

The background features a dynamic, abstract splash of water in various shades of blue, from light turquoise to deep navy. The water appears to be swirling and splashing, creating a sense of movement and freshness. The overall composition is clean and modern, with the text overlaid on the left side.

Chapter 3

Water Saving

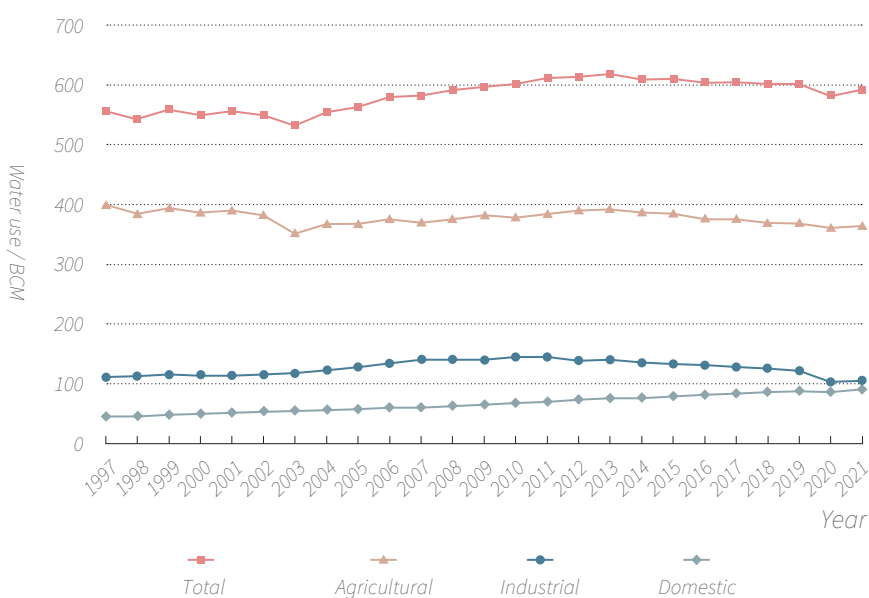
1 Status of Water Saving

1.1 Total Quantity Control of Water Consumed

China always attaches great importance to water saving. A slight increase of water consumption has guaranteed the rapid economic development of society in China, which results from water saving. In 2021, the total quantity of water consumed in China reached 592.02 billion m³, including 90.94 billion m³ of water for residential use, 104.96 billion m³ of water for industrial use, 364.43 billion m³ of water for agriculture use, and 31.69 billion m³ of water for artificial ecological environments, which respectively accounted for 15.4%, 17.7%, 61.5%, and 5.4% of total quantity of water consumed.

During 1997-2021, the national water consumption increased to 592.02 billion m³ from 556.603 billion m³, an increase of 35.417 billion m³. In the same period, water for residential use in China increased to 90.94 billion m³ from 52.515 billion m³, an increase of 38.425 billion m³. However, water for industrial use declined to 104.96 billion m³ from 112.116 billion m³, a decrease of 7.156 billion m³. Also, water for agricultural use decreased to 364.43 billion m³ from 391.972 billion m³, a decrease of 27.542 billion m³.

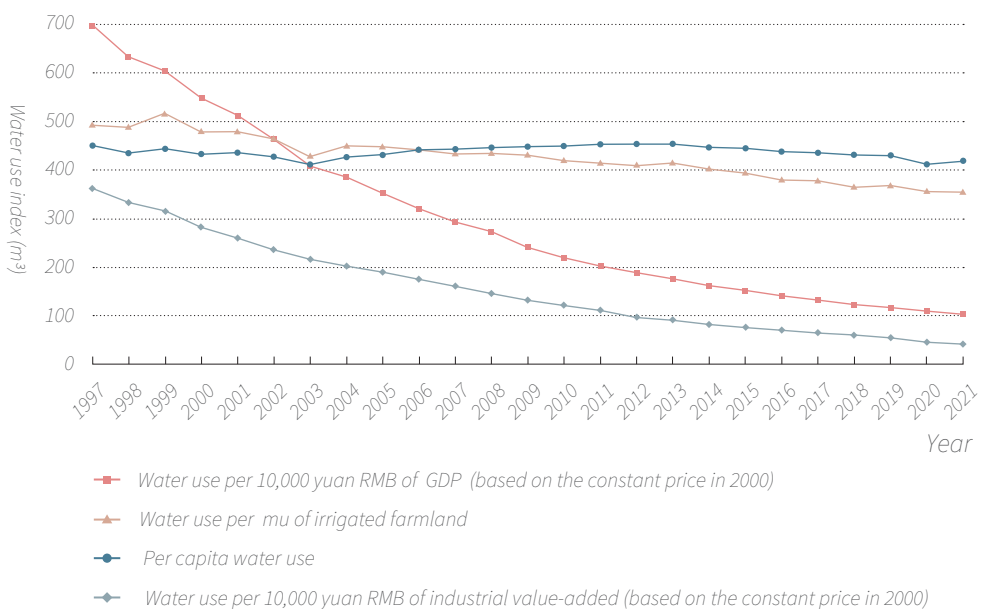
The National Water Consumption Diagram during 1997-2021



1.2 Water-use Efficiency Control

In 2021, the national comprehensive water consumption per capita was 419 m³. The water consumption of Gross Domestic Production (GDP) (at the current year's price) per ten thousand yuan was 51.8 m³. The average water consumption of actual irrigation per mu of arable land was 355 m³. The effective utilization coefficient of farm irrigation water was 0.568. The water consumption of the industrial added value (at the current year's price) per ten thousand yuan was 28.2 m³. Water for residential use per capita was 176 Ld (including 124 L/d of the urban-rural water for residential use per capita). Since 1997, water-use efficiency has obviously improved, while the water consumption of GDP per ten thousand yuan and the water consumption of the industrial added value per ten thousand yuan were both significantly reduced. Furthermore, the average water consumption of actual irrigation per mu of arable land had a slow downtrend. The comprehensive water consumption per capita basically remained at 400-450 m³. Compared with 2021 and 1997, the average water consumption of actual irrigation per mu of arable land dropped to 355 m³ from 492 m³. Calculated at the comparable price, the water consumption of GDP per ten thousand yuan and the water consumption of industrial use added value for ten thousand yuan respectively, decreased by 85.2% and 88.0%.

The National Water Use Index Diagram during 1997-2021





Domestic Water-saving: 36 Colleges and Universities in Tianjin Fully Popularizes IC card for Water-saving Intelligent Control System, with Nearly One Million Tons of Water Saved Yearly

2 Main Achievements

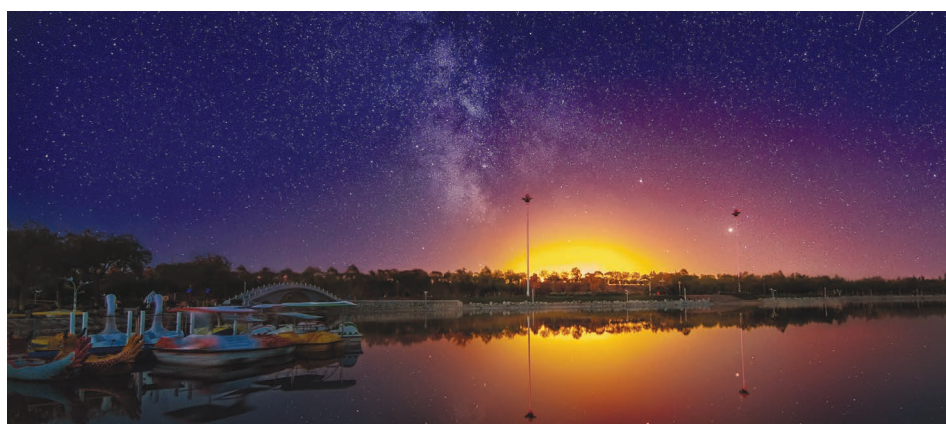
Due to an increased population and less water in China, as well as the uneven spatial-temporal distribution of water resources, the disparity between supply and demand is relatively prominent. There is no doubt that the issue of water resources has a great influence on Chinese ecological civil-construction and sustainable economic development in society. In recent years, President Xi Jinping came up with a water-control idea of “prioritizing water saving, spatial balance, systematic governance, and giving full play to the role of government and market” in the new era and particularly highlighted the priority of sticking to and implementing water-saving policy. Currently, the key is saving water and therefore emphasis should be put on water-saving policy. A related focus is pollution control, similar to saving energy and reducing emissions. The emphasis put on saving water ensures the protection of our ecosystems. Protecting water sources is akin to protecting the homeland and caring about water resources and saving water has become a fashionable and self-conscious action of the whole society. In April 2019, approved by the Central Reform Commission, the National Development and Reform Commission and Ministry of Water Resources issued the *National Water-saving Action Plan*, symbolizing that water saving has become a national commitment. Recently, China’s water saving has achieved a significant result.

2.1 Water-saving System Construction Being Gradually Perfected

A series of policy documents and guidance systems have been successively issued in China, such as *the Dual Control Action Plan on Total Water Consumption and Intensity*, *Water-saving Society Construction in the 14th Five-Year Plan*, *the Plan for Water Use*, *Water-saving Evaluation and Water Efficiency Label*, etc. The government promote the comprehensive reform of the price for agricultural water use, establish the ladder-like water price for urban residential use as well as an over-quota progressive fare increase system and implement water-saving contract management. The departments of the State Council issued the *National Water-saving Action Plan* and its division schemes in 2019, so that the water-saving policies and institutional system have been further improved.

2.2 Continuous Progress of Water-saving Technical Transformation

The government reinforces water-saving technical research and development, promotes water-saving facilities, and accelerates water-saving technical transformation. They also utilize these for continuous construction in large and middle-sized irrigation areas, industries with high water consumption, and urban water supply networks. Besides, the government constantly expands unconventional water resources and continuously enhances agricultural, industrial and urban water-use efficiency. Until the end of 2020, the national water-saving irrigation areas have been up to 567 million hm². Among these, the high-efficiency water-saving irrigation areas of sprinkling irrigation, micro-irrigation, and irrigation through pipeline delivery have been up to 350 million hm².





Grain Increase with Water-saving Appears in the Northeast China

2.3 Continuous Breakthroughs in Water-saving Innovation

The further action for water saving and water control is comprehensively carried out in the Yellow River Basin to reinforce water saving in each basin of the Beijing-Tianjin-Hebei Region and the Yangtze River Economic Belt and to promote comprehensive water saving in the water-receiving areas of the east middle route engineering of the South-North Water Transfer Project. Increased grain with water-saving appears in the northeast. High efficiency with water-saving appears in the northwest. Control exploitation of groundwater with water-saving appears in North China. Pollution control with water-saving appears in the southeast. Emission reduction with water saving appears in the south. 21,000 of water-saving irrigation areas, enterprises, service-oriented units, and residential areas have been built around China to show a good demonstrative leading role.

2.4 Constantly Deepening of Water-saving Public Education

During the “World Water Day” and “China Water Week” , the government concentrates on carrying out water-saving publicity activities, develops the brand of publicity activities for “China Tour of Water Saving ” and joint action of “Water-Saving China, Together We Practice” , promotes the fundamental education of proper water usage, and positively emphasizes the benefits of being close to water, cherishing water and saving water.

3 Developmental Strategies and Main Measures

In the future, the government will insist on implementing the comprehensive water-saving strategy, run through the “water-saving priority” policy, promote the completion of various tasks under the guidance of the national water-saving action, drive the transformation of the water-use model from the extensive to the intensive, promote the green transformation of the development mode through sustainable utilization of water resources, and facilitate high-quality development of economic society.

3.1 Work Goals

In 2025, weaknesses of water-saving infrastructures and supervision ability will basically be supplemented. Water-saving society construction will make significant achievements. The total water consumption will be controlled within 640 billion m³. The water consumption of GPD per ten thousand yuan dropped around 16.0% relative to 2020. The increased water consumption for industrial use per ten thousand yuan decreased by 16.0% relative to 2020. The effective utilization factor of water for farmland irrigation will be up to 0.58. The leakage rate of urban public water supply network will be less than 9.0%. By 2025, high-standard farmland built around China will be 1.075 billion hm². 50 efficient industrial leading enterprises involved in thermal power, steel, petrification and chemical engineering, non-ferrous, papermaking, printing and dyeing, as well as food industries will be selected; a batch of demonstration parks with nearly zero discharge of industrial wastewater should be established; the amount of unconventional water source around China will exceed 17 billion m³.

By 2035, human-water relationship will be harmonious and water-saving consciousness will enjoy popular support. It is believed that water saving will be a conscious action for the whole society. The total water consumption around the country will be controlled within 7,000 m³.

Intensive use of water resource saving will reach the worldwide advanced level. The water-saving system, technical support system, and market mechanism adapting to high-quality development will be established to form the new modernized pattern, with harmonious development between water resource utilization and developmental scale as well as industrial structure and spatial layout.

3.2 Main Measures

It is necessary to deeply implement national water-saving action in key areas, and deepen institutional reform through policy promotion and market mechanism innovation.

3.2.1 Strict Control of Total Quantity and Water Requirement Rate

It is essential to construct the double-control index system involved in the provincial, municipal and county-level administrative regions, reinforce water-saving index management, reinforce water permission and water resource assessment, intensify supervision of major water users and special water users, and promote construction of water-saving infrastructures.



3.2.2 Continuously Promoting the Effect of Agricultural Water-saving

It is necessary to accelerate construction of follow-up and supporting facilities, as well as replacement of outdated facilities. It is equally significant to extensively promote regional high-efficiency water-saving irrigation projects. It is also important to introduce and promote the water-saving technologies of sprinkling irrigation, micro-irrigation, trickle irrigation and water delivery irrigation of low-pressure pipelines. Further measures include assigning plantation on the basis of water yield, developing water-saving systems in fishery and animal husbandry, reinforcing the transformation of rural water facilities for residential use, and promoting the utilization of water-saving facilities.

3.2.3 Greatly Implementing and Promoting Industrial Water-saving and Emission Reduction

It is essential to strongly promote water-saving technologies and skills including high-efficient cooling, washing, recirculating water and the recycling of effluent sewage. It is also necessary to accelerate wastewater treatment, to be reused when the appropriate standards are reached in enterprises with high water-consumption. We should also promote high-quality green upgrades with the emphasis on saving water in existing enterprises and industrial parks, by accelerating facility construction for water-saving, circulation, and serial or multi-use between enterprises.

3.2.4 Continuously Promoting Urban Water-saving with Loss Reduction

It is necessary to implement water-saving in urban planning, construction and management, to focus on promoting water-saving transformation in areas with high-leakage networks, and to dramatically reduce leakage loss of water supply networks. In public areas we must improve the installation rate of water-saving facilities and their popularity with urban residents, whilst strictly controlling water use in service industries with high water-consumption. In special industries, such as car washing, golf courses and artificial ski resorts, we should promote the use of recycled water technology.

3.2.5 Deeply Promoting Water-Saving with Opening up New Sources

It is essential to cut down the amount of groundwater mining in over-exploited areas and forbid the utilization of underground water in



Water-saving Irrigation Brings Good Harvest to Farmers in Panzhuhua Mountain Area of Sichuan Province

industry, agriculture and the service industry. Unconventional water use in water-shortage areas should be reinforced and promoted to increase the ratio year by year, and take advantage of seawater in industries and industrial parks with high-consumption water in coastal areas.

3.2.6 Accelerating Leading Role of Technical Innovation

It is necessary to establish technical innovation in water-saving with the in-depth integration of industry-university-research cooperation. This will develop the key technical equipment used for water-saving, intensify the integration of new information technology and expand water-saving technological achievements. The promotion of channels for advanced water-saving technology will facilitate the transformation of the water-saving industry.

3.2.7 Strengthening the Water-saving Policy Reform

It is essential to improve the water-saving standard rating system, execute a strict standard rating, implement comprehensive reform of prices for agricultural water use, perfect the ladder-like water price system for urban residents and an over-quota progressive fare increase system for non-residential water use, facilitate water resource tax reform, construct the water-saving statistical investigation and grass-roots water use

statistics management system, and intensify water-concerned information management. Industrial and service water use units, with more than 500,000 m³ of annual water consumption, should be all on the list of key water monitoring units.

3.2.8 Intensifying the Mechanism Innovation in Water-saving Market

It is necessary to promote reform in the water-conservancy market, determine the appropriate use of water resources, reinforce supervision of the water-use trade, and standardize transactions. Also, it is necessary to implement proper labelling for water products with high water-saving potentials and wide application, promote water-saving contract management in public institutions, public buildings, industries with high water-consumption and the service industry. Finally, it is necessary to become a leader in water-use products, water-use enterprises, public institutions and water-saving cities.

4 International Cooperation and Exchanges

There is no doubt that the government of China attaches great importance to the international exchanges and cooperation in water-saving fields and has successively developed friendly cooperation with Japan, South Korea, Singapore, Malaysia, Denmark and Israel. Also, the government carries out water-saving projects, including the Demonstration Project of Sino-Japanese Water-saving Social Construction, and implements bilateral exchanges and inspection visiting about water-saving with the Ministry of Water Resources in South Korea, Singapore, Malaysia, Denmark and Israel. In the future, through various means, the government will continue to expand and reinforce the exchanges and cooperation with worldwide countries and organizations in water-saving philosophy and strategy, water-saving policy and management, water-saving standards and technology.

