

# UN 2023 Water Conference: Themes for the Interactive Dialogues

## China's Contribution

### Introduction

There is general consensus among the international community that water plays a fundamental role in many aspects such as global sustainable development, eradication of poverty and hunger, improvement of public health, enhancement of food security, and protection and promotion of biodiversity.

To promote progress towards the water-related goals of the United Nations *2030 Sustainable Development Agenda*, China has committed itself to the new development concept of “innovation, coordination, green, open and sharing”, effectively practiced the water governance concept of “prioritizing water conservation, seeking spatial equilibrium, implementing systematic governance, and achieving government-market synergy”, and put forward the *Global Development Initiative*. In addition, China has upgraded capacity building in regional water resources management, flood control and disaster reduction, and information sharing by providing active assistance to developing countries and carrying out responsible cooperation on transboundary rivers.

### Contribution

#### ● Water for Health

China has made enormous progress in water, sanitation and hygiene. The disparity between urban and rural access to safe drinking water challenges many developing countries. In this regard, China has made useful attempts. Since 2006, the Chinese government has 3 five-year plans in place to implement the rural drinking water safety projects. From 2015 onward, drinking water safety is directly linked to the fight against poverty in China, attracting close attention from governments at all levels and all walks of life. As of now, China has built a fairly complete system of rural water supply projects, and comprehensively resolved the problem of drinking water safety for the impoverished population. By the end of 2020, in rural areas across China, the centralized water supply rate and the tap water penetration rate reached 88% and 83%, respectively, indicating a remarkable improvement of water supply security in

rural China. Over the course of fighting against poverty, 17.10 million impoverished people have gained full access to safe drinking water, 9.75 million rural residents have got proper solution to excessive fluoride in drinking water, and 1.2 million people are no longer drinking brackish water. As such, the goal of consolidating and improving drinking water safety in rural China as set out in the 13<sup>th</sup> Five-Year Plan is overfulfilled. At the end of 2021, the tap water penetration rate in rural areas nationwide recorded 84%, an upgrade to the level of water supply security for 340 million rural population. It is predicted that by the end of 2025, the centralized water supply rate and the tap water penetration rate in rural China will reach 89% and 88%, respectively, more than accomplishing the targets and tasks planned for the Project on Consolidation and Improvement of Rural Drinking Water Safety during the 13th Five-Year Plan period. Universal and equitable access to safe and affordable drinking water is expected to be attained by 2030.

Since 2018, 40 million rural toilets have been built and/or renovated in China. The rural living environment was improved at the end of 2021, as evidenced by an 80.3% sanitary toilet penetration rate in rural areas across the country and over 90% in some eastern provinces. The renovation of rural toilets is well received by the general public, enjoying a public satisfaction rate of 94%. By 2030, China will achieve universal access to adequate and equitable sanitation and hygiene, with special attention paid to meeting the needs of women, girls and vulnerable groups in this regard.

Meanwhile, China is committed to sharing its experiences in sub-regional cooperation. Through practical collaboration in improving people's livelihood in the Lancang-Mekong River Basin, China has shared its accumulated experiences in accessing clean water and building resilience in drinking water security, and supported local construction as well as sustainable operation and management of rural water supply projects. These efforts have won wide acclaim from the local governments and the public in general, and contributed to the joint creation of regional prosperity and achievement of the drinking water target under the United Nations Sustainable Development Goals (SDGs).

- **Water for Sustainable Development**

In April 2017, the relevant authorities of the Chinese government carried out the third national survey and evaluation of water resources, for which a three-level (national, river basin,

and provincial) interactive work system was established, and more than 300 technical units and over 20,000 experts and technicians across the country were organized for participation in the survey and evaluation. By means of basic survey and supplementary monitoring, long series of data from 113,000 monitoring stations/sites were obtained, providing an important data foundation for the refined management of water resources. The survey and evaluation focused on the analysis and assessment of China's water resources, the development and utilization of water resources, and the long-term evolutionary mechanisms and causes of the water ecology and environment, especially the dynamic changes in the situations of water resources since the beginning of this century. These, coupled with the changes in socioeconomic development factors such as population, food, energy, cities and industrial distribution and the changes in the ecological environment, were used for comprehensive analysis and evaluation of the endowment conditions, evolution regimes and load status of water resources, as well as the water environmental conditions and water ecological situations in different regions of China. As such, this survey and assessment provides a reliable foundation for future efforts, such as strategic planning of water resources, construction of major water projects, implementation of the most stringent water resources management system, promotion of sustainable and healthy economic and social development, and advancement of an ecological civilization.

In 2019, China started to implement the *National Action Plan for Water Conservation*. Its main measures included dual control of water consumption (in terms of both total volume and intensity), water conservation and efficiency enhancement for agriculture, water conservation and emission reduction for industry, water conservation and loss reduction for urban areas, water conservation and new water source development in key areas, and using technological innovation as a driving force. China has effectively promoted the construction of water-saving higher education institutions. Since 2019, 764 universities have completed their water-saving transformation, a completion rate of 28%. Market mechanisms continue to play their due roles, as is seen in the vigorous promotion of the contract-based water-saving management service model. From 2019 to the present, 323 contract-based water-saving management projects have been implemented nationwide, attracting RMB2.397 billion non-government capital and saving 162 million m<sup>3</sup> of water. At the same time, China has made vigorous efforts to develop

water-saving irrigation. By coordinating and advancing the continuous development of supporting facilities and water-saving renovations in irrigation areas, China has gained an additional annual water-saving capacity of 1.24 billion m<sup>3</sup>. According to the *2021 China Water Resources Bulletin*, total national water consumption was 592.02 billion m<sup>3</sup>, an increase of 10.73 billion m<sup>3</sup> compared with 2020; the national irrigation area exceeded 1.1 billion *mu*, of which effectively irrigated farmland stood at 1.037 billion *mu*, water-saving irrigation totaled 567 million *mu*, and high-efficiency water-saving irrigation extended 350 million *mu*. The water use efficiency in China enjoys a further improvement. During the 13<sup>th</sup> Five-Year Plan period, water consumption per RMB10,000 GDP dropped by 28% (calculated at comparable price). It is projected that by 2030, all sectors will have substantially improved their water use efficiency and ensured sustainable withdrawal and supply of fresh water to address water scarcity and significantly reduce the number of people suffering from water stress.

The water sector in China has accelerated the implementation of a group of major water diversion projects and key water source projects, in order to coordinate the overall distribution of river basins and balance the spatial allocation of water resources. A general pattern of water resources allocation that features “south-to-north water transfer, east-and-west mutual assistance” has taken its preliminary shape; while the construction of a national water network that is safe and reliable, intensive and efficient, green and smart, complete in systems, smooth in circulation and orderly in regulation is under development with a quicker pace. All these have further enhanced China’s capability to coordinate the transfer and allocation of water resources, guarantee water supply, and make strategic reserves. Moreover, China has improved its key water supply infrastructure network. Among others, the first phase of the eastern and central routes of the South-to-North Water Transfer Project was completed for water transmission, supplying 56.5 billion m<sup>3</sup> of water cumulatively and benefiting 150 million people. Meanwhile, China has initiated the construction of major water diversion projects, such as the Project for Diverting Water from the Yangtze River to the Han River along the central route of the South-to-North Water Transfer Project, the Project for Diverting Water from Central Yunnan Province, the Project for Diverting Water from the Yangtze River to the Huai River, the Project for Allocation of Water Resources in the Pearl River Delta, and the Project for Allocation of Water Resources around the Beibu Gulf in Guangdong Province, as well as large reservoirs

such as Jiayan in Guizhou Province and Lailuo in Tibet. These projects have played an important role in promoting regional coordinated development and serving major national strategies. Efforts are also underway to promote the development of provincial water networks. Under the principle of “genuine need, ecological safety, and sustainability”, relevant localities have sped up the construction of key water system channels and transfer/distribution hubs, so as to strengthen the connectivity between major national and key regional water resources allocation projects. There are also ongoing efforts to open up the “last one mile” of the national water network, and reinforce the construction of farmland irrigation projects. The completion of 7,330 large and medium-sized irrigation areas consolidates the water foundation for safeguarding national food security. The combined water supply capacity of water projects nationwide increased from 700 billion m<sup>3</sup> in 2012 to 890 billion m<sup>3</sup> in 2021. By 2025, China will enjoy an additional water supply capacity of 29 billion m<sup>3</sup>, and witness the carrying capacity of water resources in better adaptation to economic and social development, gradual improvement to the system of key irrigation and drainage projects in large and medium-sized irrigation areas, and a new addition or restoration of 15 million *mu* effectively irrigated area.

China carried out the comprehensive control of groundwater overexploitation in North China in 2018, and organized the determination of control indicators such as groundwater withdrawal volume and groundwater level in 2020, which significantly reduced the annual volume of groundwater exploitation across the country. The Ministry of Water Resources coordinates the south-to-north water transfer efforts. Water has been diverted from various water sources such as the Yangtze River, the Yellow River, the Luan River, local reservoirs, recycled water, rainwater and floods, to replenish the ecological flows of rivers and lakes in the north. Between September 2018 and the end of December 2021, a cumulative 17 billion m<sup>3</sup> of water was replenished. Ecological water replenishment seeps underground through river beds, and thereby increases groundwater storage. At the end of 2021, the shallow groundwater level in the Beijing-Tianjin-Hebei control area rose by 1.89 meters compared with the same period in 2018, and the deep confined water level rose by 4.65 meters in general. In water-replenished rivers and lakes, the diversity index of benthic animals and fish went up significantly; the density of phytoplankton decreased; the shoreline vegetation recovered robustly; and the ecology and environment continued to change for the better. China strives to significantly improve the

ecology and environment of rivers and lakes across the country by 2030.

The Chinese government attaches great importance to the “Smart Water” initiative, making remarkable progress in the digitalization, network connection and smart development of the water sector. By the end of 2020, a comprehensive water data collection system consisting of 433,600 points had taken its initial shape; all water authorities above the prefecture/municipal level and 80.5% of county-level water authorities had access to the water information network, and 99.7% of water authorities above the prefecture/municipal level and 90.7% of county-level water authorities were connected to video conference systems, with 11.7% of them using smart video surveillance; artificial intelligence recognition of remote sensing images was achieved against the “4 types of unauthorized acts” (unauthorized occupation, unauthorized mining, unauthorized placement, and unauthorized construction) in rivers and lakes, exhibiting the initial effectiveness of big data application. During the 14<sup>th</sup> Five-Year Plan period, China will develop digital twin river basins, the “2+N” water conservancy smart business application system, the water conservancy network security system, and the smart water conservancy guarantee system; and promote the smart transformation of water projects. By 2025, China will have achieved the following: completion of 7 major digital twin river basins; effective “forecast, early warning, drilling and planning” for key flood control areas; effective “forecast, early warning, drilling and planning” in water resources management and allocation for major cross-basin water diversion projects and key inter-provincial rivers and lakes; and significant improvement to the application of N items. By 2030, all rivers and lakes with flood control tasks will have completed their construction into digital twin basins, and water conservancy business applications will be more digital, better network connected, and smarter in the overall sense.

China adheres to the concept that the government and the market should both play their due roles, i.e., giving full play to the synergy between an action-oriented government and an effective market. The cumulative water investment over the past 10 years amounts to RMB6.66 trillion, five times that of the previous decade. Policies such as financial credit support, public private partnership (PPP), and water infrastructure investment trust funds (REITs) have been

introduced. Bank loans and non-government funds invested in water records RMB271.7 billion, an increase of 81.2% compared with the average annual amount of the previous 10 years.

During the 13<sup>th</sup> Five-Year Plan period, the water authorities in China organized and completed 21 researches on major issues related to water science and technology, and initiated 9 studies on major issues of basin-specific water governance, focusing on the key areas of reform and development of the water sector. By promoting a system of water science and technology innovation bases, China has built 6 additional field scientific observation and research stations and 67 new province/ministry-level science and technology innovation bases. Priority was assigned to the cultivation of innovation talents and teams for the water sector, leading to a significant increase in the number of water science and technology talents, and a remarkable improvement of their overall quality. At the end of 2020, the water sector had 63,300 personnel directly engaged in water-related scientific research and experimental development, of whom 37.6% had senior professional titles, and over 80% of those in charge of national and province/ministry-level scientific and technological projects were young and middle-aged science and technology backbones. By the end of the 14<sup>th</sup> Five-Year Plan period, China will have achieved the following: 300 ongoing researches on key scientific and technological issues relating to water safety; completion of 3 additional national science and technology innovation bases, 20 ministry-level key laboratories and 30 ministry-level field observation and research stations; selection and training of a group of high-profile innovation talents; continuing efforts to promote the innovation of water technology; and optimal structure and enhanced quality of the talent team.

#### ● **Water for Climate, Resilience, and Environment**

In 2015, the Chinese government promulgated the *Action Plan for Prevention and Control of Water Pollution* (abbreviated as “*Ten Water Measures*”). Its main measures included intensifying the prevention and control of industrial pollution, strengthening the control of urban domestic pollution, pushing forward the prevention and control of agricultural and rural pollution, and reinforcing the control of shipping and portside pollution, etc. By the end of 2020, more than 70% of the 7 major river basins, i.e., the Yangtze River Basin, the Yellow River Basin, the Pearl River Basin, the Songhua River Basin, the Huai River Basin, the Hai River Basin, and the Liao River Basin were of good water quality (Grade III or better) in the overall sense; the

proportions of black and odorous water bodies in the built areas of cities at and above the prefecture level were controlled below 10%; more than 93% of centralized drinking water sources in cities at and above the prefecture level were of Grade III or better water quality; the proportion of extremely inferior groundwater quality across the country was controlled at around 15%; and about 70% of coastal waters were of good water quality (Grade I and II). As of 2021, China's annual sewage discharge recorded 58.924 billion m<sup>3</sup>, annual sewage treatment capacity stood at 58.465 billion m<sup>3</sup>, and the sewage treatment rate was 98.1%; while the water quality compliance rate in the water function zones of major rivers and lakes reached 88.4%. By 2025, the proportion of Grade I-III surface water bodies will rise to 85%; that of coastal waters with good water quality (Grade I and II) will reach approximately 79%; and black and odorous water bodies in urban areas will be basically eliminated. It is estimated that by 2030, more than 75% of the 7 major river basins in the country will be of good water quality; black and odorous water bodies in urban built areas will be eliminated in general; and around 95% of the urban centralized drinking water sources will achieve Grade III or better water quality in the overall sense.

In order to gradually restore the ecological health of damaged rivers and lakes and maintain the sound condition of the national water ecosystem in general, the Chinese government has implemented a series of policies and regulations on ecological flows. Since 2020, the Chinese government has set ecological flow targets for 920 sections of 554 rivers and lakes, including 171 inter-provincial and 383 intra-provincial rivers and lakes. For rivers and lakes with set ecological flow targets, the Ministry of Water Resources organizes relevant localities to prepare their respective safeguard plans, strengthens dynamic monitoring and early warning, and regularly reports on the compliance of key rivers and lakes with the requirements for ecological flows. The ministry has also completed the revision of the existing *Rules on the Calculation of Ecological and Environment Water Needs of Rivers and Lakes*, making it clear that ecological flows should consider not only the flow process during the year, but also the flow demands of ecological protection targets, such as migration of river fish and feeding of wetland waterfowl. These efforts have enabled water flow and continuous expansion of water surface in some rivers that used to dry up or dry off all year round. Some important lakes have



maintained their water levels above the ecological water level guarantee targets throughout the year, and enjoyed effective improvement to their ecology and environment.

In order to alleviate the shortage of ecological flows and restore groundwater in North China, the Chinese government has made continuous efforts to replenish ecological water in the north over the long term. For example, in 2021, ecological water replenishment was made to 22 rivers and lakes from such water sources as the central and eastern routes of the South-to-North Water Transfer Project, the Yellow River and the upstream reservoirs of the Hai River system, including 1.579 billion m<sup>3</sup> of reclaimed water.

The comprehensive evaluation conducted in 2021 with the use of water environment, aquatic organisms, and biological habitats indicates that the water ecology of the 7 major river basins, namely, the Yangtze River Basin, the Yellow River Basin, the Huai River Basin, the Hai River Basin, the Pearl River Basin, the Songhua River Basin, and the Liao River Basin, was mostly in a medium to good status. Of the 701 evaluated sites, 40.1% were rated good, 40.8% medium, and 19.1% poor or very poor.

By the end of 2020, Grade V and above embankments nationwide totaled 328,000 km; the combined flood-control storage capacity of large and medium-sized reservoirs recorded 168.1 billion m<sup>3</sup>; and the basin-specific systems of flood control works that consist of channels, embankments, reservoirs, and flood storage and detention areas were in place along major rivers. The concentrated and contiguous flood-control protected areas of major rivers across the country extended about 800,000 km<sup>2</sup>, protecting 860 million people and 640 million *mu* of arable land. The flood control for key cities along the rivers were of the 100-200-year-return standards, effectively ensuring the safety of people's lives and property and the stable operation of the economy and the society. There were 120,000 hydrometric stations of various types, covering all major rivers as well as small and medium-sized rivers with flood control tasks; and the flood forecast for major rivers in critical periods recorded a higher than 90% accuracy rate. During the 14<sup>th</sup> Five-Year Plan period, China will further improve its basin-specific systems of flood control, drought relief and disaster reduction; enhance the coverage, monitoring capability and service capacity of the monitoring station network; and upgrade its ability to prevent and dissolve the risks of major water safety incidents.

The Chinese government has made active efforts to connect the water systems of rivers, lakes and reservoirs, placing its focus on the restoration of water ecology. In 2020, the first batch of pilot counties, which included 55 counties (districts and cities) in 27 provinces (autonomous regions and municipalities directly under the central government), harnessed more than 2,200 km of river channels and over 600 lakes and ponds in the countryside, benefiting more than 2,400 villages, remarkably improving the ecological and environmental quality of rural rivers and lakes, and promoting the development of industries such as leisure & wellness and ecological agriculture into new growth highlights of the rural economy.

- **Water for Cooperation**

The Chinese government vigorously advocates international water cooperation. It is committed to the exchange of modern water governance concepts and the sharing of water conservancy experiences and achievements with the international community, making positive contributions to the accelerated global realization of the water-related goals of the *2030 Agenda for Sustainable Development*. **First**, China has signed 72 water cooperation agreements with 57 countries, established 32 bilateral mechanisms for regular water cooperation and exchanges, carried out in-depth cooperation with UN agencies, the World Water Council and other water-related international organizations, and built the China Europe Water Platform with European countries. As such, a multi-layer wide-ranging global partnership network has taken shape. **Second**, China has made active efforts to assist the developing world including Asia, Africa and Latin America in the development of water conservancy, partnered with them in capacity building and joint research relating to integrated water resources management and water-saving irrigation, and supported the development of water conservancy in various countries. **Third**, under the principle of “friend-thy-neighbor and partner-thy-neighbor”, China has carried out fruitful exchanges and cooperation with its neighboring countries in hydrological information provision, flood control, and emergency response. The consensus of “addressing problems through consultation” is adhered to in joint promotion of water cooperation in the Lancang-Mekong River Basin. In particular, China and its neighbors have made effective response to floods and droughts in the basin, taking into full consideration

the needs of the downstream countries for flood control, disaster reduction and water security, and kept deepening practical cooperation in information sharing and livelihood projects. These efforts provide a strong water security guarantee for the economic and social development and improvement of people's livelihood and wellbeing in the Lancang-Mekong River Basin.

The Chinese government attaches great importance to the cooperation on transboundary rivers. Under the principles of friendly cooperation, people orientation, sharing rights and obligations, and assigning equal weights to development and protection, China scientifically develops and effectively protects transboundary rivers, and conducts pragmatic and mutually beneficial cooperation with its neighboring countries. China has carried out different forms of transboundary river cooperation with all neighbors with whom it has established diplomatic relations. In particular, China has concluded more than 30 intergovernmental and interdepartmental cooperation agreements and memorandums of understanding on integrated water resources management of transboundary rivers; established numerous cooperation mechanisms; and carried out fruitful exchanges and cooperation in hydrological information provision, flood control and disaster reduction, emergency response, and utilization and protection of water resources. In 2019, the Ministry of Water Resources successfully held 13 multilateral and bilateral high-level exchanges including the First Ministerial Meeting of Lancang-Mekong Water Resources Cooperation, made solid efforts in providing hydrological information for neighboring countries, effectively promoted technical training on flood control and disaster reduction, jointly responded to floods, droughts, glacial lake outburst and other natural disasters, and provided water disaster relief and emergency assistance to the maximum of its capacity. Going forward, China will make full use of the existing transboundary river cooperation mechanisms already set up with its neighbors to further enhance cooperation and exchanges, coordinate upstream and downstream interests, and turn transboundary rivers into bridges that bond intra-basin countries. Moreover, efforts are underway to create “rivers of peace, rivers of cooperation, and rivers of friendship”, so that the water resources of transboundary rivers could become an inexhaustible source for nourishing a human community with a shared future.

## ● **Water Action Decade**

The Chinese government attaches great importance to the implementation of the *2030 Agenda for Sustainable Development*. Thanks to its good hard efforts in fulfilling its solemn commitment to the SDGs, China has made positive progress in achieving the water-related SDGs. **First**, with the basin-specific systems of flood control works that mainly consist of reservoirs, river channels, embankments, and flood storage and detention areas, China has won its battles against frequent and recurrent flood and waterlogging disasters, and thus guaranteed the safety of people's lives and property to the maximum extent. **Second**, China has made vigorous efforts to promote the safety of drinking water in rural areas. With the tap water penetration rate reaching 84% in the countryside, difficult access to drinking water that frustrated so many rural residents for generations is now resolved historically. **Third**, multiple major cross-basin and inter-regional water transfer projects have been completed, enabling water projects nationwide a combined water supply capacity of 890 billion m<sup>3</sup>, a substantial upgrade to China's capacity for securing water consumption for economic and social purposes. **Fourth**, the ongoing National Water Saving Action reinforces the role of water resources as a rigid restraint. With 6% of the global fresh water resources, China secures water use for nearly 1/5 of the world population. **Fifth**, the system of river and lake chiefs is practiced in an all-round way to reinforce the protection and governance of rivers and lakes. More and more rivers have returned to life, while a growing number of basins have regained their vitality. Meanwhile, the Chinese government vigorously advocates international water cooperation. It is committed to the exchange of modern water governance concepts and the sharing of water conservancy experiences and achievements with the international community, so as to make positive contributions to the accelerated global realization of the water-related goals of the *2030 Agenda for Sustainable Development*.