Progress Report on China's Climate Change Adaptation

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Introduction

As the largest developing country, China is highly susceptible to the adverse impacts of climate change. This poses a significant risk to the country's efforts in building a "Beautiful China" and promoting the Chinese path to modernization. Since the mid-20th century, temperatures in China have risen at a rate exceeding the global average. In 2022, China's climate was characterized by an obviously warm and dry pattern, leading to noticeable instances of drought and flooding. In 2023, the situation became increasingly complex with frequent occurrences of extreme weather and climate events, such as heavy precipitation, typhoons, high temperatures, and cold waves. Regional and seasonal floods and droughts have become more pronounced, especially since the start of the flood season. Consequently, proactive adaptation to climate change has become a realistic and urgent task.

In June 2022, the Ministry of Ecology and Environment and 16 other governmental departments jointly issued the *National Climate Change Adaptation Strategy 2035*, aiming to promote coordinated efforts for climate change adaptation. Multiple adaptation policies were promulgated, and active actions were taken, resulting in significant progress in key areas. The monitoring and early warning system for climate change has been gradually improved, and comprehensive disaster prevention and reduction capabilities have been greatly enhanced. Water and drought disaster prevention capabilities have been effectively strengthened, the stability of terrestrial ecosystems has been markedly increased, and the ecological environment of marine and coastal zones has been significantly improved. Farmland disaster prevention and mitigation capacity has been substantially enhanced, climate resilience in the health and public health sectors has been continually improved, and adaptation to climate change in urban areas has steadily advanced. A positive trend of broad societal participation has also begun to take shape.

The *Guidelines for Comprehensively Promoting the Development of a "Beautiful China"*, issued by the Central Committee of the Communist Party of China (CPC) and the State Council, identifies "effectively addressing the adverse impacts and risks of climate change" as

a crucial aspect of "safeguarding the bottom line of security for building a beautiful China". The Guidelines propose to "balancing mitigation and adaptation and enhancing the capability to adapt to climate change". This report systematically summarizes the progress and effectiveness of China's climate change adaptation efforts since 2022. It aims to comprehensively reflect the implementation of the decisions by CPC Central Committee and the State Council, and the *National Climate Change Adaptation Strategy 2035*, continuously promote climate change adaptation policies and actions at all levels, enhance understanding from all sides of China's efforts, share Chinese practices and experiences, and make positive contributions to building a beautiful China and advancing global climate governance.

1. Enhance Policy Framework for Climate Change Adaptation

1.1 Issue the National Climate Change Adaptation Strategy 2035

In June 2022, the Ministry of Ecology and Environment (MEE) and 16 other departments jointly issued the *National Climate Change Adaptation Strategy 2035*. This strategy outlines key tasks such as enhancing climate change monitoring, early warning and risk management, improving the adaptive capacity of natural ecosystems, economic and social system, and developing regional climate change adaptation patterns. The strategy also strengthens various safeguards, including capacity-building, international cooperation, and support from fiscal, financial, scientific, and technological aspects. It provides crucial guidance for enhancing climate resilience and effectively mitigating the adverse impacts and risks of climate change.

The *National Climate Change Adaptation Strategy 2035* devotes a dedicated chapter to "Strengthening Climate Change Monitoring, Early Warning, and Risk Management", underscoring the critical importance of climate change observation, monitoring, early warning, impact and risk assessment, emergency disaster prevention and reduction measures. The strategy divides key areas of climate change adaptation into natural ecological and socio-economic dimensions, incorporating urban and rural habitats as well as sensitive secondary and tertiary industries such as finance, energy, tourism, and transportation. This approach aims to bolster the adaptive capacity across various sectors. Furthermore, the strategy integrates climate change adaptation with national spatial planning, and following the principles of comprehensive coverage and with targeted emphasis, it proposes adaptation tasks for 8 major regions and 5 strategic regions, establishing a multi-level regional adaptation framework.

1.2 Promote Provincial Level Action Plan Development

In August 2022, the *Guidelines for the Formulation of Provincial Adaptation to Climate Change Action Plans* was issued to provide guidance and criteria for the formulation of provincial-level action plans to adapt to climate change. These guidelines aimed to enhance the efforts of provincial-level administrative regions in adapting to climate change. Led by

their respective Department (or Bureau) of Ecology and Environment, all provinces, autonomous regions, and municipalities actively drafted provincial action plans for climate change adaptation. Most provinces, autonomous regions, and municipalities established leading groups (coordinating groups, working groups, task teams) and technical support teams to formulate these plans. They also instituted working mechanisms led by the ecology and environment department, with support from relevant departments and professional teams. Up to now, 29 provinces, autonomous regions, and municipalities have officially issued their provincial action plans for adapting to climate change.

1.3 Climate Change Adaptation Policies in Key Areas

Since 2022, the CPC Central Committee, the State Council, and relevant Ministries have formulated and released 80 documents (details provided in the attached table) focusing on 12 specific aspects of climate change adaptation. These include climate change impact and risk assessment, comprehensive disaster prevention and mitigation, terrestrial ecosystems, oceans and coastal zones, agriculture and food security, health and public health, cities and human settlements, tourism, energy, transportation disaster prevention and emergency response, spatial planning for climate change adaptation, and adaptation in key strategic areas. These documents have played a crucial role in guiding and advancing climate change adaptation efforts in these critical areas, resulting in tangible outcomes.

2. Strengthen Monitoring, Early Warning, and Risk Management

2.1 Improve Comprehensive Meteorological Observation Network

High-quality development of integrated meteorological observation services has been promoted. *The 14th Five-Year Plan for the Development of Integrated Meteorological Observations Service* prioritizes enhancing observation station networks, operational support, and observation products. Additionally, the *Guidelines on Urban Meteorological Observation Capacity Building* was issued to promote the establishment of integrated meteorological observation networks in urban areas and provide top-level design and guidance. An integrated meteorological observation system now includes nearly 70,000 ground automatic

meteorological stations, over 200 weather radar stations, more than 120 radiosondestations, and 9 FengYun meteorological satellites operating in orbit. A three-dimensional multi-circle observation network on the earth system, which primarily focuses on the atmosphere and coordinates ground, air, and space elements, was also preliminarily established. It plays a crucial role in integrated disaster prevention, mitigation, relief efforts, efforts of addressing climate change, and advancing ecological civilization.

2.2 Strengthen Climate Change Monitoring, Prediction, and Early Warning

Monitoring and analysis capabilities of the climate system have been enhanced. The development and application of technologies for monitoring and early warning of climate change have been enhanced. In-depth research on intelligent forecasting and early warning technologies has been conducted using new-generation information technologies such as numerical models and artificial intelligence. The development of a prototype system for rapid detection and attribution of extreme events has begun. Departmental coordination has been strengthened, and the meteorological early warning "call-response" mechanism now reaches responsible persons at the local level.

Accuracy of forecasting and prediction has been improved. The accuracy and precision of meteorological forecasting and early warning are continually improving. A comprehensive seamless meteorological forecasting system has been established, covering basic meteorological elements, catastrophic weather, climate events, and impact forecasts. This system operates across various time scales, from hours and days to months, seasons, and years, and spans from the Chinese region to the global level. It enables accurate forecasting of major weather processes up to one week in advance and the issuance of meteorological disaster warnings 1-3 days in advance. At present, the accuracy for the 24-hour weather forecast and rainstorm early warnings across the country reached 86.5% and 93%, respectively. The lead time for strong convection early warning has been improved to 43 minutes. The 24-hour error margin for typhoon path forecast is now stable at approximately 62 kilometers. A numerical weather forecast system with independent intellectual property rights has been established, with a horizontal resolution of 12.5 kilometers at global level and 3 kilometers in China, and a northern hemisphere predictability of 8.1 days has been achieved. Additionally, research and

assessment of meteorological disaster impact and risks are being conducted, based on the results of a comprehensive risk survey of meteorological disasters.

A robust emergency coordination mechanism has been strengthened. The coordination among key flood control departments, including meteorology, water conservancy, natural resources, emergency management, agriculture and rural areas, and transportation, has been strengthened. Together, they produced and released meteorological risk warnings for flash floods, geological disasters, forest and grassland fires, agricultural disasters, and road traffic based on meteorological warnings. Pre-disaster coordination has been strengthened, and the mechanism for joint consultation, warning, and release was optimized, integrating large-scale, high-intensity, and potentially disaster-prone heavy rainfall warning information into the criteria for initiating flood control emergency response. A scientifically science-based warning response coordination mechanism has been established, promoting proactive disaster prevention and response measures.

Start national-level meteorological risk warning for geological disasters. Preparedness for extreme weather events has been strengthened through annual trend forecasts, national-level meteorological risk warnings for geological disasters, and a system of expert presence. A major service bulletin system has been established for the joint release of major precipitation processes such as typhoons and rainstorms. The national-level geohazard meteorological risk warning and the expert presence system were launched on 15 April and late April 2022, respectively, and 66 stationed defense experts have been organized to support 30 provinces across the country. Mobile defense experts were promptly dispatched based on the trend in rainfall and water levels and changes in disaster risks to provide technical support.

2.3 Reinforce Climate Change Impact and Risk Assessment

Enhance assessment technology and foundational abilities. The *Technical Guidelines for Climate Change Impact and Risk Assessment (Trial)* was compiled and the *Outline for High Quality Development of Meteorology (2022-2035)* was issued. Investigation into meteorological disaster-causing factors and risk assessment have been completed. The *Blue Book on Climate Change of China 2023*, the *Blue Book on Marine Climate Change of China*

2022, the *China Climate Bulletin (2021, and 2022)*, the *National Eco-meteorological Bulletin 2022*, the *Greenhouse Gas Bulletin*, and the *China Wind and Solar Energy Resources Bulletin* were released. Additionally, the *Polar Climate Change Annual Report* was also newly introduced. The *Regional Climate Change Assessment Report of China* and the *National Climate Change Assessment Report* were also completed.

2.4 Strengthen Comprehensive Disaster Prevention and Reduction

Strengthen regional and grassroots disaster prevention, reduction, and relief capabilities. *The 14th Five-Year Plan for National Comprehensive Disaster Prevention and Reduction* was issued, deploying major projects for comprehensive disaster prevention and reduction to adapt to climate change. The establishment of a joint mechanism and the creation of national comprehensive disaster reduction demonstration communities have enhanced grassroots capacities in this regard. A long-term emergency broadcasting mechanism was established to improve the dissemination and reception of disaster warnings, and extreme meteorological disaster information. Key projects for the prevention and control of natural disasters have been promoted, optimizing the regional distribution of disaster prevention, mitigation, and relief resources, and comprehensively modernizing disaster prevention, mitigation, and relief efforts.

Enhance natural disaster risk monitoring and assessment. The promotion of nine key projects for natural disaster prevention and control has helped to improve the monitoring, early warning, and comprehensive risk prevention system for natural disasters. The first national comprehensive natural disaster risk survey was completed, leading to the establishment of a national comprehensive natural disaster risk basic database. Efforts to transform and apply survey results have been ongoing. The effort of building a regular comprehensive disaster risk survey and assessment system is underway. The implementation of information technology projects for natural disaster monitoring and early warning has been accelerated. Comprehensive natural disaster monitoring and early warning systems, along with other application systems, have been promoted. The functionality of satellite remote sensing monitoring, comprehensive risk consultation and assessment, disaster prevention and early warning "One Map" system, and other functional systems were continuously optimized.

The disaster monitoring and early warning platforms, and the information technology level for consultation and assessment, emergency command and dispatch, etc., have been continuously improved.

Ensure effective flood and drought disaster prevention in worst case scenarios. Since 2022, effective measures have been taken to prevent and control flood and drought disasters. Fourteen numbered floods in major rivers, 1,334 rivers experiencing warning level floods, and 76 rivers experiencing floods that broke records since data collection began were successfully managed. Safety in preventing ice floods in northern rivers, such as the Yellow River, was ensured. In 2022, the significant flood in the Pearl River Basin and Beijiang River's largest flood since 1915 were effectively controlled, securing flood control in the Pearl River Delta. The "23·7" (July 2023) super large flood in the Haihe River Basin was actively defended against, safeguarding important cities and facilities like Daxing Airport. Also in 2022, in response to the most severe and prolonged meteorological and hydrological drought in the Yangtze River Basin since complete data was available in 1961, two rounds of joint reservoir group water supply operations were organized within the basin. A total of 6.2 billion cubic meters of water was replenished downstream, ensuring the drinking water security for the people and meeting the irrigation water demand for 12 million hectares of autumn grain crops. Additionally, in response to the unprecedented intrusion of saltwater in the Yangtze River Estuary, a special campaign was carried out to combat saltwater intrusion and ensure water supply security in Shanghai.

Strengthen monitoring and early warning of forest and grassland fires. A reward mechanism for reporting illegal and irregular outdoor fire use in forests and grasslands has been established. Surveillance work was arranged and deployed, especially in fire-prone areas, areas with significant hazard level, and counties and townships with weak prevention and control capabilities. The second phase of the forest lightning fire prevention and control technology research project has been initiated. The construction of the forest and grassland fire prevention perception system was accelerated. Fire risk assessment and real-time fire monitoring based on changes in weather conditions have been strengthened.

Strengthen emergency mechanisms and response capabilities. A distinctive Chinese emergency rescue force system has been established, featuring the national comprehensive fire rescue team as the core force, professional rescue teams for coordination, military emergency forces for rapid response, and social forces providing support. Six national and regional emergency rescue centers have been established to accelerate the development of regional rescue practical capabilities. Furthermore, the emergency rescue aviation system has been strengthened, including the breakthrough in large firefighting aircraft and enhancing aviation rescue capabilities. A robust emergency rescue command mechanism has been developed. Emergency drills were organized to improve the operational readiness of rescue teams.

2.5 Improve Comprehensive Management of Flood Season Risks

Since the flood season of 2023, extreme weather and climate events, particularly regional and seasonal floods and droughts have become increasingly pronounced. Typhoons such as "Talim", "Doksuri", "Saola", and "Haikui", as alongside extremely heavy rainfall in the Beijing-Tianjin-Hebei region and Northeastern China have caused widespread impacts. Disasters such as torrential floods, mudslides, urban waterlogging, and warning-level floods in small and medium-sized rivers have occurred frequently. The task of flood control, typhoon prevention, and drought resistance was particularly challenging in Inner Mongolia and Northwestern China due to the sustained high temperatures.

Strengthen the linkage between disaster warning and emergency response. In response to the extremely heavy rainfall in the Beijing-Tianjin-Hebei region and Northeastern China, flood emergency responses were initiated promptly and adjusted as necessary. Relevant departments organized continuous joint deliberations and assessments to enhance targeted planning in key provinces. Working groups and experts were deployed to the front lines to support disaster prevention, response efforts, emergency rescue operations, and relief work. The China Meteorological Administration (CMA) provided accurate forecasts three days in advance, with the National Meteorological Center (NMCCMA) issuing a red alert for torrential rains on July 29, 2023. For the first time, all four levels of meteorological departments—national, provincial, municipal, and county—activated the first level of

emergency response. Since the flood control period from late July to early August[1] (as of September 13, 2023), a total of 19 geohazard defense responses had been carried out, with 54 expert working groups totaling 163 person-times deployed. Additionally, four video conferences were organized in relevant regions, and 133 national-level geohazard meteorological warning products were issued. In 2023, a total of 18 emergency responses for marine disasters were activated. Six batches of working groups were dispatched to four provinces and nine cities to guide marine disasters prevention. Sixty-five emergency video conferences were held, and 288 marine disaster warnings were issued. A disaster warning and response mechanism directly involving grassroots responsible persons was implemented. Residents in high-risk areas were evacuated in advance and safety measures such as shutdown and relocation were promptly enforced.

Deploy flood control projects scientifically and precisely in river basins. In the Beijing-Tianjin-Hebei region, eighty-four large and medium-sized reservoirs intercepted 2.85 billion cubic meters of floodwater, mitigating flooding in 24 cities and towns and 7.51 million mu of cultivated land, preventing the displacement of 4.623 million people. Key projects such as the Lugou Bridge Hub were deployed to distribute floodwater orderly, and eight flood storage and detention areas were activated for diversion and storage, with a maximum storage capacity of 2.53 billion cubic meters, effectively reducing downstream flood control pressure.

Strengthen targeted warnings continuously for torrential floods. During the flood season in 2023, 139 meteorological warnings for future 24-hour torrential flood hazards were prepared and issued (with 34 broadcasts aired by China Central Television), and 1,057 targeted warnings were issued to torrential flood risk areas and locations following a "one province, one plan" approach. Local governments were urged and guided to use torrential flood monitoring and warning platforms to send 46.799 million warning messages to 9.89 million flood prevention responsible persons. 347,000 warning messages were broadcasted, and 2.04 billion warning messages were issued to the public, providing strong support for timely evacuation of the people.

[1] "Late July to early August" is the main rainy season in northern China each year. This period is also the most critical time for flood prevention.

Organize effective disaster response and emergency rescue operations. The national comprehensive firefighting and rescue team, various professional teams, and social forces have actively involved in rescue and relief operations. During the 2023 flood season, the national comprehensive firefighting and rescue team participated in 13,948 flood control and rescue operations. They deployed 118,312 personnels and 5,887 boats, successfully rescuing 13,281 trapped persons and evacuating 47,554 people to safety. The electric power industry has been guided to implement emergency sheltering measures in a scientific and orderly manner. This ensured necessary electricity supply to key flood control areas such as rescue headquarters, residential transfer and resettlement sites, and hospitals.

Carry out agricultural disaster prevention and reduction work solidly. Agricultural disaster preparedness and mitigation activities have been meticulously organized in accordance with agricultural disaster preparedness and mitigation plans and circulars. The CCTV weather forecast program and the National Early Warning Information Platform jointly issued 26 disaster risk warnings for high temperatures, droughts, rainstorms, and other disasters. Short-term disaster warnings were promptly disseminated through the agricultural dispatch system. Thirty-two technical recommendations on crop disaster resistance have been formulated. A total of 4.53 billion yuan was allocated to support disaster relief in affected areas, alongside a one-time subsidy of 2.4 billion yuan for the "multiple-benefits with one spray" initiative aimed at corn and soybeans.

Accelerate the restoration and reconstruction of rural houses damaged by disasters. Following the *Guidelines for Emergency Assessment of Rural Housing Safety in Flood-affected Areas*, affected provinces, regions and cities were directed to promptly conduct emergency assessment and safety appraisals for post-disaster rural houses. A technical expert steering group for post-disaster farmhouse restoration and reconstruction was established, and it provided guidance for the restoration efforts in various regions. During the process, community preferences were fully respected, and methods of restoration and reconstruction were determined based on assessment and appraisal results.

Ensure the security and stability of energy supply. Short- and medium- to long-term hydrometeorological forecasts, and the monitoring of hydropower inflow, water storage, and power generation in key provinces (as well as autonomous regions, and municipalities directly under the central government) have been strengthened, with ten-day or daily monitoring reports regularly issued. Monitoring and analysis of coal production, transportation, and demand, as well as situation analysis and judgment were strengthened to ensure stable production and supply, particularly during the summer peak season, to guarantee reliable supply of power coal.

Ensure effective disaster prevention and reduction in forests and grasslands during the flood season. In response to flood disasters, particularly in flood-prone areas in North and Northeast China, disaster relief efforts have been closely followed by the central government, which also allocated emergency funds to support risk screening, emergency rescue, and mass relief operations. The *Measures for the Assessment of Natural Disaster Damage to Unfinished Forest Land* has been revised and introduced to provide scientific and standardized guidance for post-disaster replanting and reforestation in Northwest China, which has been impacted by droughts for a long time. These efforts were meant to consolidate and restore the gains made in ecological construction. Strict measures have been implemented to prevent secondary disasters such as forest and grassland fires. Additionally, the *Notice on Effectively Preventing and Mitigating Disasters in Forest and Grassland and Reporting Information in the Flood Season* has been issued to ensure disaster prevention and reduction in forest and grassland during the critical flood prevention period.

Ensure flood prevention and control for transportation. The *overall work plan for strengthening transportation safe production, flood prevention and drought relief, and infrastructure safety protection* has been issued to ensure the safe production of transportation during the flood season. Strengthened measures have been taken, including inter-depart consultations, analysis and judgment of typhoon dynamics and flood season disasters, scheduling of road and water transportation during heavy rainfall, safety protection of high-risk road sections, and real-time monitoring of key bridges and tunnels. The coordination and linkage mechanism for important comprehensive transportation infrastructure during flood

season has been established. The capacity for highway emergency response and protection has been improved to ensure security for the smooth passage of emergency vehicles. More than 200 million pieces of severe weather information and safe operation tips have been sent directly to drivers, through the online joint control system, public freight platform, and road transport administration Apps. During the 2023 flood season, five batches of road emergency relief funds, totaling 430 million yuan, were allocated to ensure emergency road relief operations.

Ensure public health protection in disaster areas. The *Guidelines for Environmental Sanitation Disposal and Preventive Disinfection in Flooded Areas (2023 Edition)* has been issued to carry out emergency response tasks such as safeguarding drinking water sanitation in affected areas and ensuring environmental sanitation in villages and premises. Health risk assessment and surveillance on infectious diseases of sewage in disaster affected areas have been conducted to predict and study potential health threats, including susceptible infectious diseases. Additionally, advice on health protection, sanitation and safety has been provided to the public through tweets and short videos.

3. Enhance Climate Adaptability of Natural Ecosystems

3.1 Water Resources

Increase efforts in water resource conservation and management. China has explored the establishment of strict constraints on water usage. During the 14th Five-Year Plan period, clear targets have been set for controlling the total volume and intensity of water consumption at both national and provincial levels. A National Water Conservation Campaign has been advanced across the board. In 2022, the country's total water consumption was controlled within 610 billion cubic meters, with water consumption per 10,000 yuan of GDP and of industrial value-added reduced by 7.6% and 17.7%, respectively, compared to the 2020 levels. Additionally, the coefficient of effective utilization of irrigation water in farmland has been increased from 0.565 to 0.572, and the utilization of non-conventional water sources has been expanded from 13.2 to 17.5 billion cubic meters. These measures have significantly improved

water consumption efficiency and effectiveness.

Leverage the regulatory role of water resource taxation. China has actively promoted water resource tax reform to enhance the conservation, development, and utilization of water resources. Since 2016 and 2017, this reform has been piloted in North China and nine other regions, where groundwater over-exploitation is most severe. In these pilot regions, water resource fees were replaced by water resource taxes. China has promoted synergy between the pilot reform and other measures, such as managing groundwater over-extraction, standardizing of the water extraction permit system, and establishing a trading system for water usage right. The above efforts have been made to curb irrational water demand, encourage conservation and efficient use of water resources, alleviate groundwater over-extraction, and reduce water consumption by special industries and high water-consuming enterprises.

Implement major projects on national water network. China has comprehensively accelerated the construction of water conservancy infrastructure, achieving significant progress in several major projects. Key milestones are as follows: the completion of the mainbody of the Dateng Gorge Water Conservancy project on the Xijiang river, early water diversion of Hanjiang-to-Weihe River Water Diversion Project, trial water diversion of the Yangtze River-to-Huaihe River Water Diversion Project, the formal commissioning of the Pearl River Delta Water Resources Allocation Project in Guangdong Province, and full compliance with the standards for the levee project around Taihu Lake. Moreover, the central route of the South-to-North Water Diversion Project and the second phase of the Huaihe River Estuary Waterway have been accelerated, contributing to the formation of the main framework and artery of the national water network. Additionally, key projects are being carried out, including the Water Network Backbone Project in Jilin Province, the Major Water Conservancy Project for Grain Production Capacity Enhancement in Heilongjiang Province, and the Guangxi Water Resources Allocation Project in the Beibu Gulf region.

Strengthen the capacity for ecological protection and management of large rivers and lakes. China has implemented the Mother River Recovery Action to accelerate the restoration

of the ecological environment of rivers and lakes. China has organized the water replenishment of the Beijing-Hangzhou Grand Canal and realized the second full flow through the whole canal. The ecological environment recovery action for rivers and lakes in North China has been continuously implemented, resulting in an annual water replenishment of 9.84 billion cubic meters for 40 rivers and lakes across seven water systems in the region. The comprehensive treatment of groundwater overexploitation in North China has been promoted to consolidate and expand the effectiveness. Comprehensive health evaluation for 7,280 rivers and lakes have been carried out in different regions with health records established for each river and lake. Over 70,000 policies tailored for each river and lake have been implemented nationwide. China has vigorously promoted the normalization and standardization of addressing occupation, mining, piling and construction in rivers, lakes, and reservoirs, with 17,000 cases rectified so far. In 2023, an area of 63,000 square kilometers of soil erosion was treated in the upper and middle reaches of the Yangtze River and the Yellow River, and the black soil area in Northeast China. In the sandy and coarse sand areas of the Loess Plateau, 600 silt dams and sand dams have been constructed. In the black soil region of Northeast China, 8,397 erosion ditches have been treated, protecting nearly 1.33 million hectares of arable land. China has issued plans to protect water ecology and environment in key basins, explored the establishment of a water ecological assessment mechanism for the Yangtze River Basin, and promoted the ecological protection and restoration of key rivers and lakes in the Yellow River Basin. An all-out effort has been made to eliminate the water with quality below Grade V in Yellow River tributaries, enabling the Yellow River Basin to meet Grade I-III water quality standards for the first time in 2023, and meeting the targets of water environment quality improvementduring the Yellow River ecological protection and management campaign. ahead of schedule. The establishment of six new inter-provincial horizontal ecological protection compensation mechanisms in key river basins such as the Yangtze River and the Yellow River have been promoted, and agreements for four existing inter-provincial horizontal ecological protection compensation mechanisms have been renewed.

3.2 Terrestrial Ecosystems

Carry out ecological quality monitoring. The *National Ecological Quality Supervision and Monitoring Work Plan (2023-2025)* has been issued, selecting 55 national comprehensive ecological quality monitoring stations to monitor ecological quality in sample plots across various ecosystems, including forests, grasslands, wetlands, deserts, farmland, urban and rural areas, water bodies, oceans and other types. In 2022, the National Ecological Quality Index (EQI) stood at 59.6, maintaining a Class II ecological quality, with no significant change from the previous year.

Carry out comprehensive monitoring and evaluation of forest and grassland ecosystems. The results of the comprehensive monitoring of national forest and grassland ecosystems in 2021 indicated a forest coverage rate exceeding 24%, with a forest stock volume of 19.49 billion cubic meters. These ecosystems have shown trends of improved health, gradual quality enhancement and steady functional improvement. In 2022, a national survey and monitoring of forests, grasslands, and wetlands was conducted. In 2023, a survey and assessment of changes in national ecological conditions from 2015 to 2020 were completed, with the results released to the public.

Plan and implement major projects for ecological protection and restoration. The *Outline of the National Territorial Greening Plan (2022-2030)* and the *Circular on Strengthening the Management of Red Lines for Ecological Conservation (for Trial Implementation)* have been issued. All nine special construction plans for major projects supporting the *Overall Plan for the Protection and Restoration of Nationally Important Ecosystems (2021-2035)* have been issued, with two of them implemented since 2022. In 2023, 37.931 million mu of afforestation were arranged for the "Double" project. During the 14th Five-Year Plan Period, 27 projects for integrated protection and systematic management of mountains, rivers, forests, farmlands, lakes, grasslands, and deserts have been implemented in 3 batches, along with two batches of 29 ecological restoration demonstration projects for abandoned mines. Additionally, we have supported pilot demonstration projects for greening the national territory in 25 prefecture-level cities. Since the 13th Five-Year Plan, more than 4.5 million acres of abandoned mines have been rehabilitated nationwide. Major ecological initiatives such as the Three-North

Shelterbelt Forest Program have been advanced, and coordinated efforts have been made to enhance forest quality through targeted improvement projects and comprehensive regional management of forests and grasslands. We have established a market-oriented investment mechanism for ecological protection and restoration. Since 2022, relevant provinces in China have completed the management of 2.638 million hectares of desertified forest and grassland areas, with 653,000 hectares of rocky desertification areas treated in eight southern provinces.

Strengthen the protection of biodiversity in terrestrial ecosystems. The *Chinese Biological Species List* (2022 and 2023 editions), the *Chinese Red List of Biodiversity - Higher Plants Volume (2020)*, and the *Chinese Red List of Biodiversity - Vertebrates Volume (2020)* have been published. A database detailing the distribution of mammalian groups has been established, and the phylogenetic reconstruction and historical biogeographical inference of mammalian species have been completed. We have reconstructed the time tree of angiosperms, and comprehensively evaluated the spatial pattern and priority reserves of angiospermic diversity. Research into forest biodiversity has underscored its role in promoting ecosystem functions and mechanisms, revealing human activities' impact on large-scale plant distribution patterns. The *List of Terrestrial Wild Animals with Important Ecological, Scientific and Social Values* has been revised and released, and the *List of Important Habitat for Terrestrial Wild Animals (First Batch)*, the *National Action Program for the Protection of Bird Migratory Corridors (2021-2035)*, the *Program on the Layout of the National Botanical Gardens System, and* the *Program on the Construction of the National Wildlife Conservation Project (2021-2030)* have been issued, among other documents.

3.3 Marine and Coastal Zones

Improve the observation, early warning, and evaluation system for marine disasters. A comprehensive risk assessment system for coastal climate change has been established to support decision-making, and the monitoring and impact assessment of sea level changes have been strengthened. We continue to implement the "chip" project for ocean forecasting, the "Mazu" series of ocean numerical models have been independently developed, encompassing storm surges, tsunamis, waves, sea ice, and ocean currents. We have achieved autonomy in ocean forecasting, significantly enhancing our ability to diagnose and forecast ocean climate.

Marine climate monitoring and prediction have been carried out, releasing monthly reports on *Global Sea Temperature and Heat Content Monitoring*. We annually publish the *Blue Book on Marine Climate Change in China, Ocean and China Climate Outlook,* a monthly report on *Global Marine Climate Monitoring*, and a monthly report on *China Offshore Marine Climate Monitoring*. Our capacity to predict ocean climate continues to improve, highlighted by the establishment of the El Niño-Southern Oscillation (ENSO) monitoring and prediction system with statistics and dynamics integrated, alongside the development of key technologies for ensemble forecasting and artificial intelligence in ocean climate prediction. Annual monitoring and impact assessments of sea level changes have been completed, and the *China Sea Level Bulletin 2022* was issued. Marine disaster investigations, analyses, and impact assessments have been conducted, leading to the release of the *China Marine Disaster Bulletin 2022*. Initiatives have begun for the risk assessment of sea level rise in the Guangdong-Hong Kong-Macao Greater Bay Area, alongside research and prediction on the attribution of global and regional sea level changes.

Strengthen the protection and restoration of coastal ecosystems. We have supported the implementation of 47 marine ecological protection and restoration projects in coastal cities, and coastal zone protection and restoration projects have been continuously implemented, enhancing the coastal areas' resilience against marine disasters such as typhoons and storm surges. We have promoted the transformation of marine development towards circular utilization, accelerated the resolution of historical legacy issues in land reclamation, strictly controlled additional reclamation activities, and enhanced the management of uninhabited islands for ecological environment protection. Coastline protection has been strengthened, with a strictly review process implemented to access the necessity and rationality of construction projects that occupy coastline areas. This aligns with guidelines aimed at minimizing or avoiding such occupations to preserve natural coastlines. Technical Guidelines for Marine Ecological Restoration, Part 2: Coral Reef Ecological Restoration, and Part 4: Seagrass Bed Ecological Restoration, and the first mangrove anti-pollution ecological restoration technical standard (the *Technical Regulations for Mangrove Anti-Pollution Ecological Restoration*) were compiled. Guidance was also provided to social investment into blue carbon protection and restoration projects for mangroves, seagrass beds, coastal salt

marshes, seaweed farms and other coastal zones.

Improve quality of marine ecological environment continuously. We issued the *Marine Ecological Environment Protection Plan for the 14th Five-Year and the Action Plan for Comprehensive Management of Key Sea Areas*, emphasizing land-sea and sea-river coordination, and advancing integrated management of key sea areas and the building of "beautiful bays". In 2023, the overall water quality of China's nearshore waters continued to improve, with the proportion of excellent and moderate (Class I and II) water quality sea areas reaching 85.0%, an increase of 3.1 percentage points from 2022. Conversely, the proportion of sea areas with poor quality water decreased by 1 percentage point from 2022 level to 7.9%. Among the 24 monitored marine ecosystems, 7 are in a healthy state and 17 are in a sub-healthy state.

4. Strengthen Adaptability of Economic and Social Systems

4.1 Agriculture and Food Security

Optimize utilization pattern of agro-climatic resource. We carried out the third national agricultural climate resource census and zoning, and organized research on the impact of climate change on food security. We published the National Catalogue of Excellent Crop Varieties and Leading Crop Varieties, promoting high-yield, high-quality, and stress-resistant varieties suitable for different regions to improve grain yield and crop climate adaptability. Crop planting structures were adjusted and optimized. Intercropping and compounded planting modes tailored to local conditions were introduced. For example, maize and soybean rotations in the Northeast, and trialing paddy-to-dryland and rice-to-soybean conversion in the Sanjiang Plain. In southern rice-producing areas, cropping rotation in a mode called "rice-rice-oilseed rape" or "rice-oilseed rape" was introduced and winter oilseed rape was grown in wider areas. Additionally, strip compound planting of soybeans and corn was promoted in the Yellow Sea, Huai Hai Sea, and Southwest regions.

Enhance agricultural adaptability and disaster reduction. During critical periods such as the flood season and the "Three Autumn" period (harvesting, ploughing and sowing in autum), agricultural disaster prevention and reduction plans were issued, focusing on disaster monitoring, early warning systems, and targeted guidance. Regional policies were implemented to scientifically prevent and respond to natural disasters such as meteorological events and pest outbreaks. We established designated field monitoring points and national soil moisture monitoring stations, promoting water-saving and drought-resistant crop varieties and coverage, drip and sprinkler irrigation, and integrated water and fertilizer technologies. A disaster resistance and reduction expert guidance group were set up, providing technical guidance on disaster prevention, reduction, and relief tailored to regions, crops, and disaster types, along with on-site support.

Enhance climate resilience of agricultural ecosystems. We strengthened soil and water conservation and ecological protection and promoted sustainable intercropping system. Based on shifts in ecological relationships due to climate change and the new characteristics of pests and diseases, we have advanced unified control and green prevention technologies, promoted pesticide reduction and efficiency improvement, and achieved a green prevention and control coverage rate of over 52% for major crop pests and diseases, with a national pesticide utilization rate exceeding 41%. Additionally, we have strengthened the prevention and control of invasive alien species, identifying 59 key species for targeted management. A comprehensive management system has been established, encompassing source prevention, monitoring, early warning, governance and restoration, to safeguard agricultural biodiversity.

Establish a food security system with climate adaptability. To enhance grain production, we strengthened the development of high standard farmland. In 2023, we completed the construction and renovation of approximately 86.11 million mu of high-standard farmland nationwide and established around 24.62 million mu of efficient water-saving irrigation systems. These efforts have guaranteed stabilizing food production capacity at over 1 trillion jin (1 kg is equal to 2 jin), with more than half of the country's arable land now classified as high-standard farmland. Also, we implemented a robust system for fallow farmland rotation and increased investment in agricultural water conservancy facilities. We carried out pilot

demonstrations of climate-smart agriculture, explored innovative models tailored to various regions, through policy construction, technology integration, model innovation, publicity and training, targeting different crop types, regional agricultural climate conditions, and cultivation methods used by farmers. Adhering to the principles of "government guidance, market-based operation, voluntary participation, and coordinated promotion", we implemented an agricultural insurance premium subsidy policy. In 2023, the central government allocated 45.9 billion yuan for agricultural insurance premium subsidies.

4.2 Health and Public Sanitation

Assess health risks and adaptability related to climate change. We expanded the demonstration in environmental health risk assessment, and promoted pilot of environmental health risk assessment, organized and carried out health risk classification and warning for heat waves and cold waves, improved the public access to extreme weather health risk alerts, and promoted its application in the first group of pilot cities of Jinan, Qingdao, and Shenzhen.

Strengthen the monitoring, early warning, prevention and control of climate-sensitive diseases. We developed early warning products for high-temperature health risks and created a platform for "diagnosing" urban climate change impacts. We convened national discussions on extreme weather and issued cold wave health risk warnings for cardiovascular-sensitive populations. Additionally, we developed and published the *Guidelines for Public Health Protection Against Heat Waves*, *Guidelines for Public Health Protection Against Cold Waves,* and the *Health Literacy and Interpretation of the Public Response to Climate Change* to enhance public awareness and improve response capabilities to climate-related health threats.

Comprehensively promote health adaptation to climate change. We advanced the pilot of climate change health adaptation communities and implemented community health risk interventions for extreme weather events. To harness expert knowledge and technical support, a Climate Change and Health Expert Committee was established. We drafted the *National Action Plan for Climate Change Health Adaptation* and identified phased goals for climate change health adaptation, continuously improved the climate change health standard system, and accelerated the development of basic and technical standards.

4.3 Infrastructure and Major Engineering Projects

Strengthen the adaptability of transportation infrastructure to climate change. We carried out pilot projects, including key technologies for enhancing the resilience of transportation infrastructure, with the view to building the country into a major country from the perspective of transportation. In the design review of key national highway projects, we guided relevant units to carry out safety assessments such as geological hazard evaluations, flood control impact assessments, and traffic safety assessments. Essential safety measures such as lightning protection, earthquake resistance, and (wind) diversion devices have been incorporated, with wind tunnel tests conducted to verify the wind stability of large-span bridges. We guided the project to focus on high slopes, super large bridges, tunnels and other construction sites. Construction emergency plans have been developed to address potential disasters such as typhoon, rainstorm and the resulting floods, debris flows, landslides, collapses and other disasters.

Strengthen standards' supportive role in enhancing the adaptability of infrastructure and major projects. We have conducted studies to improve the standards of water transport engineering adaptive to climate change. During the revision of key standards such as the *Code for General Design of Seaports,* we have considered the impact of climate change, such as global warming, sea level rise, and the increased frequency of rainstorms and floods, on water transport engineering.

4.4 City and Human Habitat Environment

Initiate pilot work to deepen the construction of climate-adaptive cities. We have continuously implemented the *Action Plan for Urban Adaptation to Climate Change*, taking cities as the starting point, actively explored the path and model of building climate adaptive cities. In August 2023, the *Notice on Deepening the Pilot Program of Climate Adaptable City Construction* was issued, proposing ten key tasks including improving the governance system for urban climate change adaptation, strengthening the assessment of urban climate change impacts, enhancing capacity for urban climate adaptation, improving monitoring and early warning systems for extreme weather and climate event risks, optimizing the spatial planning of urban climate adaptation, enhancing the climate resilience of urban infrastructure,

enhancing urban water safety level, ensuring safe operation of urban transportation, enhancing urban ecosystem services, and promoting actions for health-based adaptation. Pilot selection for climate-adaptive city construction was organized and carried out.

Actively enhance urban drainage and flood prevention. We have comprehensively improved urban waterlogging prevention and control capabilities, continuously promoted the construction of urban drainage and waterlogging prevention facilities system. In 2023, we built and renovated approximately 18,000 kilometers of drainage pipelines in cities nationwide. Focusing on addressing urban waterlogging, we carried out sponge city construction demonstrations in 60 cities. In 10 cities, including Tianjin, Chongqing and Jinan, we carried out pilot projects to enhance the system and mechanism of urban "physical examination", further adjusted and improved the urban physical examination index system, incorporating metrics such as "reduction in severe waterlogging-prone areas" and "emergency rescue capability for urban drainage and waterlogging prevention", etc. into the index system. Through this system, we identified existing challenges in urban resilience against extreme weather, such as rainstorms, and implemented targeted renovations to enhance urban safety and resilience. In 2023, an additional 140 billion yuan of treasury bond was issued to subsidize improving urban drainage and waterlogging prevention capacity, which was specifically used to support urban drainage and waterlogging prevention construction.

Collaborate to enhance the urban climate change adaptibility. Twenty-six cities have been awarded the title of "National Forest City", with more than 100 cities having implemented on the national garden city initiative, and 3,520 "pocket parks" have been built across the country. The first batch of 19 pilot cities for regional water recycling have been selected, and 78 cities carried out pilot projects for regional utilization of recycled water.

4.5 Sensitive Secondary and Tertiary Industries

Enhance the capacity to guarantee meteorological service. We guided the meteorological departments in provinces (autonomous regions, municipalities) to establish a progressive meteorological service model based on the actual needs of local disaster prevention and reduction. We provided forecasting and early warning service products suited to the different

stages and demands of catastrophic weather events. By finely linking relevant forces across different levels and regions, we supported scientific decision-making and orderly progress tracking by party committees and governments at all levels. Additionally, we promoted the development of high-level warning "call-response" standards and procedures across the meteorological departments of 31 provinces, autonomous regions, municipalities, and their affiliated cities and counties.

Strengthen climate impact monitoring and risk warning in the energy sector. We have established a regular consultation and emergency coordination mechanism, actively carried out meteorological forecasting and analysis of its impact on energy supply, and continuously improved monitoring, forecasting, and early warning services. We continued to carry out national renewable energy generation forecasting, resulting in a relatively accurate prediction ability for medium and long-term renewable energy generation across the country, with an overall prediction accuracy of over 90%.

Improve disaster prevention and reduction in the energy sector. We enhanced natural disaster risk assessment capabilities in the energy sector, establishing a specialized team to prevent meteorological disasters and ensure supply protection during summer/winter peak periods. We closely monitored meteorological changes in disaster-prone areas, predicting and analyzing disaster situations such as floods, high temperatures, rain, snowfall, and freezing conditions. Weekly reports on meteorological service supply have been released during important periods to timely and effectively prevent and resolve major risks. We took measures to ensure the smooth operation of energy production, supply, storage, and sales system under extreme weather conditions.

Strengthen emergency response and safety risk control capabilities in the power sector. The *Implementation Plan for National Electric Power Emergency Bases and Research Centers* has been issued, and a "7 emergency bases + 2 research centers" electric power emergency support system has been established nationwide to continuously improve disaster prevention, reduction and relief capabilities, as well as the ability to manage major emergencies. We have diligently carried out power safety risk control measures and conducted

thorough investigation and treatment of potential hazards, thereby significantly improving the level of power safety production and supply guarantee.

Be prepared for extreme weather conditions in the tourism industry. The *Notice on Further Improving the Open Management Level of Tourist Attractions during Summer* has been issued, providing guidance to integrate satellite cloud and radar data with geographic information system (GIS) data to automatically classify hazardous weather and issue warnings at key tourist attractions. Tourist attractions have been urged to closely monitor weather changes, develop targeted plans for adverse weather conditions, and provide service and assistance to tourists in special weather conditions. Additionally, local cultural and tourism departments were reminded and urged through work channels to prepare in advance when extreme weather conditions are anticipated.

Enhance the adaptability of transportation to climate change. The *Notice on Ensuring the Transportation of Energy and Materials during the SummerPeak Season in 2023* has been issued, urging all regions to improve emergency plans for extreme weather, strengthening transportation capacity reserves, and personnel preparation. We continued to carry out three key projects, namely the renovation of old and dilapidated bridges on national trunk highways, the refinement of safety facilities, and the improvement of disaster prevention and control. We have organized and carried out projects to enhance the safety guarantee capacity of rural roads, including the investigation and treatment of potential safety risks on rural roads, and the renovation of old and dilapidated bridges on rural roads and life safety protection projects. Since 2022, 18,000 dilapidated bridges on rural roads have been renovated, and 240,000 kilometers of rural road life safety protection projects have been implemented. We have strengthened the monitoring of road traffic meteorological environment and the development of relevant standards for climate change adaptation, and released industry standards such as *Road Traffic Meteorological Environment Buried Pavement Condition Detectors* (JT/T715-2022) and *Basic Requirements for Emergency Capacity Building of Urban Rail Transit Operations* (JT/T1409-2022), proposing requirements for emergency material allocation at urban rail transit stations and on trains under conditions such as flood season, severe cold weather, and strong winds.

5. Build Regional Patterns Adapting to Climate Change

5.1 Construct Territorial Space Adaptiing to Climate Change

Construct Territorial Spaces Adapting to Climate Change and implementing the "three zones and three lines[2]". The *National Territorial Space Planning Outline (2021-2035)* has been issued, completing the demarcation of the "three zones and three lines" and uniformly implementing the three control lines—"number, line, and map"—on the national "one map." We have been expediting the implementation of territorial space planning at provincial, municipal, and county levels, while upholding regional coordination, land-sea integration, and urban-rural harmony, with a focus on prioritizing ecological considerations and adapting to climate change as fundamental principles in territorial space planning. Based on the evaluation of resource and environmental carrying capacity and suitability for territorial space development, we have scientifically optimized functional spaces such as agriculture, ecology, and urban areas. A new pattern of national territorial space development and protection has emerged, characterized by distinct primary functions, complementary advantages, and an environmentally friendly, low-carbon approach, facilitated by spatial bottom-line constraints and strategic guidance. Enhanced supervision has been observed in key ecological function areas, ecological protection red lines, and other critical zones, leading to improved resilience of territorial space in the face of climate change.

Promote the inclusion of climate change adaptation related content in territorial space planning at all levels. Based on The *National Territorial Space Planning Outline (2021-2035)* and the compilation of territorial space planning at provincial, municipal, and county levels, we have encouraged each provinces (autonomous regions, municipalities) to conduct in-depth research on integrating climate change adaptation into territorial spatial planning, and have facilitated the review and approval of territorial spatial planning at all administrative levels. Also, we have coordinated and promoted relevant departments and local governments to strengthen climate change adaptation strategies, further refining implementation measures and

[2] The "three zones" refer to three types of national land space: urban space, agricultural space and ecological space.
The "three lines" refer to three control lines: the urban development boundary, the red line of permanent basic farmland protection and the red line of ecological protection.

incorporating these strategies into territorial space planning at all levels.

Use urban health assessments and land use planning to support climate-resilient city development. We have established a national urban health check and evaluation system for land space planning, incorporating an annual review and a five-year assessment cycle. Cities nationwide will routinely monitor low-carbon resilience indicators based on the *Urban Health Check and Evaluation Protocol for Land Space Planning*, in order to identify deficiencies and optimize the layout of land space planning.

Optimize the regional layout of disaster prevention, reduction, and relief resources. We have coordinated the flood control efforts for the mainstreams and tributaries, upstream and downstream areas, both sides of riverbanks, as well as in urban areas. We have also addressed the needs of coastal cities for typhoon and moisture prevention, scientifically delineated flood risk control areas, clarified comprehensive natural disaster risk prevention and control areas, optimized the layout of flood risk prevention and control facilities, and improved the ability to respond to extreme weather and natural disasters.

5.2 Strengthen Adaptation Actions in Key Vulnerable Regions

Strengthened Climate change risk assessment and decision-making capacity building in key regions. We have strengthened assessment of climate change impacts and risks in key regions such as the Yangtze River Economic Belt, Yellow River Basin, Beijing-Tianjin-Hebei, and Qinghai-Tibet Plateau, and organized provinces to regularly release climate change monitoring bulletins. We have organized regional climate change technology and work exchanges, issued and implemented the *Technical Guidelines for Planning Environmental Impact Assessment - Comprehensive Planning of Watersheds*, encouraging a focus on potential risks faced by watersheds in the context of climate change in watershed comprehensive planning and environmental assessment, and proposing measures to adaption to climate change.

Accelerated climate change effort in the Qinghai-Tibet Plateau. We have strengthened the construction of climate change monitoring stations and networks in the plateau climate system.

We selected the Lhasa River Basin in the upper reaches of the Yajiang River, and built a scientific research demonstration platform for the integrated protection and systematic management of mountains, rivers, forests, farmlands, lakes, grasslands, and deserts, and carried out comprehensive observation, warning, and management of changes in the Earth's system at multiple levels. A carbon flux monitoring network for typical high-altitude ecosystems in the Qinghai-Tibet Plateau has been preliminarily established, and a gradient connected peak (Mount Everest) meteorological observation station has been established. A prediction system for the impact of climate change on the ecosystem, climate system, water resources, rare and endangered or unique wildlife and plants, snow-capped mountains, glaciers, permafrost, and natural disasters in the Qinghai-Tibet Plateau has been established, and ecological risk reporting and warning mechanisms have been improved. We conducted research on the impact of climate change on the Qinghai-Tibet Plateau and established an inter-ministerial coordination mechanism for ecological environment protection and climate change adaptation on the Qinghai-Tibet Plateau. We convened a cross departmental exchange meeting on climate change work on the Qinghai-Tibet Plateau, and strengthened the construction of cross departmental, multi sphere, and comprehensive observation and research capabilities on the Qinghai-Tibet Plateau.

Strengthened adaptability of the Yellow River Basin to climate change. We have carried out water source conservation forests, soil and water conservation forest construction projects, as well as land comprehensive improvement projects in the Yellow River Basin. Also, we carried out key water source conservation area fencing and protection measures. We implemented the "Yellow River Basin Adaptation Plan to Enhance Climate Resilience" technical assistance project, and developed an action plan for climate change adaption in the Yellow River Basin. We organized experts to systematically compile fundamental geographic, environmental, and climate data pertaining to the Yellow River Basin, analyzed the present-day impact of climate change on the Yellow River Basin, projected future climate change scenarios, and assessed climate risks in key areas such as water resources and ecosystems.

6. Promote Safeguard Mechanism for Climate Change Adaptation

6.1 Strengthen Financial Support

Protection and restoration. We have arranged 32.8 billion yuan for the launch and implementation of the integrated protection and restoration projects of mountains, waters, forests, farmlands, lakes, grasslands, and sands; 5.0 billion yuan for the launch and implementation of the demonstration project for ecological restoration of historical abandoned mines; and 13.6 billion yuan to support coastal cities in implementing marine ecological protection and restoration projects[3]. China supports the implementation of forest and grassland ecological protection and restoration through central budget investments in key regional ecological protection and restoration projects, as well as central government funds for forestry and grassland transfer payments. In 2022, 17.18 billion yuan of central budget funds for afforestation and 2.82 billion yuan for grassland restoration and management were allocated to arrange 2.17 million hectares of afforestation and 1.52 million hectares of grassland restoration and management. In 2023, 10.04 billion yuan for afforestation and 3.96 billion yuan were allocated for grassland restoration and management, aiming at 2.42 million hectares of afforestation and 3.19 million hectares of grassland restoration and management.

Ensure disaster prevention and reduction. As of September 2023, 716,000 farming households have received compensation of 1.54 billion yuan. The catastrophe insurance system has been continuously improving, by issuance of regulations on special reserve funds for earthquake catastrophe insurance for urban and rural residents, as well as regulations on the earthquake catastrophe insurance reserve fund for nuclear insurance. In 2023, the central government allocated a cumulative total of 3.82 billion yuan of central natural disaster relief funds, 4.53 billion yuan of agricultural production disaster prevention and relief funds, 3.87 billion yuan of water conservancy disaster relief funds, and 10.15 billion yuan of central infrastructure investment budget funds. Subsidies of 600 million yuan from vehicle purchase tax revenue was allocated to local funds to support emergency access to highways, involving 430 million yuan for flood affected areas, 140 million yuan for cold wave affected areas, and

[3] Including funds since the 14th Five-Year Plan period, up to the end of 2023, and excluding funds issued in advanced in 2024.

30 million yuan for earthquake affected areas.

Strengthen climate investment and financing support. China has solicited from localities infrastructure construction projects for climate change adaptation with significant climate benefits, and guided financial institutions to provide preferential financial services to eligible projects in accordance with market-oriented principles. China has guided localities with climate investment and finance pilots to accelerate the development of climate investment and financing project databanks, establish and improve the inclusion criteria, enable more high-quality climate change adaptation projects to be included in the databanks, and provide financial support to enhance climate change adaptation at local level. China has encouraged climate investment and finance pilots to build a safeguard system for adaptation investment and financing, establish a mechanism for preventing and resolving climate risks, and strengthen statistics and information disclosure on climate adaptation.

Carry out climate and environmental information disclosure. China has developed a system for information disclosure of green bonds, requiring green bond issuers to disclose environmental benefit targets, selection criteria for green projects, and standards for measuring environmental benefits, which should include climate change impacts, at the registration and issuance phase, and supervising issuers to regularly disclose the investment of raised funds in green projects and the progress of the corresponding environmental benefit targets throughout the bond's lifecycle.

Promote climate risk stress testing for financial institutions. Since 2022, domestic banking institutions have been organized to explore and conduct climate risk stress testing with the phased approach, and transition risk sensitivity stress testing has been carried out for key areas. China also has explored the development of macro scenario stress testing for transition risks and physical risk stress testing.

6.2 Strengthen Scientific and Technological Support

Strengthen foundational research capacity. Through national science and technology programs such as the Earth System and Global Change Key Special Project, the foundational, strategic, cutting-edge research and major key common technology research related to climate change adaptation have been supported. Research on the relationship between forests and water and evaluation of suitability of forest and grass vegetation have been carried out, revealing the underlying principles and effective strategies for forest and grass ecological development in Northwest China. The change of forest fire disturbance in China from 1986 to 2019 has been mapped to identify areas with high incidence of forest fire disturbance. Simulation experiments on surface sediment fluxes in East Asia have been conducted, revealing that changes in meteorological elements have been the primary driving factor for the weakening of sand and dust activities in East Asia over the past 20 years. The occurrence patterns of compound extreme events in different periods in the past have been studied, and the sensitive and vulnerable zones of extreme temperature and precipitation changes in China have been preliminarily explored. Research on the impact of climate change on the structure and functional characteristics of China's terrestrial ecosystems has been carried out. The results of the Second Qinghai-Tibet Scientific Expedition have systematically elucidated the imbalance of Asian water towers under the influence of climate change. The analysis and judgment of the spatial and temporal characteristics of geological disasters in China has been strengthened in the context of climate change, forming the *Report on the Impact of Climate Change on the Prevention and Control of Geological Disasters in China and Consideration for the Next Steps in the Work*.

Accelerate technology research, development and promotion. A series of technologies for ecosystem protection, restoration, and carbon sink enhancement have been developed, including ecosystem protection and restoration technologies, artificial cyanobacteria crust oriented sandy land near-natural restoration technology system (Shapotou Model 3.0), "new energy + solid waste utilization" ecological restoration integrated technology, and key technologies for improving iron tailings soil, to provide scientific and technological support for ecological restoration in ecologically fragile areas and key areas for ecological restoration. Wind and sand monitoring and disaster investigation for major projects such as railways and

highways have been carried out, and an integrated model with early warning, sheltering, and prevention has been established to prevent engineering projects from sand hazards. The Black Soil Granary Scientific and Technological Battle has been launched, which successfully screened extremely saline-tolerant varieties of Sesbania, developed cold-adapted composite microbial agents, and established a ditch erosion control technology model centered on straw landfill and reclamation. The targeted black land protection and utilization technology models have been developed, including the Dahewan Model, the Qiqihar Model, the Longjiang Model, the Da'an Model, the Sanjiang Model, and the Liaohe Model. Sensors and communication tools suitable for extreme environments in Xinjiang have been developed, and 26 new automatic ecological system monitoring stations have been built in uninhabited areas, initially completing a network of ground stations for ecological monitoring in the field covering the whole of Xinjiang.

Improve the allocation of scientific and technological resources. China's first climate model detection and attribution system was preliminarily established, and a new generation decadal climate prediction system (IAP-DePreS) was set up. China has developed a platform for mountain disaster risk simulation and prediction, and established a meteorological and oceanic disaster forecasting system for South China Sea-East Indian Ocean, a high-resolution wave-tide-current coupled forecasting system for the Guangdong-Hong Kong-Macao Greater Bay Area, and a three-dimensional simulation and forecasting system for internal solitary waves in the northeastern South China Sea. The level of evaluation technology and basic capabilities has been improved with the establishment of a national major scientific and technological infrastructure for numerical simulation devices of the earth system, and a sound scientific data center system in related fields. A number of projects have been initiated and implemented, such as Scenario Projection and Adaptive Regulation of Hydrological-Ecological-Sediment Processes in the Source Area of the Yangtze and Yellow Rivers under the Background of Climate Change, and Risk Identification and Response Strategies for Major Drought under the Background of Climate Change.

6.3 Strengthen Capacity Building

Carry out local climate change adaptation training activities. In November 2022, a national mobilization training on the preparation of provincial climate change adaptation action plans was held online. The training program interpreted the key points of the *National Climate Change Adaptation Strategy 2035* and the *Guidelines for the Preparation of Provincial Adaptation to Climate Change Action Plans*, provided expert explanations on climate change risk assessment, identification of climate-sensitive and vulnerable areas and regions, urban climate risks and adaptation strategy selection, mobilized and deployed the next steps for the preparation of provincial climate change adaptation action plans. In May 2023, a training meeting was held for the preparation and scheduling of provincial climate change adaptation action plans of the Yellow River Basin. Experts were invited to give lectures on how to carry out climate risk assessment and risk management in the Yellow River Basin, effectively boosting the preparation of the climate change adaptation action plans in relevant provinces. In October 2023, a Sino-German climate change project seminar and discussions on the preparation for provincial climate change adaptation action plans were held. Relevant provinces (autonomous regions, municipalities) in the Yangtze River Basin were organized to exchange experiences in the preparation of climate change adaptation action plans. Experts and scholars from key fields at home and abroad were invited to conduct capacity building training for relevant provincial ecological and environmental authorities and research supporting institutions, so as to enhance local understanding and awareness of climate change adaptation and climate risk assessment.

6.4 Deepen International Cooperation

Actively participate in climate change adaptation under multilateral frameworks. China emphasizes the needs for grant funding of developing countries in the field of adaptation and insists on equal importance of mitigation and adaptation. China has urged developed countries to achieve the goal of at least doubling adaptation funding by 2025 from 2019 levels, and promoted balanced support for both mitigation and adaptation by the Green Climate Fund (GCF) and the Global Environment Facility (GEF). As an important participant and leader in global climate governance, China has actively engaged in the negotiation process under the United Nations Framework Convention on Climate Change (UNFCCC), and pushed forward

the formulation of the Global Goal on Adaptation framework under the Paris Agreement, proactively playing a constructive and leading role as a major country. China has also actively participated in adaptation-related research through the Intergovernmental Panel on Climate Change (IPCC) and other channels.

Widely engage in dialogues and exchanges on climate change adaptation. A China-EU Dialogue on Climate Change Adaptation was held in partnership with the EU Delegation to China to share the implementation of the *National Climate Change Adaptation Strategy 2035*. At the 28th Conference of the Parties to the United Nations Framework Convention on Climate Change (COP28), China hosted side events in China Pavilion, on such topics as "Strengthen Early Warning System, Enhance Climate Change Adaptation Capacity" and "Strategies and Practices for Urban Climate Change Adaptation" to share its experience in climate change adaptation policies and actions with the international community. A seminar on China-UK Cooperation on Climate Change Risk Assessment was held with the British Embassy in China to exchange and discuss beneficial practices in addressing climate risks. We have released typical cases of China's practice in nature-based solutions together with the International Union for Conservation of Nature (IUCN) and organized multilateral forums such as the China-Pacific Island Countries Cooperation Seminar on Marine Disaster Prevention and Reduction.

Actively explore cooperation on climate change adaptation projects. China has collaborated with the Global Center on Adaptation (GCA) to carry out pilot projects to support the development of climate adaptive cities in China, and to enhance urban climate change adaptation capacity. China has applied for an Asian Development Bank's technical assistance project titled Building Climate Resilience through Adaptation Planning in the Yellow River Basin, which was approved. China has carried out the Project of Urban Climate Action for Low Carbon and Resilient Cities with Germany to provide expertise for the development of low-carbon and resilient cities in the context of climate change, developed the China Biodiversity Fund Cooperation Project with the EU, launched the establishment of the Biodiversity Conservation Consortium in Arid Areas, and jointly established the Sino-Tajikistan Joint Laboratory for Conservation and Utilization of Biological Resources. China

actively responds to the initiative of the United Nations Decade of Ocean Science for Sustainable Development (2021-2030) (hereinafter referred to as the "Ocean Decade"), and has established the Ocean and Climate Collaboration Center of the "Ocean Decade". The Seamless Ocean and Climate Prediction Project proposed by China has been included in the "Ocean Decade" major science plan. China continues to cooperate with neighboring countries in monitoring and protecting typical marine ecosystems, environmental forecasting, and disaster warning, and has signed maritime cooperation agreements with Thailand, Indonesia, Vietnam, and Vanuatu.

Actively promote international cooperation in green finance. China has fostered an international consensus on the development of green finance, and actively participated in the formulation of important documents such as the *G20 Sustainable Finance Roadmap*, *G20 Transition Finance Framework*, and *G20 Sustainable Finance Technical Assistance Action Plan*, providing important guidance for global green finance development. China has promoted the compatibility of green finance standards, jointly released the *Common Ground Taxonomy* with the European Commission and promoted the labeling of domestic stock green bonds in accordance with this taxonomy. China has promoted the sustainable development of the green Belt and Road, and jointly initiated the *Green Investment Principles (GIP) for the Belt and Road* with the City of London. Deepening green finance cooperation between central banks and supervisors, China participated in the launch of the Network of Central Banks and Supervisors for Greening the Financial System (NGFS) in 2017, which expanded to 127 institutions as of the end of the second quarter of 2023.

Rigorously strengthen South-South cooperation on climate change adaptation. MEE has signed a tripartite cooperation agreement with the World Meteorological Organization and CMA to support the implementation of the Early Warnings for All Initiative. The first cooperation project to implement this agreement has been signed with Pakistan, which will support Pakistan in improving its capacity to respond to extreme climate disasters and early warning by providing assistance for the multi-satellite integrated satellite data mobile reception and processing application system (mobile meteorological station), the comprehensive cloud-based disaster risk early warning support system, and capacity building

training. China has implemented the *Memorandum of Understanding on Material Assistance for South-South Cooperation on Climate Change*, which was signed with the Ministry of Environment, Natural Resources Conservation and Tourism of Botswana, and has provided Botswana with a set of mobile meteorological stations to support it in strengthening meteorological observation and early warning. China has organized international seminars on flood disaster risk and climate change adaptation research, providing flood disaster information services to countries such as India, Bangladesh, and Nepal. Demonstration bases for desertification prevention and control have been established in Mauritania, Ethiopia, and Nigeria. On June 16, 2022, the online tool, the Great Green Wall Big Data Facilitator (GGW-BDF) was released. Together with African and South Asian countries, China has actively engaged in research on changes in the Asian-African monsoon system and studies on extreme climate events and enhanced the ocean's ability to respond to climate change and prevent and mitigate disasters.

Conclusion

Climate change has generated serious adverse impacts on China's natural ecosystem, and its effects continue to permeate into the economic and social system. Since 2022, guided by the *National Climate Change Adaptation Strategy 2035*, China has made remarkable progress in climate change adaptation across key areas such as water resources, terrestrial ecosystems, oceans, agriculture, and health and sanitation, making significant contributions to enhancing climate resilience and effectively preventing the adverse impacts and risks of climate change.

As a next step, the Ministry of Ecology and Environment (MEE) of China will comprehensively implement the spirit of the 20th CPC National Congress and the relevant deployments of the *Guidelines of the Communist Party of China Central Committee and the State Council to Comprehensively Promote the Development of a "Beautiful China"*. The focus will be on implementing the *National Climate Change Adaptation Strategy 2035*, adhering to the principles of "proactive, scientific, systematic and coordinated adaptation". The MEE aims to further improve the policy system for climate change adaptation with goals to prevent climate risks, strengthen adaptation actions, and enhance adaptive capacity. The Ministry will continue to strengthen coordination with relevant departments, enhance the assessment of climate change impacts and risks, and advance the pilot construction of climate-adaptive cities. Additionally, efforts will be made to boost the adaptive capabilities of key areas and regions, strengthen adaptation support and capacity building, actively expand international cooperation on climate change adaptation, and share China's approach to the enhance global adaptive capacity for climate change.

Appendix

Table1 Documents and standards related to climate change adaptation in priority areas issued since 2022[4]

Field	No.	Date of publication	Name	Department of publication
Climate Change Impact and Risk Assessment	1	February 2022	Work Plan for Comprehensively Promoting the Enhancement of Meteorological Service Capacity in Rural Revitalization (2022-2024)	CMA
	2	February 2022	China Meteorological Science and Technology Development Plan (2021-2035)	CMA, Ministry of Science and Technology, Chinese Academy of Sciences
	3	May 2022	Notice on Issuing the Outline for High Quality Development of Meteorology (2022-2035)	The State Council
	4	June 2022	Opinions on Strengthening the Application of Comprehensive Meteorological Disaster Risk Survey Results	CMA
	5	July 2022	Work Plan for Improving the Linkage between Meteorological Warning Formulation and Release and Emergency Response Capabilities	CMA
	6	October 2022	Climate Risk Index - Drought (GB/T 42073-2022)	CMA (Supervisor of this standard)
	7	October 2022	Climate Livability Index (GB/T 42072-2022)	CMA (Supervisor of this standard)
	8	October 2022	Methods of Regional Rainstorm Process Assessment (GB/T 42075-2022)	CMA (Supervisor of this standard)
	9	December 2022	Meteorological Impact Index of Ecosystem Water Conservation Function (QX/T 649-2022)	CMA (Supervisor of this standard)
	10	December 2022	Meteorological Evaluation Level of Ecological Function of Vegetation Windbreak and Sand Fixation in the North (QX/T 648-2022)	CMA (Supervisor of the standards)
Comprehensive Disaster Prevention and Reduction	11	January 2022	Guiding Opinions on Strengthening the Revision of Local Flood Control and Drought Relief Emergency Plans	The Office of the State Flood Control and Drought Relief Headquarters
	12	February 2022	National Emergency Management System Plan during the 14th Five-Year Plan Period	The State Council
	13	February 2022	Notice on Doing a Good Job in the Work of National Disaster Prevention and Reduction Day in 2022	National Commission for Disaster Reduction (NCDR)

[4] Documents are categorized by field and arranged chronologically within each field.

Field	No.	Date of publication	Name	Department of publication
Comprehensive Disaster Prevention and Reduction	14	April 2022	Guiding Opinions on Strengthening Prevention and Response to Extreme Rainstorms at Grassroots level	The Office of the State Flood Control and Drought Relief Headquarters
	15	June 2022	Opinions on Strengthening the Linkage between Meteorological Warning and Emergency Response	Ministry of Emergency Management (MEM), CMA
	16	June 2022	The 14th Five Year-Plan for National Comprehensive Disaster Prevention and Reduction	NCDR
	17	June 2022	The 14th Five-Year Plan for the Construction of Emergency Rescue Forces	MEM
	18	July 2022	Notice on Issuing the National Flood Control and Drought Relief Emergency Plan	General Office of the State Council
	19	October 2022	Notice on Doing a Good Job in the Work of International Day for Disaster Reduction in 2022	NCDR
	20	December 2022	The 14th Five-Year Plan for National Geological Disaster Prevention and Control	Ministry of Natural Resources (MNR)
	21	February 2023	Notice on Doing a Good Job in the Work of National Disaster Prevention and Reduction Day in 2023	NCDR
	22	April 2023	Key points of national geological disaster prevention and control work in 2023	MNR
	23	April 2023	Opinions on Comprehensively Strengthening Forest and Grassland Fire Prevention and Control Work under the New Situation	The General Office of Central Committee of CPC and the General Office of the State Council
	24	July 2023	Catalogue for Promoting Advanced Technology and Equipment for Flood Control and Rescue (2023 Edition)	MEM
	25	July 2023	Notice on Further Clarifying the Management Matters of Flood Control and Emergency Response Plans for Reservoir Hydropower Stations	The Office of the State Flood Control and Drought Relief Headquarters, Ministry of Water Resources (MWR), National Energy Administration (NEA)
	26	August 2023	Urgent Notice on Effectively Doing a Good Job in Current Geological Disaster Prevention Work	MNR
	27	September 2023	Notice on Effectively Doing a Good Job in Geological Disaster Prevention in the Post Flood Period Stage	MNR
	28	September 2023	Notice on Deeply Learning from Recent Disaster Lessons and Effectively Doing a Good Job in Field Construction Operations and Production and Operation Safety Management during Flood Season	The Office of the State Flood Control and Drought Relief Headquarters, the Office of the State Council's Work Safety Committee

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Comprehensive Disaster Prevention and Reduction	29	September 2023	Guiding Opinions on Strengthening Typhoon Prevention in New Marine Industries	The Office of the State Flood Control and Drought Relief Headquarters
	30	September 2023	Interim Measures for Investigation and Evaluation of Major Natural Disasters	MEM
Terrestrial Ecosystem	31	March 2022	The 14th Five-Year Plan for Ecological Protection and Supervision	MEE
	32	August 2022	The 14th Five-Year Plan for Natural Resources Conservation and Utilization	The State Council
	33	August 2022	Action Plan for Ecological Restoration of Historically Legacy Mines during the 14th Five-Year Plan Period	MNR
	34	August 2022	Notice on Strengthening the Management of Ecological Protection Red Lines	MNR, MEE, National Forestry and Grassland Administration (NFGA)
	35	September 2022	The Outline of the National Territorial Greening Plan (2022-2030)	National Greening Committee
	36	October 2022	Measures for the Assessment of Natural Disaster Damage to Unfinished Forest Land	NFGA, MNR
	37	December 2022	National Desertification Prevention and Control Plan (2021-2030)	NFGA, National Development and Reform Commission (NDRC), Ministry of Finance (MOF), MNR, MEE, MWR, Ministry of Agriculture and Rural Affairs (MARA)
	38	January 2023	Opinions on Strengthening Soil and Water Conservation Work in the New Era	The General Office of the Central Committee of CPC and the General Office of the State Council
Marine and Coastal Zone	39	January 2022	Construction Plan for Major Coastal Ecological Protection and Restoration Projects (2021-2035)	MNR, NDRC, NFGA
	40	January 2022	The 14th Five-Year Plan for Marine Ecological Environment Protection	MEE, NDRC, MNR, Ministry of Transport (MOT), MARA, China Coast Guard
	41	January 2022	Action Plan for Comprehensive Management of Key Marine Areas	MEE, NDRC, MNR, Ministry of Housing and Urban Rural Development (MOHURD), MOT, MARA, China Coast Guard

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Marine and Coastal Zone	42	March 2022	Technical Guideline for Marine Ecological Restoration - Part 2: Coral Reef Restoration (GB/T 41339.2-2022)	State Administration for Market Regulation, Standardization Administration of China
	43	April 2023	2022 China Sea Level Bulletin	MNR
	44	April 2023	2022 China Marine Disaster Bulletin	MNR
	45	May 2023	Technical Guidelines for Marine Ecological Restoration - Part 4: Ecological Restoration of Seagrass Bed (GB/T 41339.4-2023)	State Administration for Market Regulation, Standardization Administration of China
	46	August 2023	Notice on Further Improving the Response to Marine Disaster of Typhoon "Khanun"	MNR
	47	December 2023	Regulations on the Investigation and Evaluation of Marine Disasters and the Reporting of Disaster Statistics	MNR
Agriculture and Food Security	48	February 2023	Climate-smart Agriculture - Technical Specification for Wheat-rice Production (NY/T 4298-2023)	MARA (Supervisor of this standard)
	49	February 2023	Climate-smart Agriculture - Technical Specification for Wheat-corn Production (NY/T 4299-2023)	MARA (Supervisor of this standard)
	50	August 2023	Notice on Actively Doing a Good Job in Agricultural Insurance on Flood Prevention and Disaster Relief	MOF
Health and Public Sanitation	51	June 2023	Guidelines for Public Health Protection Against High Temperature Heat Waves	Chinese Center for Disease Control and Prevention
	52	August 2023	Guidelines for Environmental Sanitation Disposal and Preventive Disinfection in Flooded Areas (2023 Edition)	National Disease Control and Prevention Administration
	53	December 2023	Guidelines for Public Health Protection during Cold Wave	National Disease Control and Prevention Administration
	54	December 2023	Public Health Literacy and Interpretation in Responding to Climate Change	National Disease Control and Prevention Administration
City and Human Habitat Environments	55	March 2022	Notice on Doing a Good Job in Urban Drainage and Flood Control in 2022	MOHURD, NDRC
	56	April 2022	Action Plan for the Construction of Urban Drainage and Flood Control System during the 14th Five-Year Plan Period	MOHURD, NDRC, MWR
	57	June 2022	Notice on Further Regulating the Release of Urban Waterlogging Prevention and Control Information and Other Related Work	MOHURD, NDRC, CMA
	58	April 2023	Notice on Doing a Good Job in Urban Drainage and Flood Control in 2023	MOHURD, NDRC

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City and Human Habitat Environments	59	June 2023	Notice on Strengthening Emergency Management of Urban Drainage and Flood Control	MOHURD, MEM
	60	August 2023	Notice on Deepening the Pilot Construction of Climate-Resilient Cities	MEE, MOF, MNR, MOHURD, MOT, MWR, CMA, National Disease Control and Prevention Administration
Enhancing the Adaptability of the Tourism Industry	61	July 2023	Notice on Further Improving the Open Management Level of Summer Tourism Scenic Spots	Ministry of Culture and Tourism
Improving the Climate Resilience of the Energy Industry	62	July 2022	Notice on Fully Doing a Good Job in Ensuring Energy Transportation during Peak Summer Season	Leading Group of the State Council on Ensuring Smooth Logistics
	63	March 2023	Notice on Effectively Doing a Good Job in Flood Control and Drought Relief in the Power Industry in 2023	NEA
Traffic Disaster Prevention and Emergency Support	64	January 2022	Opinions on Further Strengthening the Construction of Transportation Safety Production System	MOT
	65	January 2022	Basic Requirements for Emergency Capacity Building of Urban Rail Transit Operations (JT/T1409-2022)	MOT (Supervisor of this standard)
	66	April 2022	Implementation Plan for Strengthening Transportation Safety Production Year	MOT
	67	April 2022	Notice on Doing a Good Job in Flood and Typhoon Prevention in 2022	MOT
	68	June 2022	Road Weather Environment - Embedded Road Status Sensor (JT/T715-2022)	MOT (Supervisor of this standard)
	69	June 2022	Notice on Effectively Doing a Good Job in Flood and Flood Control of Urban Rail Transit	MOT
	70	June 2022	Notice on Further Improving Road Passenger Transport Safety Management	MOT
	71	August 2022	Opinions on Strengthening the Quality and Safety Supervision and Management of Highway and Water Transport Engineering Construction	MOT
	72	September 2022	Notice on Doing a Good Job in Preventing Extreme Weather Conditions such as Cold Waves and Strong Winds for the Year 2022-2023	MOT
	73	July 2023	Overall Work Plan for Strengthening Transportation Safety Production, Flood Control and Drought Relief, and Infrastructure Safety Protection	MOT
	74	May 2023	Notice on Issuing the Action Plan for Improving the Construction Safety Management Capacity of Highway and Water Transport Engineering	MOT
	75	September 2023	Technical Guidelines for the Implementation of Highway Prevention and Control Engineering for Natural Disaster Risk	MOT

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Territorial Spatial Planning for Climate Change Adaptation	76	October 2022	The Outline of National Territorial Plan (2021-2035)	The Central Committee of CPC and the State Council
Climate Adaptability in Significantly Strategic Regions	77	January 2022	Construction Plan for Major Ecological Protection and Restoration Projects in Key Ecological Areas of the Yangtze River (including the Sichuan-Yunnan Ecological Barrier) (2021-2035)	MNR, NDRC, MWR, NFGA
	78	January 2022	Construction Plan for Major Ecological Protection and Restoration Projects in Key Ecological Areas of the Yellow River (including the Loess Plateau Ecological Screen) (2021-2035)	MNR, NDRC, MWR, NFGA
	79	June 2022	Ecological Environment Protection Plan for the Yellow River Basin	MEE, NDRC, MNR, MWR
	80	June 2023	Notice on Issuing the Work Plan for Risk Assessment of Sea Level Rise in the Guangdong-Hong Kong-Macao Greater Bay Area	MNR