacity of forestry.

(23) Improve ecological agriculture carbon sink. Accelerate agricultural emission reduction and carbon sequestration, promote energy conservation and emission reduction of agricultural machinery, fishing boats and fishing machinery, promote healthy and low-carbon breeding, implement livestock and poultry manure resource utilization and improvement projects, and promote the circular development of planting and breeding. Promote green planting, continue to carry out actions to reduce the amount of chemical fertilizers and pesticides and increase efficiency, strengthen water and fertilizer management in rice fields, promote comprehensive utilization of straw, build ecological fruit tea gardens, and enhance the carbon sink capacity of crops. Deeply explore the potential of soil carbon sequestration, implement high-standard farmland construction, build a fertilizer and carbon sequestration model that combines land use and cultivation, and improve the carbon sequestration level of farmland soil. Actively promote

green aquaculture technology models such as integrated rice and fish farming, multi-trophic level mariculture, factory-based circulating aquaculture, and pond-engineered circulating water aquaculture, and develop efficient ecological fisheries.

Gansu Carbon Peak Implementation Plan

4. Urban and rural construction carbon peaking action.

Agriculture and Forestry References:

(4) Promote rural construction and low-carbon transformation of energy use. Promote the construction of green farm houses, encourage the use of local materials, adopt new construction methods such as prefabricated construction, and build a number of "livable" green farms with modern functions, rustic appearance, cost-effectiveness, structural safety, and environmental protection in areas where conditions permit. house. Accelerate the energy-saving renovation of rural houses and steadily improve the energy-saving effects of rural houses. Continue to promote clean heating in rural areas, select appropriate heating methods according to local conditions, and promote high-efficiency and energy-saving distributed heating models. Accelerate the electrification of agricultural production, develop energy-saving agricultural greenhouses, and promote energy-saving and environmentally friendly stoves, electric agricultural vehicles, and energy-saving and environmentally friendly agricultural machinery. Accelerate the application of renewable energy sources such as biomass energy and solar energy in agricultural production and rural life. Actively carry out photovoltaic building integration construction, make full use of resources such as rural housing and rural public building roofs, and implement distributed photovoltaic power generation projects. Strengthen the construction of rural power grids and improve the level of rural energy electrification.

8. Actions to consolidate and improve carbon sink capabilities.

Adhere to the system concept, coordinate, and promote the integrated protection and systematic management of mountains, rivers, forests, fields, lakes, grass, sand and ice, improve the quality and stability of the ecosystem, and continue to enhance the carbon sink capacity of the ecosystem.

(4) Promote agricultural and rural emission reduction and carbon sequestration. Vigorously develop green, low-carbon circular agriculture, and promote low-carbon agricultural models such as agriculture-photovoltaic complementation and "photovoltaic + facility agriculture". Vigorously promote energy conservation, water conservation, land conservation, and material conservation, actively apply agricultural technologies that increase income, improve the level of R&D, promotion and application of applicable agricultural machinery and equipment, and increase subsidies for the scrapping and renewal of old agricultural machinery. Improve the recycling and utilization system of renewable resources and do a good job in recycling waste agricultural machinery and agricultural film. Actively develop and promote green planting and breeding recycling models and integrated technologies, strengthen the comprehensive utilization of crop straw and resource utilization of livestock and poultry manure, and maintain nutrient circulation. Implement a zero-growth campaign for chemical fertilizers and pesticides

and rationally control the use of chemical fertilizers and pesticides. Promote soil fertilization measures with green manure and livestock and poultry manure to increase soil organic carbon storage. Carry out actions to improve the quality of cultivated land, strengthen the protection of cultivated land quality, establish a crop rotation system, and establish and improve the fallow rotation system of cultivated land in areas with high intensity of cultivated land use to improve the carbon sequestration capacity of cultivated land.

Guangdong Province Carbon Peak Implementation Plan:

Agriculture and Forestry References:

5. Vigorously develop new energy sources: Develop agricultural and forestry biomass power generation.

7. Actions to reduce emissions and sequester carbon in agriculture and rural areas.
Vigorously develop green, low-carbon circular agriculture, accelerate the transformation of energy use patterns in agriculture and rural areas, improve agricultural production efficiency and energy efficiency, and improve agricultural emission reduction and carbon sequestration capabilities.

(27) Improve agricultural production efficiency and energy efficiency levels. Strictly abide by the red lines for farmland protection and fully implement special protection policies and measures for permanent basic farmland. Promote the construction of high-standard farmland and comprehensively develop agricultural mechanization. Implement smart agricultural projects and build agricultural big data and Guangdong smart agricultural machinery and equipment. Implement actions to reduce the amount of chemical fertilizers and pesticides and increase efficiency, rationally control the use of chemical fertilizers and pesticides, promote the application of commercial organic fertilizers, green manure planting, straw return to fields, and carry out agricultural film recycling.

(**28) Accelerate the transformation of energy consumption patterns in agriculture and rural areas.** Implement a new round of rural power grid upgrades to improve the reliability of rural power supply and enhance the level of rural energy electrification. Accelerate the use of renewable energy such as solar energy, wind energy, biomass energy, and geothermal energy in agricultural production and rural buildings, and promote the pilot application of rural distributed energy storage and new energy grid connection. Promote energy-saving and environmentally friendly stoves, electric agricultural vehicles, energy-saving and environmentally friendly agricultural machinery and fishing boats. Vigorously develop green low-carbon circular agriculture, develop energy-saving and low-carbon agricultural greenhouses, and promote low-carbon agricultural models such as agricultural and photovoltaic complementarity, "photovoltaic + facility agriculture", and "offshore wind power + ocean ranching". Build safe and reliable rural gas storage tank stations and micro-pipe network gas supply systems and promote the extension of gas supply facilities to rural areas in an orderly manner.

(29) Improve agricultural emissions reduction and carbon sequestration capabilities. Breed high-yield and low-emission varieties, improve water and fertilizer management, promote technologies such as intermittent rice irrigation, water-saving irrigation, and application of slow-release fertilizers, and

control greenhouse gas emissions such as methane and nitrous oxide. Strengthen the resource and energy utilization of crop straw and livestock and poultry manure and improve the level of comprehensive utilization of agricultural waste. Carry out actions to improve the quality of cultivated land and increase soil organic carbon storage through measures such as improving agricultural technology and adjusting planting patterns. Research, develop and apply sink-increasing agricultural technologies, and explore and promote carbon sequestration technologies such as carbon dioxide gas fertilizers.

Guangxi Carbon Peak Implementation Plan:

Agriculture and Forestry References:

4. Urban and rural construction carbon peaking action.

（5） **Promote the low-carbon transformation of rural energy use.** Optimize the structure of rural renewable energy, promote the development of biomass energy, solar energy and other renewable energy in rural areas, and improve the level of rural energy utilization. Orderly develop energy-saving and low-carbon agricultural greenhouses, use photovoltaic facility greenhouses as carriers, build modern photovoltaic agricultural parks, and promote the organic integration of photovoltaic power generation, agricultural production and processing, leisure and sightseeing tourism with the protection of cultivated land and permanent basic farmland. Strengthen the construction of rural power grids and improve the level of rural energy electrification. Promote energy-saving and environmentally friendly stoves, electric agricultural vehicles, energy-saving and environmentally friendly agricultural machinery and fishing boats. Improve the level of agricultural digitalization, give full play to the driving and enabling role of digitalization in rural revitalization, and improve the efficiency of rural digital governance.

6. Circular economy supports carbon reduction actions.

(4) Vigorously develop green, low-carbon and circular agriculture. Deeply promote the structural reform of the agricultural supply side and create a green and low-carbon agricultural industry chain. Implement the pilot construction of low-carbon circular agriculture, carry out the "five modernizations" utilization of crop straw as fertilizer, feed, fuel, base material, and raw material, promote the high-value utilization of agricultural product processing by-products, and create ecological circular agriculture. We will improve the green circulation system for agricultural products and accelerate the construction of cold chain logistics infrastructure covering major agricultural production areas and consumption areas. Increase the promotion and application of high-efficiency new fertilizers and organic fertilizers such as biological fertilizers, slow (controlled) release fertilizers, and water-soluble fertilizers. Promote the reduction of pesticides and increase efficiency and promote the comprehensive implementation of green prevention and control technologies such as healthy cultivation, biological control, and physical control in large-scale planting and breeding parks and bases. Promote the resource utilization of livestock and poultry breeding waste, accelerate the construction of supporting manure treatment facilities for large-scale breeding farms, and vigorously promote the development of ecological recycling agriculture.

8. Actions to consolidate and improve carbon sink capabilities.

(2) Improve the carbon sink capacity of ecosystems. Coordinate the implementation of major ecological protection and restoration projects such as the protection of forests and biodiversity in the Nanling Mountains, the comprehensive management of rocky desertification in the karst areas of Hunan and Guangxi, and the protection and restoration of coastal wetland ecosystems in the Beibu Gulf of Guangxi. We will strengthen the ecological protection and management of key rivers and carry out Guilin-based ecological protection and restoration projects. Integrated protection and restoration of mountains, rivers, forests, fields, lakes, grasslands and wetlands in the Lijiang and Xijiang river basins (Guangxi section). We will carry out in-depth scientific land greening actions, vigorously promote the construction of national reserve forest bases, and accurately improve forest quality. Strengthen the ecological protection and restoration of grasslands, continue to promote the improvement of grassland grass planting, and enhance the carbon sink capacity of grasslands. Carry out special actions to protect and restore mangroves and strengthen ecological protection and restoration of wetlands. We will increase efforts to restore blue carbon ecosystems, promote overall "blue bay" remediation actions, coastal zone protection and restoration projects, and enhance marine ecological carbon sink capabilities. Carry out karst carbon cycle investigation and karst carbon sink effect evaluation, and actively promote the development and utilization of karst carbon sinks. By 2030, the forest coverage rate will remain at about 62.6 percent, and the forest stock volume will remain at about 1.05 billion cubic meters.

(4) Promote agricultural and rural emission reduction and carbon sequestration. Vigorously develop green, low-carbon circular agriculture, and promote low-carbon agricultural models such as agriculture-photovoltaic complementarity, "photovoltaic + facility agriculture", "offshore wind power + ocean ranching". Optimize the agricultural production structure and regional layout, develop and apply sink-increasing agricultural technologies, promote green production technologies and models, use agricultural inputs scientifically, and promote the reduction of the emission intensity of agricultural products per unit of the planting and breeding industries. Carry out actions to improve the quality of cultivated land, build a model of fertilization and carbon sequestration that combines land use and cultivation, implement conservation farming, effectively reduce soil wind and water erosion, increase soil organic carbon storage, and enhance the carbon sequestration capacity of farmland soil. Continue to promote the construction of high-standard farmland, accelerate the completion of shortcomings in agricultural infrastructure, and improve the efficiency of water and land resource utilization. Reasonably control the use of chemical fertilizers, pesticides, and mulch films, implement a plan to reduce and replace chemical fertilizers and pesticides, and strengthen the comprehensive utilization of crop straw and resource utilization of livestock and poultry manure.

Guizhou Province Carbon Peak Implementation Plan:

Agriculture and Forestry References:

3. Industrial green and low-carbon promotion actions

(5)Vigorously develop ecological recycling agriculture. Strengthen the green orientation, adjust and optimize the agricultural industry structure, vigorously develop characteristic and advantageous agriculture, forest industries and under-forest economy, accelerate the construction of a modern agricultural industry system, and build a modern and mountainous province with high-efficiency agriculture. Make 12 agricultural characteristic and advantageous industries bigger and stronger, vigorously develop bamboo, camellia oleifera, pepper, saponaria, roxburghii, walnut, woody Chinese medicinal materials, kiwi fruit and other characteristic forestry and forest fungi, forest medicines, forest birds, forest bees, forest bees, Under forest economy such as vegetables, improve the marketization, standardization, scale and branding level of important agricultural products. We will deepen the implementation of green agricultural production actions and accelerate the promotion of agricultural input reduction, clean production, waste recycling, and industrial ecology. Continue to promote the zero-growth campaign for chemical fertilizers and pesticides. Promote green prevention and control technology of crop diseases and insect pests and soil testing for formula fertilization, and vigorously promote organic fertilizers to replace chemical fertilizers. Prioritize the use of technical measures such as ecological regulation, immune induction, biological control, physical and chemical induction, and chemical seed dressing to implement scientific and safe drug use. Develop efficient water-saving, fertilizer-saving, energy-saving and land-saving agriculture. By 2025, the utilization rate of chemical fertilizers and pesticides in major crops will be no less than 43%, and the comprehensive utilization rate of livestock and poultry manure resources will be no less than 80%; by 2030, the utilization rate of pesticides and chemical fertilizers in major crops will reach more than 43%, and the utilization rate of livestock and poultry manure will be more than 43%. The comprehensive utilization rate of waste resources has stabilized at over 80%.

4. Urban and rural construction carbon peaking action

(4) Promote rural construction and low-carbon transformation of energy use. Promote the construction of green rural housing and accelerate energy-saving renovation of rural housing. Develop energy-saving and low-carbon agricultural greenhouses. Guide rural areas to continuously reduce the use of traditional energy sources such as low-quality coal, straw, and direct combustion of firewood, and encourage the use of clean energy that suits local characteristics and farmers' needs. Accelerate the application of renewable energy sources such as biomass energy and solar energy in agricultural production and rural life. Actively promote energy-saving and environmentally friendly stoves, electric agricultural vehicles, energy-saving and environmentally friendly agricultural machinery and fishing boats and promote the green and low-carbon transformation of farmers' daily energy use in lighting, cooking, heating and cooling, and production operations. Strengthen the construction of rural power grids, improve the level of rural energy electrification, and promote the equalization of urban and rural electric power public services.

8. Actions to consolidate and improve carbon sink capabilities

(3) Steadily improve the carbon sink capacity of farmland, grassland and wetlands. Carry out agricultural and rural emission reduction and carbon sequestration actions, vigorously develop green

low-carbon circular agriculture, and promote low-carbon agricultural models such as agro-photovoltaic complementary and photovoltaic + facility agriculture. Apply sink-increasing agricultural technology and explore and promote carbon dioxide gas fertilizer and other technologies. Accelerate the completion of shortcomings in farmland infrastructure, promote the transformation of sloping farmland, continue to improve the quality of farmland, and increase soil organic carbon storage. Strengthen the resource utilization of crop straw and livestock and poultry manure. Properly protect karst landforms and accelerate the development and utilization of karst carbon sinks. Strengthen grassland protection and restoration, carry out artificial grass planting, grassland improvement and fence construction, and adopt measures such as grassland improvement, artificial grass planting, reseeding, fertilization, and fence enclosure in rocky grassland desertification areas to restore grassland vegetation and gradually increase grassland productivity. and grassland comprehensive vegetation coverage. Accelerate the protection and restoration of ecological wetlands, improve the wetland protection and management system, and strengthen the dynamic monitoring of wetland resources. By 2025, the wetland protection rate will reach more than 55%, and by 2030, it will increase to more than 60%.

Hainan Province Carbon Peak Implementation Plan:

Agriculture and Forestry References:

1. **Build a safe, efficient and clean energy island.**

(5) Vigorously promote green and low-carbon development of agriculture.

The province promotes the national agricultural green development pioneer area and improves the construction level of ecological recycling agriculture demonstration province. Moderately promote large-scale agricultural operations and support the promotion of the use of modern agricultural mechanization equipment. Vigorously promote agricultural water conservation and promote efficient water-saving technologies. With the direction of "going to the shore, going to the deep sea, and going to recreational fisheries", we will guide the development of green ecological and healthy fisheries and promote healthy aquaculture. Accelerate the construction of a new industrial integration system for modern agriculture that is park-based, industrialized, branded, and digital. Support the development of new business formats such as tourism agriculture, experience agriculture, creative agriculture, smart agriculture, leisure fisheries, beautiful countryside, and B&Bs. Promote animal and plant protection capacity improvement projects, ecological environment improvement projects, and agricultural product quality and safety assurance projects. Encourage the promotion of ecological planting and ecological breeding and strengthen the management of green food and organic agricultural products. Strengthen the protection and improvement of farmland quality, promote comprehensive management of degraded farmland, and strengthen agricultural film pollution control. Implement actions to reduce the use of pesticides and veterinary antimicrobials and clean up the environment in the production areas.

2. Promote green and livable urban and rural construction.

(5) Deeply promote clean energy use in rural areas. Implement rural clean energy construction actions, promote clean energy production, electrify consumption, and intelligent allocation, and build a modern rural energy system. Accelerate the application of renewable energy sources such as biomass and solar energy in agricultural production and rural life, carry out the construction of demonstration projects, implement whole-village pilots in areas where conditions permit, and explore new models suitable for island rural electrification and zero-carbon energy use. Develop energy-saving and low-carbon agricultural greenhouses, promote energy-saving and environmentally friendly stoves, electric agricultural vehicles, energy-saving and environmentally friendly agricultural machinery and fishing boats, continue to promote the transformation and upgrading of rural power grids, basically achieve equalization of urban and rural power supply services, improve the level of rural energy electrification, and actively promote agricultural production, villagers Substitute electric energy in areas such as daily life, and encourage residents to replace gas with electricity for cooking, sanitary hot water, etc. Build demonstration projects such as Jialue Village, Huishan Town, Qionghai City and Comprehensive Energy Demonstration Village of Yanyuan Village, Qiongzhong City. Guide new rural houses to implement energy-saving and green building standards, encourage energy-saving renovation of rural houses, promote the use of green building materials, and encourage the use of new construction methods such as prefabricated steel structures. By 2030, electric energy will become the main way of rural energy consumption, and its proportion will further increase.

5. Consolidate and improve the carbon sink capacity of the ecosystem.

(3) Tap into the potential of agriculture to sequester carbon and increase sinks. Carry out actions to improve the quality of cultivated land and increase soil organic carbon storage. Adopting protective farming measures, expanding paddy field planting area, returning straw to fields, applying organic fertilizers, adopting crop rotation systems and land use methods, etc., can make significant differences in soil organic carbon pools and transform farmland soil from carbon sources into carbon sinks. Increase the promotion of protective farming according to local conditions, adhere to the combined application of organic and inorganic fertilizers, and carry out crop rotation and diversified planting. Promote low-carbon agricultural models such as agriculture-light complementation and fishery-light complementation. Research, develop and apply sink-increasing agricultural technologies, promote agricultural carbon sequestration pilot demonstration projects by region and type, and increase the increase in carbon sinks in the agricultural system.

Hebei Province Carbon Peak Implementation Plan:

Agriculture and Forestry References:

1. **Peaking operations for key industries.**

(4) Consumer goods. The papermaking industry has established a recycling, storage and transportation system for agricultural and forestry biomass residues, and developed technologies to use biomass to replace fossil energy.

Henan Province Carbon Peak Implementation Plan:

Agriculture and Forestry References:

6. Actions to improve carbon sink capabilities. Vigorously carry out forest ecological construction in Henan, develop ecological agriculture, strengthen ecological protection and restoration of ecologically sensitive and fragile areas, and coordinate the overall protection, systematic restoration and comprehensive management of the province's mountains, rivers, forests, fields, lakes, grass and sand.

(3) Steadily improve the carbon sink capacity of ecological agriculture. Strengthen the planning of farmland protection and ecological environment maintenance projects, focus on the construction of protective forest nets in high-standard farmland project areas, promote the reconstruction and expansion of farmland protective forests in plain agricultural areas, and build stable plains with multiple tree species and multiple layers that combine belts, patches, and networks. Agroforestry ecosystem. Develop "ecologically green, high-quality, environmentally friendly" green low-carbon recycling agriculture, orderly develop new energy sources such as biogas and biomass and improve the level of renewable energy sources such as solar energy used in agricultural facilities. Carry out actions to improve the quality of cultivated land, promote conservation farming, improve the level of straw fertilizer utilization, implement comprehensive nutrient management of manure utilization, build organic fertilizer projects with crop straw and livestock and poultry manure as the main raw materials, and promote the integration of water and fertilizer and the rational use of organic fertilizers. Application and green manure planting technology can increase the organic matter content of farmland soil and enhance carbon sequestration capacity. Reasonably control the use of chemical fertilizers, pesticides, and mulch films, and implement actions to reduce the amount of chemical fertilizers and pesticides and increase efficiency. Further improve the fertilization indicator system for major crops, strengthen monitoring, early warning and unified prevention and control of pests and diseases, promote the demonstration and promotion of new fertilizer products and new technologies, efficient, low-toxic and low-risk pesticides, and green prevention and control technologies, and strengthen the recycling and management of agricultural film and pesticide packaging waste. By 2025, the utilization rate of chemical fertilizers and pesticides for the province's main food crops will reach 43 percent, and the comprehensive utilization rate of straw will reach 93 percent.

Hunan Province Carbon Peak Implementation Plan:

Agriculture and Forestry References:

4. Urban and rural construction carbon peak action

(4) Promote rural construction and low-carbon transformation of energy use. Promote the construction of green farmhouses and the green renovation of existing farmhouses, and research and promote key technologies and products suitable for the construction of green farmhouses. Promote the use of green building materials and encourage the use of prefabricated steel structures, wooden structures and other construction methods. Accelerate the application of renewable energy sources such as biomass energy and solar energy in agricultural production and rural life. Promote energy-saving and environmentally friendly stoves, electric agricultural vehicles, energy-saving and environmentally friendly agricultural machinery and fishing boats. Strengthen the construction of rural power grids and improve the level of rural electrification.

8. Actions to consolidate and improve carbon sink capabilities

(2) Steady improve the carbon sink of cultivated land and wetlands. Carry out actions to reduce emissions and sequester carbon in agriculture and rural areas, and promote green, low-carbon circular agricultural models such as agriculture-photovoltaic complementation and photovoltaic + facility agriculture. Actively promote the research and development and application of agricultural smart technologies, ecological technologies, and sink-increasing technologies, accelerate the popularization of energy-saving and low-consumption intelligent agricultural equipment, promote the reduction and efficiency increase of chemical fertilizers and pesticides, and strengthen the resource utilization of crop straws and livestock and poultry manure. Accelerate the ecological restoration and management of degraded land such as historical mine pits, coal mining subsidence areas, and rocky desertification areas. Strengthen the protection of wetlands in the Dongting Lake area and the four belts of Xiangzi Yuanli, and promote the protection and restoration of internationally important wetlands such as East Dongting Lake, West Dongting Lake, and South Dongting Lake, as well as national and provincial important wetlands such as Langpan Lake and Jiangkou Bird Island, strengthen the protection and restoration of southern grasslands such as Nanshan Pasture, and enhance carbon sequestration capabilities. We will implement the tasks of protecting cultivated land and permanent basic farmland issued by the new round of territorial spatial planning and adhere to the strictest cultivated land protection system.

(3) Establish a carbon sink compensation mechanism. Strengthen basic research on carbon source and sink measurement and monitoring technologies such as forestry, agriculture, wetlands, and grasslands, carry out the construction of a commercial system for carbon sink survey, monitoring and evaluation, and establish a province-wide carbon sink management platform. Carry out forest farmer micro-carbon sink pilots, regional carbon neutrality pilots, and cross-regional joint carbon neutrality pilots, and explore and formulate relevant standards, paths, and institutional arrangements. Improve the carbon sink ecological compensation mechanism, establish and improve relevant carbon sink accounting standards and reasonable compensation standards in accordance with the relevant requirements of the national unified and standardized carbon emission statistical accounting system, and guide social funds to enter the carbon sink industry. Develop national certified voluntary emission reduction carbon sink projects across the province and promote the trading of carbon sink projects within the province.

Inner Mongolia Carbon Peak Implementation Plan:

Agriculture and Forestry References:

4. Actions for green development of agriculture and animal husbandry

(1) Improve agriculture and animal husbandry to “increase sources of exchange control”. Optimize the regional layout and production structure of agriculture and animal husbandry. Resolutely curb the "non-agriculturalization" of cultivated land and prevent "non-grain conversion", carry out actions to improve the quality of cultivated land, strengthen the construction of high-standard farmland and the protection of black soil. By 2025, the number of high-standard farmland will reach 54.7 million acres, and the area of black soil protection will reach 1,500 acres. Thousands of acres. Accelerate the structural adjustment of the planting industry. Continue to strengthen land pollution control. By 2030, the ecological environment of the region’s agricultural and animal husbandry concentrated areas will be further improved.

(2) Develop ecological recycling agriculture and animal husbandry. Promote the demonstration construction of agricultural circular economy. Increase efforts to return straw to fields and promote the comprehensive utilization of crop straw. Accelerate the development of modern animal husbandry focusing on the integration of grass and livestock. Strengthen the construction of local standards for agriculture and animal husbandry. Strengthen the resource utilization of livestock and poultry manure. Promote aquatic ecological and healthy breeding. Vigorously promote the recycling of waste agricultural materials and strengthen the control of agricultural film pollution.

5. Urban and rural construction carbon peak action

(4) Promote the low-carbon transformation of rural energy consumption structure. Encourage the construction of green farmhouses. Promote the design and construction of newly built, renovated and expanded residential buildings in rural and pastoral areas in accordance with the energy-saving standards for residential buildings in rural and pastoral areas of the autonomous region. Promote the application of renewable energy sources such as biomass energy and solar energy in agricultural and animal husbandry production and life in rural and pastoral areas.

Jiangsu Province Carbon Peak Implementation Plan

1. Special action to create a low-carbon society for all.

（2）Comprehensively strengthen the synergy of pollution reduction and carbon reduction. We will further strengthen the protection of the ecological environment, vigorously promote the construction of beautiful bays, stabilize the carbon sequestration effects of existing forests, wetlands, oceans, and soils, further enhance the carbon sink capacity of the ecosystem, and effectively enhance the carbon storage capacity of wetlands and soil carbon sequestration capacity in the province. Vigorously implement major ecological protection and restoration projects, focusing on promoting the protection and

restoration of important wetlands along the coast, Taihu Lake, Hongze Lake and other important wetlands. Control greenhouse gas emissions, improve the ability to adapt to climate change, strengthen the construction of natural reserves, and protect biological diversity. Vigorously implement the green and beautiful Jiangsu construction action, accelerate the construction of ecological corridors of rivers, seas, lakes and water systems, afforestation and reforestation, and strive to increase the forest stock and carbon storage per unit area. Strengthen the "three-in-one" protection of cultivated land quantity, quality and ecology, actively protect and restore marine ecosystems, and promote the construction of marine ranches according to local conditions. Organize and carry out the province's forestry carbon sink measurement and monitoring work to further consolidate the basic work of carbon sinks.

5. Special actions to reach the peak in the field of urban and rural construction. Promote the low-carbon transformation of urban and rural construction, the development of green, low-carbon and high-quality buildings, optimize the energy consumption structure of buildings, and accelerate the green and low-carbon development of urban and rural construction.

(1) **Promote the low-carbon transformation of urban and rural construction.** Further optimize the urban structure and layout, promote urban renewal actions, implement urban ecological restoration, and build an ecologically balanced urban green space system. Improve building demolition management methods and put an end to large-scale demolition and construction. Accelerate the construction of green and low-carbon counties. Promote the construction and improvement of community living environment in a compact, moderate, green and low-carbon manner. Create a green and pleasant environment. Strengthen the management and control of the density and intensity of rural construction, promote the construction of green rural housing, optimize the energy consumption structure of rural life, and create a green and low-carbon countryside. By 2025, the construction of national ecological garden cities will continue to be at the forefront, and the green coverage rate of urban built-up areas will reach more than 40 percent.

Jiangxi Province Carbon Peak Implementation Plan:

Agriculture and Forestry References:

3. Urban and rural construction carbon peaking action.

(4) Promote rural construction and low-carbon transformation of energy use. Build a modern rural energy system and promote the construction of green rural houses and the energy-saving renovation of existing rural houses in an orderly manner according to local conditions. Promote the construction of rural distributed new energy mainly based on photovoltaics and improve rural energy self-sufficiency. Strengthen the upgrading and transformation of rural power grids and improve the level of rural energy electrification. Actively promote energy-saving and environmentally friendly agricultural equipment and stoves. Develop rural biogas according to local conditions, encourage qualified areas to use agricultural waste as raw materials, build large-scale biogas or bio-natural gas projects, and promote centralized biogas gas supply and power generation grid.

8. Actions to sequester carbon, enhance sinks and strengthen the foundation. Adhere to the system concept, actively explore nature-based solutions, promote the integrated protection and restoration of mountains, rivers, forests, fields, lakes, grass and sand, improve the quality and stability of the ecosystem, and increase the increment of ecosystem carbon sinks.

(1) Consolidate the achievements of ecosystem carbon sinks. Strengthen land space planning and use control, strictly abide by ecological protection red lines, strictly control ecological space occupation, and strictly prohibit unauthorized changes in the use and nature of forestlands, wetlands, grasslands and other ecosystems. Strictly implement land use standards and vigorously promote land-saving technologies and models. We will further improve the forest chief system and deepen the reform of the collective forest rights system. Strengthen the construction of a natural protected area system with national parks as the main body, strive to create Jinggangshan National Park, increase the protection of ecosystems such as forests, wetlands, and grasslands, strengthen the coordinated protection of biodiversity and carbon sequestration capabilities, prevent over-exploitation and utilization of resources, and stabilize carbon sequestration. Scientifically use forest land quota management and forest harvesting quotas, strictly enforce the record-based harvesting system, strengthen forest fire prevention and emergency response, improve forestry pest control capabilities, strengthen alien species management, implement pine wood nematode epidemic prevention and control actions, and stabilize forest area. Reduce forest resource consumption.

(4) Promote agricultural emission reduction and carbon sequestration. Based on ensuring food security and effective supply of important agricultural products, we will comprehensively improve comprehensive agricultural production capabilities, promote clean agricultural production, and vigorously develop low-carbon circular agriculture. Strengthen farmland conservation, carry out actions to improve farmland quality, promote high-standard farmland construction, promote the return of straw to fields, the application of organic fertilizers, and green manure planting, improve the carbon sequestration capacity of farmland soil, and increase agricultural carbon sinks. Implement a plan to reduce and replace chemical fertilizers and pesticides, standardize the use of agricultural inputs, and vigorously promote soil testing and formula fertilization, increase the application of organic fertilizers, and reduce chemical fertilizers and pesticides to increase efficiency. Carry out an action to upgrade the manure treatment and utilization facilities of large-scale livestock and poultry farms, promote the resource utilization of livestock and poultry manure, pilot green planting and breeding circular agriculture, and promote the return of manure to fields for utilization. By 2025, a total of 30.79 million acres of high-standard farmland will be built, the utilization rate of pesticides and fertilizers for main crops will reach 43 percent, and the comprehensive utilization rate of livestock and poultry manure will remain above 80 percent and strive to reach 90 percent.

Jilin Province Carbon Peak Implementation Plan:

Agriculture and Forestry References:

4. Urban and rural construction carbon peaking action. Formulate an implementation plan for carbon peaking in urban and rural construction and agriculture and rural areas, with optimizing urban and rural spatial layout and energy conservation as the core and accelerate green and low-carbon development of urban renewal and rural revitalization.

(4) Promote the low-carbon transformation of rural energy use. Vigorously develop green low-carbon circular agriculture, carry out new energy rural revitalization projects, develop decentralized wind power, distributed photovoltaics, agricultural photovoltaic complementation, fishery photovoltaic complementation according to local conditions, and promote low-carbon agricultural models such as "photovoltaic + facility agriculture". Continue to promote clean heating in rural areas and build a clean heating system based on electric heating and biomass regional boilers. Accelerate the application of solar energy and geothermal energy in agricultural production and rural life and promote the construction of demonstration projects. Develop energy-saving and low-carbon agricultural greenhouses and promote energy-saving and environmentally friendly stoves and agricultural machinery. Continue to promote the transformation and upgrading of rural power grids, basically achieve equalization of urban and rural power supply services and improve the level of rural energy electrification. Guide new rural houses to implement energy-saving and green building standards and encourage energy-saving renovation of rural houses. By 2025, a number of green and livable rural houses will be built.

8. Actions to consolidate and improve carbon sink capabilities. Adhere to the system concept, promote the integrated protection and restoration of mountains, rivers, forests, farmlands, lakes, grass, sand and ice, based on the province's ecological resources, effectively play the carbon sequestration role of forests, grasslands, wetlands and soil, and increase the total amount of ecosystem carbon.

(2) Vigorously improve the carbon sink of forest ecosystem. Improve the urban green space system and strive to promote the construction of garden cities and forest cities. We will implement key ecological projects such as the Northeast Forest Belt, the Northern (Western Jilin) Sand Control Belt, and the Forest-Grass Wet Ecological Connection, and launch the third "Ten Years of Greening Jilin" campaign. Strengthen the protection of forest resources, implement natural forest protection and restoration policies, implement forest tending management and transformation of inefficient forests, carry out the Changbai Mountain forest ecological conservation project, and build a high-quality development demonstration zone in the eastern Northeastern forest region. By 2030, the forest coverage rate will reach 46 percent, and the forest stock volume will reach 1.141 billion cubic meters.

(4) Enhance the carbon sequestration capacity of black soil. Deeply implement the black soil protection project, explore and promote technical models such as soil consolidation and fertilizer conservation in the east, quality improvement and fertilizer improvement in the central region, and improved fattening in the west, accelerate the construction of major projects such as high-standard

farmland, protective farming, and cultivated land fertility improvement, and highlight the Complete quantitative disposal of straw and ban on burning in the entire area. We will conduct an in-depth summary and promotion of the "Pear Tree Model", promote the construction of the Siping Black Soil Protection Demonstration Zone, and expand the pilot scope of black soil protection and utilization. We will continue to fight for the "black soil granary" scientific and technological battle, establish the Northeast Black Soil Research Institute, and build a national key laboratory for black soil protection and utilization. Vigorously promote green production technologies such as soil testing, formulated fertilization, and agricultural film recycling, reasonably control the use of chemical fertilizers, pesticides, and mulch films, and implement a plan to reduce and replace chemical fertilizers and pesticides. By 2025, the area of protective farming will reach 40 million acres, and a total of 50 million acres of high-standard farmland will be built. By 2030, the quality of farmland will be improved by one level compared with the early stage of the 13th Five-Year Plan.

Liaoning Province Carbon Peak Implementation Plan:

Agriculture and Forestry References:

3. Promote urban and rural construction to reach carbon peak

(4) Promote rural construction and low-carbon energy transformation. Promote energy-saving renovation of rural houses and construction of green rural houses according to local conditions. Study and introduce a subsidy policy for clean heating in rural areas, guide rural areas to prioritize the use of clean energy sources such as biomass and solar energy for heating, and encourage the construction of large-scale energy-saving and low-carbon agricultural greenhouses. Guide rural residents to use energy-saving, low-carbon and environmentally friendly stoves and products, and focus on promoting the electrification of agricultural machinery, agricultural tools, and agricultural vehicles. Coordinate and promote the construction of power infrastructure in rural areas and improve the level of energy electrification of rural buildings.

8. Consolidate and improve carbon sink capabilities

(2) Improve the carbon sink capacity of the ecosystem. Promote large-scale land greening actions, build national reserve forests, improve forest quality and stability, and strengthen the role of the Liaodong Green Economic Zone in sequestering carbon and increasing sinks. Promote urban and rural greening according to local conditions. Accelerate grassland ecological protection and restoration and enhance the carbon sink capacity of grasslands in western Liaoning. Strengthen the restoration and control of decertified land and implement major national soil and water conservation projects and ecological restoration projects of historical mines. Strengthen wetland protection, carry out wetland restoration according to local conditions, carry out water ecological management in the Liaohe River Basin, and increase the increase in wetland and ocean carbon sinks. By 2025, the forest stock volume will be no less than 381 million cubic meters. By 2030, the province’s forest coverage rate will increase by 1.5 percent compared with 2020.

(4) Promote agricultural and rural emission reduction and carbon sequestration. Develop green, low-carbon circular agriculture, and vigorously promote the research, development, promotion and application of ecological technology, green technology and sink-increasing technology. Carry out actions to improve the quality of cultivated land, implement the national black soil protection project, increase soil organic carbon storage, and ensure food security. Continue to promote the scientific fertilization and safe use of pesticides and the replacement of chemical fertilizers with organic fertilizers for fruits and vegetables, improve the straw collection, storage and transportation system, adhere to the main agricultural use and diversified utilization, and improve the utilization level of crop straw as fertilizer, feed, fuel, base material and raw material. Strict supervision on the ban on straw burning, strengthen the resource utilization of livestock and poultry manure, promote utilization technologies such as agricultural organic fertilizers and biogas, and improve the level of harmless treatment and resource utilization.

Ningxia Carbon Peak Implementation Plan:

Agriculture and Forestry References:

7. Ecological carbon sink construction actions

(2) Improve the carbon sink capacity of the ecosystem. Implement the precise forest quality improvement project to increase the carbon sink per unit area of the forest. Adhere to the combination of natural restoration and artificial restoration, promote grassland ecological restoration, implement desertification and degraded grassland ecological restoration projects, increase the amount and quality of grassland per unit area, and privately increase grassland carbon sinks. Scientifically implement river, lake, and wetland protection and restoration projects to restore ecological functions and enhance carbon sink capabilities. Carry out comprehensive management of desertification and sandy land, water and soil erosion, implement mining geological environment management projects, increase urban greening rate, and enhance the carbon sink capacity of urban green spaces. By 2025, the forest coverage rate in the region will reach 20 percent, the forest volume will reach 11.95 million cubic meters, the comprehensive grassland vegetation coverage will reach 57 percent, the wetland area will stabilize at 3.1 million acres, and the wetland protection rate will increase to 58 percent; by 2030 , the forest coverage rate reached 21 percent, the forest storage volume reached 13.95 million cubic meters, the grassland comprehensive vegetation coverage stabilized at 57 percent, and the wetland protection rate reached more than 58 percent.

(4) Promote agricultural and rural emission reduction and carbon sequestration. Vigorously develop green low-carbon circular agriculture, promote the ecological cycle model of planting and raising, using breeding to promote planting, and combining planting and breeding, and build agricultural and photovoltaic complementary low-carbon agriculture such as "photovoltaic + facility agriculture". Promote the reduction and efficiency increase of chemical fertilizers, pesticides, and mulch films, promote environmentally friendly fertilizers and biopesticides, and improve fertilization and pesticide application methods. We will carry out in-depth agricultural standardized production actions and

increase the creation of modern agricultural demonstration areas, horticultural crop standard gardens, and livestock and poultry standardized demonstration sites. Coordinate the carrying capacity of resources and the environment, and support the entire county in promoting comprehensive utilization of straw, recycling of agricultural film, and resource utilization of livestock and poultry manure. Implement high-standard farmland construction, saline-alkali land improvement and other land fertility protection projects to improve soil organic matter content and cultivated land quality and increase soil carbon sequestration capacity. By 2025, the utilization rate of chemical fertilizers and pesticides for the main crops in the region will reach more than 43 percent, the comprehensive utilization rate of livestock and poultry manure will reach more than 90 percent, the comprehensive utilization rate of straw and the recycling rate of agricultural film will reach more than 90 percent; by 2030, the comprehensive utilization rate of livestock and poultry manure will reach more than 90 percent; The utilization rate of chemical fertilizers and pesticides continues to increase, and a new model of green and low-carbon agricultural development is gradually taking shape.

Qinghai Carbon Peak Implementation Plan:

Agriculture and Forestry References:

1. **Main objectives.**

——Reducing emissions and increasing sinks in agriculture and rural areas show a new outlook. By 2025, the proportion of manure treatment facilities built in supporting large-scale breeding farms in the province will reach 100 percent, and the comprehensive utilization rate of breeding waste will reach more than 85 percent. By 2030, green and low-carbon agricultural and rural modernization will be basically achieved.

4. Taking the construction of green organic agricultural and livestock product export areas as the fulcrum, implement actions to reduce agricultural and rural emissions and increase sinks.

(1) Accelerate the low-carbon development of agriculture and animal husbandry. Promote green organic standardized production, make organic brands bigger and stronger, and create an export center for green organic agricultural and livestock products. Focusing on the five characteristic industries of yak, Tibetan sheep, highland barley, vegetables, and leisure agriculture and animal husbandry, we adhere to the "organic fertilizer + N" model to replace chemical fertilizers and accelerate the replacement of chemical fertilizers with organic fertilizers. Vigorously promote agricultural and animal husbandry production and efficiency-increasing technologies such as soil testing and formula fertilization, deep plowing and deep plowing of farmland, integration of water and fertilizer, and high-quality forage planting, and improve the scientific and technological level of green organic agricultural and livestock product production. Promote the edible agricultural product certificate system and accelerate the construction of an agricultural and livestock product quality and safety traceability management information platform. By 2025, the green organic planting area will account for more than 70 percent of the province's total cultivated land, and the processing and conversion rate of agricultural

and livestock products will reach more than 65 percent. The influence of the "Qing Zihao" brand will continue to expand, and 100 agricultural and animal husbandry enterprise brands will be strengthened and cultivated. Expand 30 regional public brands of agricultural and livestock products and 300 brands of agricultural and livestock products. By 2030, we will build a domestic and even international green organic agricultural and livestock product export center with distinctive characteristics.

(2) Vigorously promote agriculture and animal husbandry to reduce carbon emissions and increase sinks. The focus is on reducing pesticides and fertilizers to increase efficiency, promoting green carbon reduction technologies, reusing agricultural waste, and soil quality control to reduce carbon and increase sinks in agriculture and animal husbandry. Focusing on the goals and tasks of "one control and two reductions", we will implement the reduction of chemical fertilizers to increase efficiency and the reduction of pesticides to control harm. Strengthen publicity and guidance, change farmers' concepts of fertilization, and guide farmers to consciously adopt scientific fertilization techniques. Apply modern information technologies such as the Internet of Things, cloud computing, and big data mobile Internet to promote the transformation and upgrading of the entire agricultural industry chain. Implement comprehensive utilization of crop straw, and promote the use of crop straw as fertilizer, feed, base material, raw material, and fuel according to local conditions. Implement the recycling campaign of farmland film residues and improve the recycling and disposal system of used mulch films and agricultural and veterinary drug packaging waste. Implement resource utilization projects such as livestock and poultry manure and straw to improve the efficiency of resource utilization of agricultural and animal husbandry waste. Conduct pilot projects to treat salinized farmland and improve farmland soil quality to improve soil carbon sequestration capabilities. New varieties with carbon sink potential that are in line with Qinghai characteristics will be introduced and cultivated, and crops of high ecological value suitable for promotion and planting will be selected. Strive to achieve 100 percent proportion of supporting manure treatment facilities in large-scale breeding farms in the province by 2025, full coverage of reduction and efficiency increase of chemical fertilizers and pesticides, recycling rate of waste agricultural film to reach about 95 percent, and comprehensive utilization rate of breeding waste to reach more than 85 percent.

Shaanxi Province Carbon Peak Implementation Plan:

Agriculture and Forestry References:

8. Enhance the carbon sink capacity of the ecosystem.

(2) Improve the carbon sink capacity of the ecosystem. Scientifically carry out land greening, consolidate the results of returning farmland to forests and grasslands, fully promote the construction of the "Million-acre Green Carbon Bank" pilot demonstration base, and gradually expand the increment of ecosystem carbon sinks. Strengthen the protection and restoration of forest resources, implement quality and efficiency improvement and high-quality development projects of protective forests along the Yellow River, and improve the quality and stability of forests; strengthen the ecological protection and restoration of grasslands and increase the comprehensive vegetation coverage of grasslands; strengthen

the protection and restoration of rivers, lakes, and wetlands; strengthen the degradation of Land restoration and management, carry out comprehensive management of desertification and sandified land, carry out ecological restoration projects in key areas such as historical mines, and continuously improve the carbon sink capacity of the ecosystem. By 2025, the province's forest coverage rate will reach 46.5 percent, forest stock volume will reach 620 million cubic meters, and ecological functions such as carbon sequestration will continue to improve. By 2030, the province's forest coverage rate will reach about 46.8 percent, and the forest stock volume will reach 650 million cubic meters.

(3) Give full play to the role of agriculture in reducing carbon and sequestering carbon. Vigorously develop green, low-carbon and circular agriculture. Actively develop "photovoltaic + facility agriculture" and build an ecological recycling agricultural industry system. Strengthen agricultural space use control and green and low-carbon development and utilization, promote farmland conservation, optimize planting structure, and improve farmland carbon sink levels. Develop green manure planting in summer fallow, autumn fallow fields and fallow rotation cultivated land in northern Shaanxi, Weibei, southern Shaanxi and other regions to increase soil organic carbon storage.

Shanxi Province Carbon Peak Implementation Plan:

Agriculture and Forestry References:

3. Actions to consolidate and improve carbon sink capabilities

(2) Increase the increment of ecosystem carbon sinks. We will solidly advance the ecological restoration and management of "two mountains, seven rivers and one basin", and coordinate the comprehensive management, source management and systematic management of the mountains, rivers, forests, fields, lakes, grass and sand ecosystems. Promote land greening in an orderly manner, continue to implement precise forest quality improvement projects, scientifically plan the layout and varieties of forests and grasslands, actively create forest cities and forest villages, solidly implement the national reserve forest strategy, and improve forest quality and stability. Carry out grassland ecological protection and restoration management, implement degraded grassland enclosures, sub-alpine meadows, and river floodplain grassland ecological protection projects, promote grazing bans, rest grazing, and rotational grazing in areas along the Yellow River and Fen areas, delineate and strictly protect basic grasslands in accordance with the law, and expand basic grassland areas. Strengthen the protection of existing wetlands and scientifically restore degraded wetlands. Strengthen the restoration and management of degraded land, carry out comprehensive management of desertification, rocky desertification, and water and soil erosion, implement ecological restoration projects of historical mines, and increase geological environmental management and ecological restoration of coal mining subsidence areas, industrial and mining abandoned lands, etc. By 2025, the forest coverage rate will strive to increase by 2.5 percentage points compared with 2020. By 2030, forest coverage and forest volume will increase steadily.

(4) Promote agricultural and rural emission reduction and carbon sequestration. Vigorously develop green, low-carbon circular agriculture, and promote low-carbon agricultural models such as agricultural photovoltaic complementation and "photovoltaic + facility agriculture". Relying on the Jinzhong National Agricultural High Zone, we will focus on characteristic high-quality industries and organic dry farming, and promote the research, development, application, demonstration and promotion of agricultural technologies that increase income. Strengthen the comprehensive control of agricultural non-point source pollution, carry out the construction of ecological farms, implement the county-wide promotion of resource utilization of livestock and poultry manure, continue to strengthen the reduction of pesticides and fertilizers to increase efficiency, and promote the recycling of agricultural film. Strengthen the comprehensive utilization of crop straw, build a province-wide straw resource data sharing platform, improve the straw collection, storage and transportation system, and implement projects in key counties for comprehensive utilization of straw and counties with full utilization. By 2025, the comprehensive utilization rate of straw will remain above 90 percent, and the comprehensive utilization rate of livestock manure will reach 80 percent. Carry out actions to improve the quality of farmland, promote the construction of high-standard farmland, improve farmland organic matter, and increase farmland soil organic carbon storage. By 2025, more than 24 million acres of high-standard farmland will be built. Promote energy conservation and emission reduction of agricultural and fishing machinery, accelerate the elimination of old agricultural machinery with high energy consumption, large losses, heavy pollution, and low safety performance, guide farmers to choose low-carbon and energy-saving equipment, and comprehensively improve the quality and production efficiency of agricultural machinery products.

Shandong Province Carbon Peak Implementation Plan:

Agriculture and Forestry References:

6. Circular economy supports carbon reduction projects.

(2) Promote the comprehensive utilization of bulk solid waste. Improve provincial solid waste resource utilization policies, standards, specifications, and technologies, adhere to green consumption to lead source reduction, improve the level of resource utilization, and minimize the amount of landfills. Promote the full utilization of major agricultural wastes such as straw, livestock and poultry manure. Promote the resource utilization of construction waste and promote the in-situ recycling of abandoned road materials. Accelerate the construction of demonstration projects for comprehensive utilization of bulk solid waste. By 2030, the annual utilization of bulk solid waste will reach 200 million tons.

8. Carbon sink capacity consolidation and improvement project.

(5) Promote agricultural and rural emission reduction and carbon sequestration. Accelerate the promotion and application of advanced applicable, energy-saving and environmentally friendly agricultural machinery and equipment and fishing boats and develop energy-saving agricultural greenhouses. Vigorously promote the research, development, promotion and application of agricultural

ecological technologies, green technologies and sink-increasing technologies, thoroughly implement actions to reduce the amount of pesticides and fertilizers and increase efficiency, and rationally control the use of chemical fertilizers, pesticides and mulch films. We will vigorously develop green recycling agriculture and promote the comprehensive utilization of livestock and poultry manure, straw and other agricultural production waste throughout the county. The entire county improves the rural living environment, improves rural sewage and garbage treatment capabilities, and implements projects such as source control and interception, silt dredging, and water purification.

Shanghai Carbon Peak Implementation Plan:

Agriculture and Forestry References:

4. Carbon peaking action in urban and rural construction

(4) Promote rural construction and low-carbon transformation of energy use. Create a natural and compact rural pattern, protect the rural flavor of the villages, and create good natural landscapes and rural habitats. Improve the level of green and low-carbon design and construction of farmhouses, explore the implementation of energy-saving design standards for new farmhouses, accelerate the energy-saving renovation of existing farmhouses, and encourage the construction of low-carbon and zero-carbon farmhouses. Develop energy-saving and low-carbon agricultural greenhouses. Promote the use of efficient lighting, electric agricultural vehicles, energy-saving and environmentally friendly stoves, agricultural machinery, fishing boats and other facilities and equipment. Promote the application of renewable energy such as solar energy, geothermal energy, air thermal energy, and biomass energy in agricultural production and rural life, and promote the installation of photovoltaics on farm roofs and courtyards. Accelerate the construction of rural power grids and improve the electrification level of rural energy consumption.

6. Circular economy supports carbon reduction actions

(4) Develop green, low-carbon recycling agriculture. Research, develop and apply sink-increasing agricultural technologies, promote carbon dioxide gas fertilizer and other technologies, and increase soil organic carbon reserves. Vigorously develop renewable energy in the agricultural field and integrate agricultural and photovoltaic complementary and fishery and photovoltaic complementary projects in conjunction with agricultural facilities, agricultural land, and unused land. Promote the diversified utilization of crop straw and expand various off-field utilization methods such as fertilizer, feed, base material, and fuel. By 2025, the comprehensive utilization rate of crop straw in this city will stabilize at more than 98 percent. Promote the resource utilization of vegetable waste from large-scale horticulture farms and lay out a number of centralized utilization facilities. Strengthen the recycling and disposal of waste agricultural film and pesticide packaging waste, improve the recycling system of waste agricultural film, yellow boards and pesticide packaging waste, and strive to achieve full recycling. Encourage the resource utilization of agricultural greenhouse films, promote the pilot application of fully biodegradable mulch films, and incorporate mulch films into the domestic waste recycling and

disposal system. Strengthen the supervision of the process of returning manure to fields and improve the management level of livestock and poultry manure treatment and utilization. By 2025, the comprehensive utilization rate of livestock and poultry manure in this city will reach 98 percent. Promote green production technologies and facilities and equipment, promote the reduction and efficiency increase of chemical fertilizers and pesticides, and encourage the increase of organic fertilizers and the use of biological pesticides.

Sichuan Province Carbon Peak Implementation Plan:

Agriculture and Forestry References:

4. Focus on promoting new urbanization and rural revitalization and implement the carbon peaking action for urban and rural construction. Accelerate the promotion of green and low-carbon development in urban and rural construction, and strictly implement green and low-carbon requirements in urban renewal and rural revitalization.

(4) Promote rural construction and low-carbon transformation of energy use. Promote the construction of green rural housing and accelerate energy-saving renovation of rural housing. Promote energy-saving and environmentally friendly stoves, electric agricultural vehicles, energy-saving and environmentally friendly agricultural machinery, and develop energy-saving and low-carbon agricultural greenhouses. Improve the way energy is used in agriculture and rural areas, and promote the application of biomass energy, solar energy and other renewable energy sources in agricultural production and rural life according to local conditions. Strengthen the construction of rural power grids, improve distribution networks and power access facilities, and improve the level of rural energy electrification.

8. Build a solid ecological barrier in the upper reaches of the Yangtze and Yellow Rivers and implement actions to consolidate and improve carbon sink capabilities. Strengthen land spatial planning and use control, coordinate the integrated protection and systematic management of mountains, rivers, forests, fields, lakes, grass and sand, implement ecosystem protection and restoration projects, strengthen forest resource conservation, and increase ecosystem carbon sinks.

(2) Improve the carbon sink capacity of the ecosystem. Promote the implementation of land space ecological restoration planning, improve the overall quality of natural resource ecosystems, and continue to increase the ecological carbon sink in key ecological areas. Make full use of suitable space to scientifically arrange green land and promote vegetation restoration in key areas. We will do a good job in the afforestation of barren hills, barren slopes, barren hills and barren shoals suitable for afforestation, and the work of returning farmland to forests and grasslands on slopes above 25 degrees. Strengthen the construction of water source conservation forests and the restoration of degraded forests in the Yangtze River trunk and tributaries, water source conservation areas in the upper reaches of the Yellow River, Qinba Mountains, Wumeng Mountains and other regions. Strengthen the cultivation of young and medium-sized forests and build a number of national reserve forest bases. Strengthen

grassland ecological protection and restoration and increase grassland comprehensive vegetation coverage. Strengthen the protection and restoration of rivers, lakes, wetlands, and frozen soil. Systematically implement ecological protection and restoration projects such as natural forest protection, soil and water conservation, comprehensive ecological management of arid and semi-arid areas, and comprehensive management of rocky desertification in karst areas. Accelerate the restoration and management of degraded land and implement projects such as ecological restoration of historical mines, treatment of decertified land in northern Sichuan, and restoration of degraded wetlands in the western Sichuan Plateau. By 2025, the province's forest coverage rate will reach about 41 percent, and the forest stock volume will reach 2.1 billion cubic meters.

(4) Promote agricultural and rural emission reduction and carbon sequestration. Vigorously develop green, low-carbon circular agriculture, and promote low-carbon agricultural models such as agricultural photovoltaic complementation and "photovoltaic + facility agriculture". Organize and carry out joint research on carbon emission reduction and carbon sequestration in agriculture and rural areas, develop and apply agricultural technologies that reduce carbon emissions and increase sequestration, promote carbon dioxide gas fertilizer and other technologies, and form a batch of comprehensive technical solutions. Carry out actions to improve the quality of cultivated land, improve the classified management of agricultural land, carry out soil pollution control and restoration, strengthen the safe use of contaminated cultivated land, strictly control the sources of soil pollution, and increase soil organic carbon storage. Promote the reduction of chemical fertilizers and pesticides to increase efficiency, increase the recycling rate of agricultural film, and strengthen the resource utilization of crop straw and livestock and poultry manure. Strictly control overgrazing and continue to promote the dynamic balance of grass and livestock in plateau pastoral areas.

Tianjin Carbon Peak Implementation Plan:

Agriculture and Forestry References:

4. Urban and rural construction carbon peak action

(4) Promote rural construction and low-carbon transformation of energy use. Promote the construction of green rural housing and accelerate energy-saving renovation of rural housing. Continue to consolidate the achievements of clean heating in rural areas and insist on choosing heating methods according to local conditions. Accelerate the application of renewable energy sources such as biomass energy and solar energy in agricultural production and rural life. Develop energy-saving and low-carbon agricultural greenhouses. Promote energy-saving and environmentally friendly stoves, electric agricultural vehicles, energy-saving and environmentally friendly agricultural machinery and standardized fishing boats. Strengthen the construction of rural power grids and improve the level of rural energy electrification.

6. Actions to consolidate and improve carbon sink capabilities

(4) Promote agricultural and rural emission reduction and carbon sequestration. Establish a fertilizer and carbon sequestration model that combines land use with land cultivation to gradually increase soil organic matter content. Implement conservation tillage, treat degraded farmland, improve soil structure, increase the thickness of the cultivated layer, fertilize the soil, control pollution and restore it, and continuously increase the carbon sequestration potential of the soil. Focusing on large-scale livestock and poultry farms, we will promote new technologies for the resource utilization of livestock and poultry manure and return it to nearby fields and promote the green and low-carbon development of the animal husbandry industry. Relying on the construction of the modern agricultural industrial park in Binhai New Area, we will actively develop carbon sequestration fisheries with marine aquaculture as the main body.

Yunnan Province Carbon Peak Implementation Plan:

Agriculture and Forestry References:

4. Low-carbon transformation actions in urban and rural construction

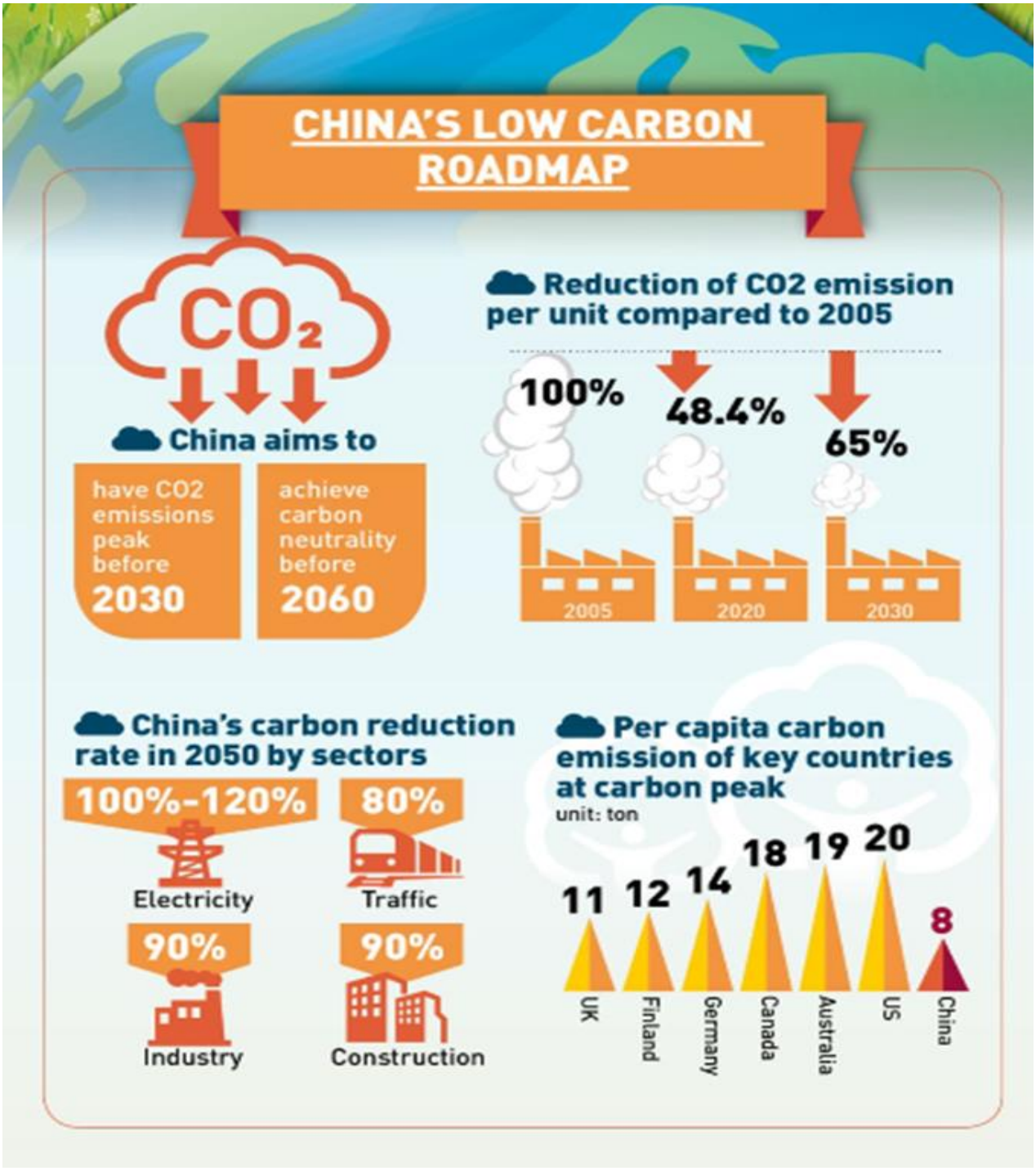
(12) Promote rural construction and low-carbon transformation of energy use. Promote the construction of green rural housing and accelerate energy-saving renovation of rural housing. Promote the use of green building materials and encourage the use of new construction methods such as prefabricated steel structures. Continue to promote clean heating in rural areas and choose appropriate heating methods according to local conditions. Develop energy-saving and low-carbon agricultural greenhouses. Promote energy-saving and environmentally friendly stoves, electric agricultural vehicles, energy-saving and environmentally friendly agricultural machinery and fishing boats. Accelerate the application of renewable energy sources such as biomass energy and solar energy in agricultural production and rural life. Strengthen the construction of rural power grids and improve the level of rural energy electrification.

5. Green Beauty Yunnan Action

(16) Promote agricultural and rural emission reduction and carbon sequestration. Continuously increase the ecological green amount in urban and rural areas, develop green low-carbon circular agriculture, improve ecological agriculture to reduce carbon and increase sinks, promote technologies such as carbon dioxide gas fertilizer, promote the utilization of livestock and poultry manure, straw and other resources and the energy utilization of algae, and implement the reduction of chemical fertilizers and pesticides. Quantify action.

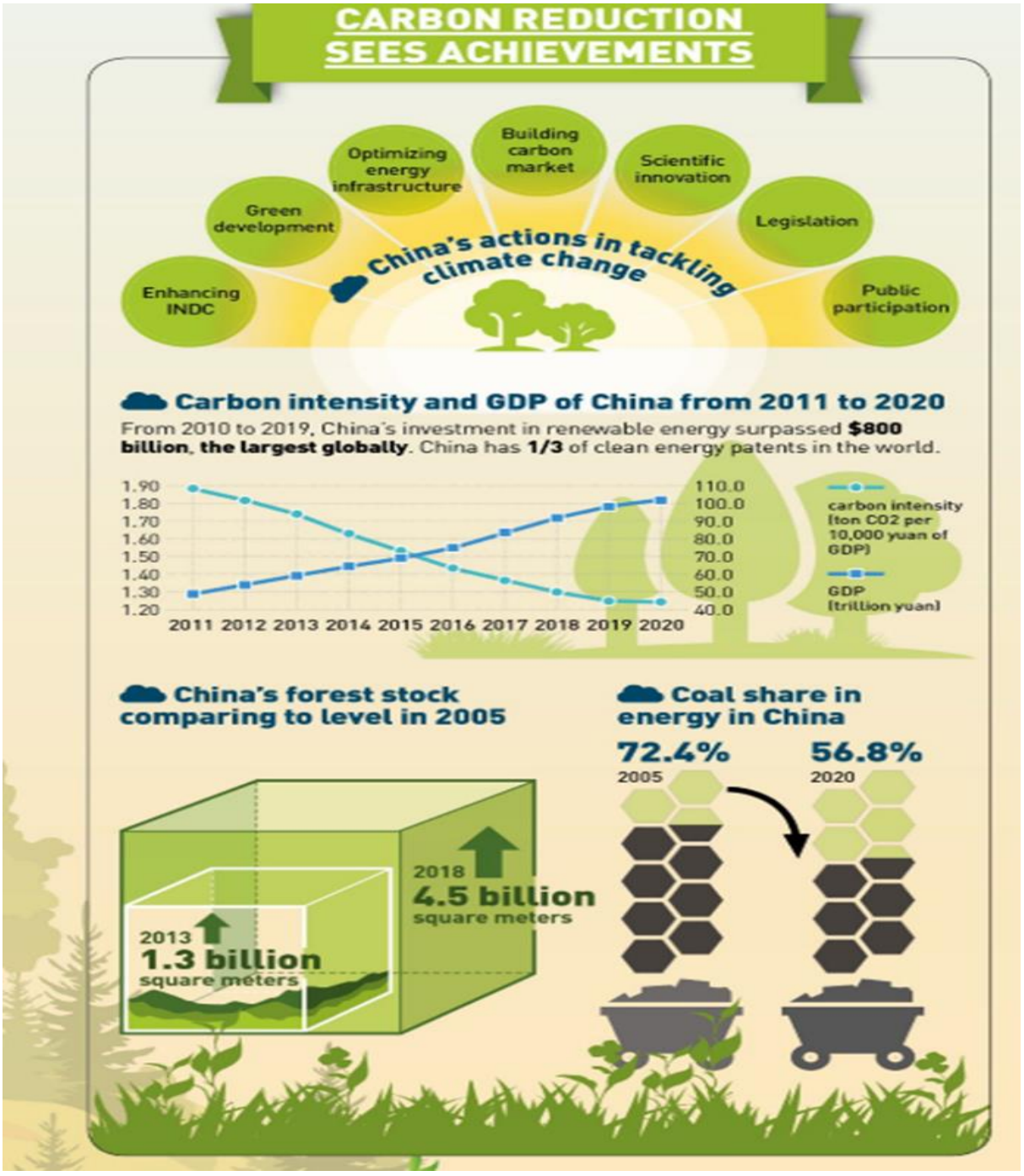
Appendix III: PRC Infographics on Climate Policies and Goals

Infographic 1. Low Carbon Roadmap



Source: China's "1+N" Policy Framework, published by the PRC Embassy in the United States.

Infographic 2. Carbon Reduction Achievements



Source: [China's "1+N" Policy Framework](), published by the PRC Embassy in the United States.

Note: Data for China's forest stock vary by source and no clear data for 2005 forest stock volumes exist. In 2014, at an official press conference on China's forestry resources it was stated that forest stock volume in 2005 was 13.7 billion cubic meters, which aligns with the forest stock volumes referenced in the Seventh Forest Resources Inventory (2004-2008). If that is correct, then forest stock volume in 2013 increased 1.4 billion m3 and 3.6 billion m3 in 2018; volumes lower than what is reported in the above infographic.

Appendix IV: Recent and Select PRC Bilateral Statements and Joint Declarations on Climate Change

(with highlighted agriculture and forestry references)

Joint Declaration of the 13th Meeting of BRICS Ministers of Agriculture (August 12, 2023)

Agriculture and Forestry References:

Reducing the impact of climate change on agriculture and food production.

2. We recognize the vulnerability of food production systems and farmers to the adverse effects of climate change and emphasize the fundamental priority of safeguarding food security and ending hunger.

3. We welcome the outcomes of the twenty-seventh Conference of the Parties (COP27) held in Egypt under the United Nations Framework Convention on Climate Change (UNFCCC) in particular, the Joint Work on Implementation of Climate Action on Agriculture and Food Security. We call for the provision of means of implementation for developing countries to enable them to reduce the negative impacts of climate change on food security by enhancing the adaptive capacity and resilience of people, food and agricultural production systems.

4. We advocate joint efforts among BRICS countries to address climate change impacts on agriculture. This involves sharing information, strengthening cooperation, and taking appropriate actions to tackle these challenges effectively. These efforts should be geared towards reducing vulnerabilities of farming communities, in particular smallholder farmers, women, youth, local communities and Indigenous people, as applicable to the adverse impacts of climate change.

5. We acknowledge the importance of climate resilient approaches in agriculture to strengthen agri-food systems towards sustainable agricultural practices. We support the adoption of agricultural best practices that align with internationally agreed goals like the Sustainable Development Goals (SDGs). Additionally, we support the initiatives to improve food security and nutrition at local, regional and global levels. In this regard, we welcome all BRICS countries efforts which aim towards sustainable transformation of agriculture and food systems to address the challenges of climate change and enhance global food security and nutrition.

8. We support the promotion of sustainable production, consumption and pro-growth development approaches through international cooperation and multi-stakeholder collaborations. We recognize that climate-resilient crops play an important role in attaining food security, eradicating poverty and achieving Sustainable Development Goals. In this regard, we welcome the United Nations (UN) declaration of 2023 as the International Year of Millets.

16. We acknowledge the progress made in the implementation of the objectives of Action Plan: 2021-2024 for Agricultural Cooperation. We further acknowledge the work of the BRICS Agricultural

Experts Working Group on promoting collaboration and ensuring achievement of the objectives of the Meeting of BRICS Ministers of Agriculture and parallel side events such as the BRICS Climate Resilient Agriculture Seminar and the Rural Development Symposium hosted successfully in South Africa.

Brazil-China Joint Statement on Combating Climate Change (April 15, 2023);

Agriculture and Forestry References:

Article 11: We intend to engage collaboratively in support of eliminating global illegal logging and deforestation through effectively enforcing their respective laws on banning illegal imports and exports. We will further cooperate on developing and sharing technologies, including the new CBERS 6 satellite, which will enable enhanced monitoring of forest cover. Furthermore, we will promote the exchange of knowledge, best practices and other forms of cooperation for conservation and sustainable management of forests, regeneration and reforestation of degraded areas.

Joint statement by the French Republic and the People's Republic of China (April 7, 2023);

Agriculture and Forestry References:

V. A joint response to global challenges

33. Against the backdrop of food crises which affected 323 million people in 2022 according to the United Nations, the two countries are committed to maintaining market stability, avoiding unjustified export restrictions on inputs as well as agricultural products, and optimizing global food supply chains, starting with facilitating the export of cereals and fertilizers. The two countries are working to achieve these goals, including through the Food and Agriculture Resilience Mission (FARM) initiative and the Chinese initiative for global food security.

34. France and China agree on the importance of increasing support for the countries hardest hit by the food crisis, including their African partners, to build resilient and sustainable food systems. To that end, they intend to promote international cooperation for local production and against food loss and wastage. With this in mind, they are providing joint support to the competent organizations to address the issue of food security, including the United Nations Food and Agriculture Organization (FAO), the International Fund for Agricultural Development (IFAD), the World Food Programme (WFP), financial institutions and multilateral and bilateral donors.

40. The climate, biodiversity and the fight against land degradation are among the priorities shared by France and China. The two countries undertake to maintain a high level of ambition, following on from the Beijing Call launched in November 2019 and in line with the United Nations Framework Convention on Climate Change (UNFCCC) and its Paris Agreement, as well as the Kunming-Montreal Global Biodiversity Framework (hereinafter referred to as the "Kunming-Montreal Framework"), adopted during the second part of the Convention on Biological Diversity (COP15) and which both parties welcome. China, which chairs the COP15 for the next two years, intends to work actively with

France to fully and effectively implement the Kunming-Montreal Framework. France and China welcome the active contribution of the Kunming Fund and the facility which will be created to fund biodiversity under the Global Environment Facility. They welcome the work set out at the One Forest Summit in Libreville.

49. France and China are committed to sustainably protecting and managing forest ecosystems, supporting scientific research on more sustainable value chains and combatting illegal logging and its associated trade. They intend to further cooperation on the conservation of nature as well as the protection, restoration and sustainable use of steppe zones. Within this framework, France and China welcome the active cooperation between the French Biodiversity Agency (OFB) and China's National Forestry and Grassland Administration (NFGA).

Joint Statement between the People's Republic of China and the Russian Federation on Deepening the Comprehensive Strategic Partnership of Coordination in the New Era (March 22, 2023).

Agriculture and Forestry References:

None

Joint Press Communiqué following the Second EU-China High Level Environment and Climate Dialogue (October 10, 2021)

Agriculture and Forestry References:

Article 11: Both sides agreed to engage collaboratively in support of reducing global deforestation through enhancing cooperation in conservation and sustainable management of forests, making supply chain more sustainable, and combating illegal logging and associated trade.

U.S.-China Joint Glasgow Declaration on Enhancing Climate Action in the 2020s (November 10, 2021);

Agriculture and Forestry References:

Article 8: Recognizing specifically the significant role that emissions of methane play in increasing temperatures, both countries consider increased action to control and reduce such emissions to be a matter of necessity in the 2020s. To this end:

The two countries intend to cooperate to enhance the measurement of methane emissions; to exchange information on their respective policies and programs for strengthening management and control of methane; and to foster joint research into methane emission reduction challenges and solutions.

They intend to develop additional measures to enhance methane emission control, at both the national and sub-national levels.

In addition to its recently communicated NDC, China intends to develop a comprehensive and ambitious National Action Plan on methane, aiming to achieve a significant effect on methane emissions control and reductions in the 2020s.

The United States and China intend to convene a meeting in the first half of 2022 to focus on the specifics of enhancing measurement and mitigation of methane, including through standards to reduce methane from the fossil and waste sectors, as well as incentives and programs to reduce methane from the agricultural sector.

Article 9: Recognizing that eliminating global illegal deforestation would contribute meaningfully to the effort to reach the Paris goals, the two countries welcome the Glasgow Leaders' Declaration on Forests and Land Use. The two sides intend to engage collaboratively in support of eliminating global illegal deforestation through effectively enforcing their respective laws on banning illegal imports.

U.S.-China Joint Statement Addressing the Climate Crisis (April 17, 2021);

Agriculture and Forestry References:

The United States and China will continue to discuss, both on the road to COP 26 and beyond, concrete actions in the 2020s to reduce emissions aimed at keeping the Paris Agreement-aligned temperature limit within reach, including:

a. Policies, measures, and technologies to decarbonize industry and power, including through circular economy, energy storage and grid reliability, CCUS, and green hydrogen;

b. Increased deployment of renewable energy;

c. Green and climate resilient agriculture;

China and France Joint Presidential Statement on Climate Change (November 2, 2015);

Agriculture and Forestry References: None

U.S.-China Joint Presidential Statement on Climate Change (September 25, 2015);

Agriculture and Forestry References: None

EU-China Joint Statement on Climate Change (June 29, 2015);

Agriculture and Forestry References:

Article 9: Continue to cooperate on afforestation with a view to enhancing the removal of carbon dioxide from the atmosphere;

Joint Statement on Climate Change between the Government of the People's Republic of China and the Government of the Republic of India. (May 15, 2015).

Agriculture and Forestry References: None

Appendix V: Implementation Plan for Carbon Reduction and Carbon Sequestration in Agriculture and Rural Areas

Begin Unofficial Translation

Implementation Plan for Carbon Reduction and Carbon Sequestration in Agriculture and Rural Areas

Achieving the peak of carbon emissions by 2030 and carbon neutrality by 2060, reducing carbon emissions in agriculture and rural areas is not only an important measure, but also has potential. In order to implement the decisions and arrangements of the CCP Central Committee and the State Council, and to do a good job in reducing carbon emissions and sequestering carbon in agriculture and rural areas, according to the "Opinions of the CCP Central Committee and the State Council on Completely, Accurately and Comprehensively Implementing the New Development Concept and Doing a Good Job in Carbon Peaking and Carbon Neutralization" and "Carbon Peaking Action Plan before 2030," this implementation plan was formulated.

1. Significance

(1) Promoting emission reduction and carbon sequestration in agriculture and rural areas is an important part of the construction of agro-ecological civilization. General Secretary Xi Jinping emphasized at the ninth meeting of the Central Finance and Economics Committee that achieving carbon peaking and carbon neutrality is an extensive and profound economic and social systemic reform, and carbon peaking and carbon neutrality should be incorporated into the overall layout of ecological civilization construction. Agriculture has "green" attributes and multiple functions. It is an important supplier of ecological products and an important part of the ecosystem. At present, the operation mode of high consumption of agricultural resources has not been fundamentally changed, the green production and low-carbon processing technologies of the crop planting and animal farming industry are relatively backward, the agricultural nonpoint source pollution is serious in some areas, and the air pollution and carbon emissions caused using coal in production and life are prominent. Accelerating the reduction and sequestration of carbon in agriculture and rural areas, improving the utilization efficiency of agricultural resources, improving the ecological environment of agriculture and rural areas, realizing the green development of agriculture, and building agriculture and rural areas into "ecological barriers" for beautiful China are the inherent requirements of building an agro-ecological civilization.

(2) Promoting agricultural and rural emission reduction and carbon sequestration is an important direction for agricultural and rural modernization. Realizing the modernization of agriculture and rural areas is a major task in building a socialist modernized country in an all-round way. Taking the promotion of high-quality development as the theme, coordinating development and security, keeping the bottom line of national food security, and realizing the green and low-carbon transformation of agricultural and rural production and lifestyle are important elements of agricultural and rural modernization.

Accelerate the promotion of agricultural and rural emission reduction and carbon sequestration, adhere to the quality and green development of agriculture, speed up the development of ecological cycle agriculture, construct a spatial pattern of saving resource and protecting environment, and form an overall layout in which agricultural development matches the carrying capacity of resources and environment, and is in harmony with production and living conditions, which is conducive to ensuring food security and the effective supply of important agricultural products, promoting the improvement of agricultural quality and efficiency, and promoting agricultural and rural modernization.

(3) Promoting emission reduction and carbon sequestration in agriculture and rural areas is an important task in promoting rural revitalization. Rural revitalization is a major task to realize the great rejuvenation of the Chinese nation, and ecological revitalization is an important part of rural revitalization. Implementing rural construction actions, promoting the resource utilization of agricultural and rural waste, developing clean energy such as biomass energy, promoting energy conservation and consumption reduction in rural production and living, and improving the rural living environment are the keys to realizing rural ecological livability. Accelerate the promotion of carbon emission reduction and carbon sequestration in agriculture and rural areas, further promote recycling, green and low-carbon production and lifestyles, make good ecology the support point of rural revitalization, and make low-carbon industries a new economic growth point for rural revitalization, which is conducive to promoting agricultural high quality and high efficiency, livable and practicable rural areas, and rich and prosperous farmers will help comprehensively promote rural revitalization.

(4) Promoting carbon emission reduction in agriculture and rural areas is an important way to address climate change. Global climate change has a profound impact on human survival and development, and is a major challenge faced by all countries. Addressing climate change is an inherent requirement for China’s sustainable development, and it is also an international obligation of a responsible major country. Accelerating the promotion of agricultural and rural emission reduction and carbon sequestration, reducing the intensity of greenhouse gas emissions from agricultural and rural production and living, improving the carbon sequestration capacity of farmland, and developing rural renewable energy will help improve the ability of China’s agricultural production to adapt to climate change, and actively contribute to the global response to climate change.

2. General requirements

(1) General idea

Guided by Xi Jinping’s Thought on Socialism with Chinese Characteristics for a New Era, thoroughly implement the spirit of the 19th National Congress of the Communist Party of China and the 19th Plenary Sessions, and in accordance with the overall requirements of striving to peak carbon dioxide emissions by 2030 and striving to achieve carbon neutrality by 2060, implement the decision-making and deployment of incorporating carbon peaking and carbon neutralization into the overall layout of ecological civilization. On the premise of ensuring food security and the effective supply of important agricultural products, guided by the comprehensive promotion of rural revitalization and accelerating

agricultural and rural modernization, and focus on green and low-carbon development of agriculture and rural, taking the implementation of major actions to reduce pollution, reduce carbon, and improve carbon sinks as the starting point, comprehensively improve the comprehensive agricultural production capacity, reduce the intensity of greenhouse gas emissions, improve the carbon sequestration capacity of farmland soil, vigorously develop rural renewable energy, and establish a sound monitoring and evaluation system, strengthen the support of scientific and technological innovation, build a policy safeguard mechanism, accelerate the formation of agricultural and rural industrial structures, production methods, lifestyles, and spatial patterns that save resources and protect the environment, and contribute to the realization of carbon peaking and carbon neutrality nationwide.

(2) Basic principles

Stick to the system concept. Strengthen the effective connection of agricultural and rural emission reduction and carbon sequestration with the effective supply of grain and important agricultural products, and agricultural and rural pollution control and other key tasks, make unified planning, deployment, and promotion, and establish a coordinated and integrated strategic planning and action system. Handle the relationship between development and emission reduction, overall and partial, long-term and short-term goals, government and market.

Adhere to classification policies. Based on the differences in regional resource endowment, industrial base, production scale, management mode, ecological function, etc., propose solutions for different regions and different industries according to local condition, clarify key tasks and emission reduction methods, and promote the formation of a unique, balanced and coordinated roadmap of agricultural and rural carbon emission reduction and sequestration.

Adhere to innovation-driven policies. Taking innovation as the fundamental support for carbon emission reduction and carbon sequestration in agriculture and rural areas, accelerate the construction of technical systems that support green ecological crop planting and animal farming, waste recycling, renewable energy development, and ecosystem carbon sink improvement, and collaboratively promote greenhouse gas emission reduction, cultivated land quality improvement, agricultural non-point source pollution prevention and control of, and ecological circular agriculture construction, improve agriculture’s resilience to climate change, and improve the level of green and low-carbon development of agriculture and rural areas.

Adhere to policy incentives. Pay attention to the combination of incentive measures and restrictive measures, strengthen the guiding role of preferential policies, and provide strong incentives and constraints for agricultural and rural emission reduction and carbon sequestration in terms of funds and projects. Establish a monitoring system for emission reduction and carbon sequestration in agriculture and rural areas, and actively explore effective paths for carbon emissions trading.

(3) Main objectives

During the "14th Five-Year Plan" period, on the basis of enhancing the ability to adapt to climate change and ensuring food security, adhere to the principle of reducing emission intensity and controlling total emission as a supplement, and strive to build a multi-directional guidance of policy incentives, market guidance and regulatory constraints mechanism, and explore the implementation path of the whole society to promote the reduction and sequestration of carbon in agriculture and rural areas.

By 2025, a pattern of overall integration of agricultural and rural emission reduction and carbon sequestration with food security, rural revitalization, and agricultural and rural modernization will be basically formed, the supply of food and important agricultural products will be more guaranteed, and positive results will be achieved in the green and low-carbon development of agriculture and rural areas. The production structure and regional layout will be significantly optimized, the emission intensity of agricultural products per unit of planting and animal farming will be stable with some decline, the carbon sequestration capacity of farmland soil will be enhanced, and the efficiency of agricultural and rural production and living energy consumption will be improved.

By 2030, the combined forces of agricultural and rural emission reduction and carbon sequestration, food security, rural revitalization, and agricultural and rural modernization will be fully brought into full play. Greenhouse gas emissions from planting industry, enteric fermentation of ruminants in animal husbandry, greenhouse gas emissions from livestock and poultry manure, and the emission intensity of agricultural and rural production and living energy will be further reduced. The carbon sequestration capacity of farmland soil will be significantly improved, and the comprehensive green transformation of agricultural and rural development will achieve remarkable results.

3. Key tasks

(1) Energy conservation and emission reduction in crop planting industry. Based on strengthening the ability to ensure food security, optimize the water irrigation management in paddy fields and reduce methane emissions from paddy fields. Promote high-quality varieties and green and efficient cultivation techniques, improve nitrogen fertilizer utilization efficiency, and reduce nitrous oxide emissions.

(2) Reduce emissions and carbon emissions from animal husbandry. Promote precision feeding technology, promote breeding variety improvement, increase the yield per unit of livestock and poultry and feed remuneration, and reduce the intensity of ruminant enteric methane emissions. Improve the resource utilization of livestock and poultry manure and reduce methane and nitrous oxide emissions from livestock and poultry manure management.

(3) Fishery emission reduction and sink increase. Develop ecologically healthy farming models such as integrated rice and fish farming, large-water ecological fisheries, and multi-trophic integrated farming to reduce methane emissions. Orderly develop tidal flats and shallow sea shellfish algae breeding, build national-level marine pastures, build a three-dimensional ecological breeding system, and increase the potential of fishery carbon sinks. Promote energy conservation and emission reduction of fishing boats and fishing machines.

(4) Carbon sequestration and expansion of farmland. Implement measures such as conservation tillage, straw returning, organic fertilizer application, and green manure planting, strengthen the construction of high-standard farmland, speed up the treatment of degraded farmland, increase the protection of black soil, and improve the organic matter content of farmland soil. Give full play to the carbon sink function of orchard and tea garden.

(5) Energy saving and emission reduction of agricultural machinery. Speed up the scrapping and renewal of old agricultural machinery, promote advanced and applicable low-carbon energy-saving agricultural machinery and equipment, and reduce fossil energy consumption and carbon dioxide emissions. Promote new energy technologies, optimize the structure of agricultural machinery and equipment, and speed up the popularization and application of green, intelligent, duplex, and efficient agricultural machinery technology and equipment.

(6) Replacement by renewable energy. Promote the application of biomass energy, solar energy, wind energy, geothermal energy and other green energy consumption models according to local conditions and increase the supply of clean energy in rural areas. Promote the replacement of renewable energy sources on the energy consumption side such as rural heating and cooking, agricultural production and processing, and strengthen energy efficiency.

4. Major Actions

(1) Actions to reduce methane emissions in paddy fields. Focusing on the major rice-producing areas, strengthen water management in paddy fields, promote water-saving irrigation technology in paddy fields according to local conditions, improve water resource utilization efficiency, and reduce methane generation. Improve fertilization management in paddy fields, promote technologies such as returning organic fertilizers to the field after decomposing, and select and promote high-yield, high-quality, low-carbon rice varieties, and reduce the methane emission intensity of rice yield.

(2) Actions to reduce usage of chemical fertilizers and increase the efficiency. Focus on the major grain producing areas, the advantageous producing areas of fruit, vegetable and tea, and the pioneering areas for agricultural green development, etc., to promote the usage reduction and efficiency increase of nitrogen fertilizers. Research and develop new fertilizer products with high crop absorption and utilization rate, promote efficient fertilization technologies such as water and fertilizer integration, and improve fertilizer utilization rate. Promote the combined use of organic fertilizers and chemical fertilizers, increase the input of organic fertilizers, and replace some chemical fertilizers.

(3) Actions for low-carbon and emission reduction of livestock and poultry. Promote the green and low-carbon development of animal husbandry, focus on large-scale livestock and poultry farms, promote technologies such as low-protein rations, whole-plant silage, and high-yield and low-emission livestock and poultry varieties, improve livestock and poultry breeding management, implement precision feeding, and reduce unit livestock and poultry enteric methane emission intensity. Improve livestock and poultry manure treatment facilities and equipment, promote technologies such as closed treatment of

manure, gas collection and utilization or treatment, establish a manure resource utilization account, explore and implement nutrient balance management of livestock and poultry manure, and improve the level of livestock and poultry manure treatment. Reduce methane and nitrous oxide emissions from livestock manure management.

(4) Actions to reduce fisheries emissions and increase sinks. Focusing on important fishery production areas, promote energy-saving renovation of fishery facilities and fishing vessel equipment, vigorously develop low-carbon aquaculture, and promote energy-saving aquaculture machinery. Retire old wooden fishing boats, encourage the construction of new material fishing boats such as fiber-reinforced plastic, and promote the configuration and upgrading of energy-saving equipment for fishing boats. Develop ecological and healthy aquaculture models such as integrated rice-fish farming, aquaponics, and large-water proliferation. Promote the standardized transformation of ponds and tail water treatment, and develop industrialized, containerized and other circulating aquaculture. In the main fishery waters such as offshore and tidal flats, carry out multi-trophic three-dimensional ecological aquaculture to improve the carbon sequestration capacity of shellfish and algae, and increase the carbon sink of fishery. Continue to build national-level marine ranch demonstration areas in coastal areas to achieve biological carbon sequestration in fisheries.

(5) Green and energy-saving actions for agricultural machinery. Focus on agricultural machinery required for the production of grain and important agricultural products, promote energy conservation and emission reduction. Implement stricter emission standards for agricultural machinery to reduce exhaust emissions. Develop duplex, high-efficiency agricultural machinery and electric agricultural machinery according to local conditions, cultivate and expand new agricultural machinery service organizations, provide efficient and convenient agricultural machinery operation services, reduce the usage of seeds, fertilizers, pesticides, and water resources, improve operational efficiency, and reduce energy consumption. Speed up the promotion and application of machinery and equipment such as lateral deep fertilization, precise application of pesticides, water-saving irrigation, and high-performance no-tillage seeding, and vigorously demonstrate and popularize agricultural mechanization technologies that save seeds, water, energy, fertilizer and pesticides. Implement the subsidy policy for scrapping and updating agricultural machinery and increase the elimination of old agricultural machinery with high energy consumption, high emissions, large losses, and low safety performance.

(6) Actions to improve farmland carbon sinks. Focusing on the improvement of soil organic matter in cultivated land, enhance the carbon sequestration capacity of farmland soil. Implement the national black soil protection project, promote technologies such as organic fertilizer application, straw scientifically returning to the field, green manure planting, grain and bean crop rotation, and combined application of organic and inorganic fertilizers. Construct a fertilization and carbon sequestration model that combines land use and protection to increase soil organic matter content. Implement conservation tillage and promote the technology of straw mulching and no-tillage seeding according to local conditions, which can effectively reduce soil wind and water erosion and increase soil organic matter. Promote the management of degraded cultivated land, focus on strengthening soil acidification and

salinization, eliminate soil obstacles, improve soil fertility, and enhance carbon sequestration potential. Strengthen the construction of high-standard farmland, speed up the improvement of the shortcomings of agricultural infrastructure, and improve the utilization efficiency of water and soil resources.

(7) Actions to comprehensively utilize straw. Adhere to the principles that prioritizing agricultural use, local and nearby, focusing on the intensification, industrialization and adding high value of straw, and promote the comprehensive utilization of straw. Continue to promote the utilization of straw as fertilizer, feed and base material, and give full play to the function of straw cultivated land conservation and combination of planting and breeding. Promote the utilization of straw for energy, and develop straw biomass energy for gas, heat and power supply according to local conditions. Expand the utilization of straw as raw materials, support straw pulp to replace wood pulp in papermaking, and promote the transformation of straw resources into environmentally friendly boards and carbon-based products. Improve the straw collection, storage and transportation system and improve the straw resource ledger.

(8) Actions to replace with renewable energy. Focusing on clean and low-carbon transformation, vigorously promote the development and utilization of rural renewable energy. Develop biogas in rural areas according to local conditions, encourage the construction of large-scale biogas projects in areas where conditions permit, and promote the application of biogas centralized gas supply for heating, power generation and grid connection, and biogas for vehicles or integration into gas pipeline networks to replace fossil energy. Promote biomass briquette fuel, bundling direct combustion, pyrolysis carbon gas co-production and other technologies, supporting clean stoves and biomass boilers to help clean heating in rural areas. Promote solar water heaters, solar lamps, solar houses, and develop photovoltaic agriculture by using agricultural facilities such as roofs and fish ponds.

(9) Actions to support scientific and technological innovation. Systematically sort out the major scientific and technological needs of agriculture and rural areas for emission reduction and carbon sequestration and increase support from national science and technology plans. Relying on the modern agricultural industry technology system, the National Agricultural Science and Technology Innovation Alliance, etc., organize and carry out joint research on agricultural and rural emission reduction and carbon sequestration, and form a number of comprehensive technical solutions to make up for the technological shortcomings of green and low-carbon agriculture and rural areas. Publish a catalogue of agricultural and rural emission reduction and carbon sequestration technologies. Establish an expert steering committee for agricultural and rural emission reduction and carbon sequestration to strengthen technical guidance, technical training and technical services. Improve the agricultural and rural emission reduction and carbon sequestration standard system, formulate and revise a number of national standards, industry standards and local standards.

(10) Actions to construct monitoring system. Improve the monitoring indicators, key parameters and accounting methods for carbon emission reduction and carbon sequestration in agriculture and rural areas. Coordinate central and local forces at all levels, optimize the setting of monitoring points in paddy fields, agricultural land, and farms in different regions, promote the establishment of a scientifically distributed, hierarchically responsible monitoring and evaluation system, and carry out positioning

monitoring of methane and nitrous oxide emissions and carbon sequestration in farmland and fisheries. Do a good job in rural renewable energy monitoring and investigation and carry out normalized statistical analysis. Innovate monitoring methods and means and accelerate the popularization and application of intelligent and information technology in the field of agricultural and rural emission reduction and carbon sequestration monitoring.

V. Safeguard Measures

(1) Strengthen organizational leadership. The Ministry of Agriculture and Rural Affairs and the National Development and Reform Commission strengthen overall coordination, review the overall deployment and important plans for carbon emission reduction and sequestration in agriculture and rural areas, coordinate research on major policies and important work arrangements, coordinate and resolve key and difficult issues, and guide, supervise, and carry out solid work. The Ministry of Agriculture and Rural Affairs is specifically responsible for organizing the implementation of agricultural and rural emission reduction and carbon sequestration, conducting follow-up evaluations, and strengthening supervision and guidance. The agricultural and rural departments, development and reform departments in various regions shall strengthen the connection of policies and work and formulate the implementation plan for carbon emission reduction and sequestration in regional agriculture and rural areas based on the actual situation of the region, so as to ensure consistent policy orientation and consistent pace.

(2) Strengthen the establishment of policies. Strengthen the implementation of the existing agricultural and rural emission reduction and carbon sequestration support policies. Research and improve support policies for key tasks, promote research on major issues and formulate policies and regulations, strengthen measures such as positive incentives and negative constraints, and create and improve support policies that are conducive to promote agricultural and rural carbon emission reduction and sequestration. Research and establish an accounting certification system and explore an effective path for agricultural carbon emissions trading. Carry out pilot applications of typical technology models in an orderly manner and create a number of low-carbon and zero-carbon pilot areas in agriculture and rural areas.

(3) Strengthen industrial cultivation. Vigorously develop new agricultural industries and new formats with green, low-carbon and ecological cycles as growth points, promote the deep integration of new technologies such as big data and artificial intelligence with industrial development, and drive agricultural transformation and upgrading. Explore the certification and management of low-carbon agricultural products and energy-saving agricultural products and guide agricultural enterprises and business entities to strengthen the application of emission reduction and carbon sequestration technologies. Create a number of agricultural green and low-carbon product brands, establish and improve the carbon footprint traceability system of agricultural products, expand supply methods and supply channels, and continuously strengthen the growth momentum of new industries.

(4) Strengthen publicity and guidance. Make full use of various traditional and new media, expand publicity channels, strengthen publicity and reporting on good practices and typical models of agricultural and rural carbon emission reduction and sequestration, and form a strong atmosphere of multi-party joint efforts. Strengthen the science popularization of carbon emission reduction and sequestration in agriculture and rural areas and create a number of popular science works that the public loves to see and hear. Regularly hold special training, observation and exchange activities, select a group of representative regions and implementation entities, and create typical models.

End Unofficial Translation

Attachments:

No Attachments.