

The background of the page is an abstract, artistic representation of water. It features dynamic, swirling patterns in various shades of blue, from light turquoise to deep navy. The water appears to be splashing or moving rapidly, with visible brushstrokes and splatters. The overall effect is energetic and fluid, filling the entire frame.

Chapter 6

Safeguards for Rural Water Supply

1 Overview

1.1 Construction of Rural Water Supply Project

Limited by natural, economic and social conditions, the water supply foundation in rural China was weak with poor supply facilities and the small and scattered water sources got polluted easily before the 1980s. No water facilities were available in many rural areas. Many rural residents directly took water from rivers, streams and ponds. They had to fetch water from long distances by carriage or carry water in buckets during drought seasons, which badly affected their livelihood and brought risks to their health, production activities and socio-economic development as well.

As the old saying goes, food is the paramount necessity of all people while water is the basic of all food. Rural water supply is the most realistic and direct interest issue that concerns common people. The Communist Party of China always focused on solving people's drinking issue, guided people to successively carry out the construction of irrigation and water conservancy projects, shaft sinking, and improvement of water quality for prevention and control of endemic diseases, relieving the difficulties of rural drinking water, ensuring and upgrading the safety of rural drinking water. Thus, rural water supply conditions have been significantly improved.

By the end of 2022, China has formed a relatively complete rural water supply engineering system and has constructed a total of 6.78 million rural water supply projects, with a water supply service capacity of 870 million people. The popularizing rate of tap water in rural China has reached 87%. Large-scale water supply projects (Extension of Urban Water Supply Network and Water Supply Project of Thousands of Tons for thousands of people) covered 56% of the rural population. The water supply guarantee rate and water quality compliance rate have significantly increased, and rural water supply guarantee conditions have reached the leading level in developing countries.

1.2 Evaluation Standards for Rural Drinking-water Safety

In 2004, the Ministry of Water Resources(MWR) and the Ministry of Health (MOH) jointly issued the *Indicators and Standards for Rural Drinking-water Safety Assessment*. In March 2018, guided and driven by the Department

of Rural Water Resources and Hydropower, Ministry of Water Resources, China Water Conservancy Association compiled and issued the *Guidelines for Rural Drinking-water Safety Assessment* (T/CHES 18-2018)(Hereinafter referred to as *Guidelines*). In August 2018, the Ministry of Water Resources, the Poverty Alleviation Office of the State Council and the National Health and Health Commission jointly issued the *Notice on Resolutely Winning the Battle for Poverty Alleviation through Safe Drinking Water in Rural Areas* [Water and Agriculture (2018) No.188]. It clearly points out that all localities can directly use the *Guidelines* or, according to the evaluation criteria and in combination with the actual situation of the province, formulate detailed rules for the evaluation of rural drinking water safety. These can be used as the basis for accurate identification of rural drinking-water safety, formulation of solutions and acceptance of standards for poverty alleviation in all provinces.

The *Guidelines* clearly stipulate that rural drinking water safety means that rural residents can quickly obtain sufficient drinking water, and long-term drinking does not affect people’s health. Drinking water safety consists of 4 conditions: water quantity, water quality, water use convenience and water supply guarantee rate. Drinking water can be evaluated as safe only if all 4 conditions reach the specified standard. As long as one item does not reach the standard or the basic standard, it cannot be evaluated as safe or largely safe.

Indicators and Standards for Rural Drinking Water Safety Assessment

Quantity	water-rich areas, quantity>60L/ (cap · d) ; water-deficient areas, quantity > 40L/ (cap · d)	water-rich areas, quantity>35L/ (cap · d) ; water-deficient areas, quantity >20L/ (cap · d)
Quality	Water users of water supply projects with a population of more than 10,000 conform to the provisions of <i>Sanitary Standard for Drinking Water</i> (GB5749); Water users of water supply projects with a population of less than 10,000 and decentralized water supply projects conform to provisions on the quality of rural water supply in GB5749.	The incidence trend of intestinal infectious diseases among the local population is stable and there is no sudden outbreak, the total number of colonies in microbial indexes and disinfectant indexes may not be included in the evaluation indexes; For water users of the decentralized water supply project, there is no visible impurities, no color and odor in water, and there is no adverse reactions after long-term drinking.

Level of convenience	The round trip time for water intake by manpower in water-supply-to-household areas (including residential areas or courtyard) shall not exceed 10min,or the horizontal distance for water intake shall not exceed 400m and the vertical distance shall not exceed 40 m.	The round trip time for water intake by manpower shall not exceed 20min,or the horizontal distance for water intake shall not exceed 800m and the vertical distance shall not exceed 80 m. In pastoral areas, the round trip time of water intake by simple transportation can be used for evaluation.
Assurance rate	≥ 95%	≥ 90%,and<95%

2 Major Achievements and Challenges

2.1 Major Achievements

The implementation of the rural water supply project has effectively solved drinking water problems such as insufficient water quantity and

Terraced Fields at Dengjiaban, Guangze County, Fujian Province



poor water intake, greatly improved water quality, reduced incidence of waterborne diseases, and improved the health level of rural residents. After tap water has reached the farmers, it ended the history of rural residents carrying water from afar and ensured safe drinking water for elderly women and children left behind in rural areas. The rural labor forces were also liberated and the income of rural residents increased. Environmental protection of rural water sources has improved the living conditions in rural areas, improved the quality of life of rural residents and promoted the construction of a beautiful countryside. The central fund subsidy for rural water supply projects mainly gave priority to minority areas, border areas, pastoral areas and other economically underdeveloped areas. Preferential supporting policies were given to temples and other religious places. Through the implementation of rural water supply projects, tap water was supplied, which not only promoted the coordinated development of ethnic areas and other regions and the equalization of basic public services in urban and rural areas but also drove the unity and integration of different ethnic groups and maintains stability in border areas.

In recent years, the Ministry of Water Resources and local water conservancy departments, at all levels, have set up telephone lines for



reporting and supervising rural water supply. The Ministry of Water Resources has organized regular monitoring and investigation of rural residents' drinking water safety, and continued to conduct unannounced visits and investigations. By dramatically developing the construction of rural water supply projects and intensifying engineering management supervision and protection, water user satisfaction has been enhanced year by year. The rural water supply project has become one of the most popular projects benefiting the rural residents.

2.2 Key Experiences and Practices

2.2.1 Scientific Planning and Comprehensive Reinforcement of Responsibilities at All Levels

Since 2000, the central and local governments at all levels have carried out top-level design, scientific planning and high-level promotion. With the approval of the State Council, the Ministry of Water Resources implemented the *National Tenth Five-Year Plan for Solving Rural Drinking Water Problems* in 2000. By the end of 2004, a total of 60.4 million rural residents had their serious drinking water problems solved.

Since 2005, the State Council has approved the implementation of the *Emergency Plan for Rural Drinking-water Safety During 2005-2006*, *Eleventh Five-Year Plan for the National Rural Drinking-water Safety Project* and *Twelfth Five-Year Plan for the National Rural Drinking-water Safety Project*. By the end of 2015, the problem of drinking water safety for 520 million people in rural areas and more than 47 million teachers and students has been solved. These programs, implemented on the basis of existing water supply network, have basically solved the permanent problem of water safety in rural areas.

In order to further improve the level of rural water supply safeguarding, starting from 2016, with the consent of the State Council and under the guidance of the Ministry of Water Resources and relevant ministries and commissions, all provinces (autonomous regions and municipalities directly under the Central Government) have compiled and implement the *Plan for Rural Drinking-water Safety Consolidation and Improvement during the 13th Five-Year Plan Period*. It was approved by the provincial people's governments, with the focus on solving the drinking water safety problems of poverty villages and people. It insists on the large-



Ceremony for Well Completion and Water Discharge in Sunnan County, Gansu Province

scale construction of water supply projects, strengthening water-source protection, project management and protection, and comprehensively using transformation, matching, upgrading, networking and other ways to consolidate and improve the level of rural water supply safeguarding. By the end of 2020, 270 million rural people's water supply safeguarding has been enhanced in total. Among them, the problems of drinking water safety of 17.1 million poor people, excessive fluorine in drinking water of 9.75 million people, and brackish water of 1.2 million rural people have been solved. The lives of farmers, and herdsmen in many poverty-stricken regions have made progress from buckets to water pipes. A sense of acquisition, happiness and safety of rural people has been significantly enhanced.

The central No.1 documents of 2021 and 2022 have continuously proposed explicit requirements for rural water supply safeguarding. Also, The Ministry of Water Resources has organized the compilation of *the National 14th Five-Year Plan for Ensuring Water Supply in Rural Areas*, stably drove the transformation from rural drinking water safety to rural water supply safeguarding by relying on the new developmental stage, running through the new developmental philosophy, and constructing the new developmental pattern, and kept enhancing rural water supply standards and safeguarding.

2.2.2 Differentiated Investment Policies due to Regional Differences

In order to ensure that the rural population of all ethnic groups in all regions of China share the fruits of reform and opening up, central funds are tilted to ethnic minorities, border areas and economically underdeveloped central and western regions. During 2005-2015, 45% of central funds were used to support the western region (the population in the western region accounted for 28%), and 85% of central funds were used to support the central and western regions. On the basis of the implementation of the *12th Five-Year Plan of the National Rural Drinking-water Safety Project*, in order to further solve the drinking water problem in Tibet-related areas, pastoral areas and areas with special difficulties, the Chinese government invested 3.621 billion yuan in Tibet-related areas, Xinjiang, and surrounding areas in 2015. It solved the drinking water problem of 5.666 million people of the rural population in areas mainly inhabited by ethnic minorities. From 2016 to 2020, central funds will continue to increase subsidies, 57.9% of which will be used to subsidize projects to consolidate and improve rural drinking-water safety in western provinces. Since 2021, The Ministry of Water Resources has guided all localities to actively seek integrated funds for agriculture. Convergence of central finance has promoted subsidy funds for rural revitalization. Local governments have offered special bonds, bank loans, and social capital. Engineering construction capital through multiple channels has compensated the insufficient part of building rural water supply facilities.

2.2.3 Clarification of Task Standards and Enhancement of Rural Water Supply Safeguarding

During the 13th Five-Year Plan period (2016-2020), in accordance with the central government's goal of ending poverty and building an equally well-off society, the Ministry of Water Resources has regarded rural drinking-water safety as the number one project for poverty alleviation and has made full efforts to promote it. It has cooperated with relevant departments to increase the support from central funds in areas of poverty, especially those in severe areas of poverty, and has allocated 24.515 billion yuan in subsidies to the provinces that have the task of getting out of poverty through rural drinking-water safety. Provincial governments have increased their investment and have generally included rural drinking water safety protection and poverty alleviation

in the scope of assessment for city and county Party committees, governments or water conservancy departments. In some areas, people's governments at all levels have signed letters of responsibility to further confirm their commitment to push forward the construction of consolidation and upgrades of rural drinking water safety project. In 2018, the Ministry of Water Resources organized the compilation of *Guidelines for Assessment of Rural Drinking Water Safety* to define the assessment criteria for poverty alleviation in rural drinking water safety, according to local conditions in various provinces. In conjunction with the Poverty Alleviation Office of the State Council and the Health and Welfare Commission, the Ministry of Water Resources issued the *Notice on Resolutely Winning the Tough War on Poverty Alleviation through Rural Drinking Water Safety* to deploy the work. The Ministry of Water Resources also requested all localities to incorporate the construction of rural drinking-water safety projects for poor villages and people into the county poverty alleviation project. Localities were also requested to prioritize funding and implementation. Measures are in place to ensure that there is not one village or one person among the poor affected by unsafe drinking water. The Ministry of Water Resources has, in conjunction with water conservancy departments around the country, established working ledgers for poor people with drinking water problems from county to village to household. The Ministry of Water Resources has also implemented dynamic identification and rolled out numbers on a monthly basis, to ensure a comprehensive solution to the drinking water safety problems of poor people by the end of 2020.

Since 2021, the Ministry of Water Resources has cooperated with relevant departments to promulgate a series of documents, including *Notice on Supporting the Consolidation and Expansion of the Achievements in Poverty Alleviation of Water Supply in Rural Areas*, *Guidelines on Taking Special Actions to Improve Water Quality in Rural Areas*, and *Notice on Promoting the Standardized Management of Water Supply Projects in Rural Areas*, etc., to appropriately raise the standards for the construction and management of rural water supply projects, to accelerate the construction of rural water supply projects, to improve the level of engineering operation management and service level, and to promote the high-quality development of rural water supply.



2.2.4 Enhancement of Management and Protection and Promotion of Long-term Operation of the Project

The Ministry of Water Resources, in conjunction with relevant departments, has instructed all localities to continuously improve and perfect the long-term operation mechanism of the project while promoting the construction of rural water supply projects. The first is to establish a responsibility system of management. At the beginning of 2019, the Ministry of Water Resources issued the *Notice on Establishing a Responsibility System for Rural Drinking Water Safety Management*, deploying all localities to fully implement the “Three Responsibilities” : the independent duty of local people’s government, the industry supervision responsibility of the water administration departments and the operation and management responsibility of water supply units. By the end of 2020, “Three Responsibilities” and “Three Systems” of the national rural drinking water safety management have been comprehensively established, gradually from name to reality and effectiveness. The second is to construct the central government financial assistance mechanism. In 2019, the Ministry of Water Resources and the



Ministry of Finance first arranged 1.45 billion yuan of central subsidy funds to support the maintenance of rural water supply projects in areas of poverty in the central and western regions. They jointly issued guidance to standardize the use and management of funds, promoted the establishment of incentive mechanisms and speeded up the normal operation of projects. For 5 years, 12.8 billion yuan of central subsidies for rural water supply engineering maintenance has been arranged in total. The achievements of established rural water supply projects have been further consolidated and maintained. The third is to strengthen industry supervision. Since 2018, the Ministry of Water Resources has organized the agencies of river basin management and other units to conduct “four no and two directly” unannounced visits and inspections. Each province has also increased unannounced visits and inspections and established a regular unannounced visit mechanism. The rural drinking water reporting and supervision telephones of the Ministry of Water Resources, provincial, municipal, and county levels have been opened to fully develop the supervision role of the masses while strongly impelling daily supervision of rural water supply projects. The fourth is to establish problem lists

and rectify ledgers. For rural water supply problems discovered through various channels such as media exposure, unannounced visits and checks, reports from the masses, etc., a list of problems and work ledgers shall be established, and “one province, one task” shall be issued in a timely manner. All localities shall be required to rectify problems one by one. If necessary, they shall “look back” and keep a close eye on implementation, so as to ensure that each piece is implemented and everything has an echo.

2.3 Challenges

Due to national conditions, water regime, regional differences and the residential characteristics of the rural population, the overall level of rural water supply security in China is still in the primary stage, but there is still a large gap between the level of rural water supply and the needs of the masses for a better life in some areas. With socio-economic development, the demand for water in rural areas has increased in all aspects. Village change and population mobility put new demands on the layout of projects. What's more, due to climate changes and other reasons, the amount of water from drinking water sources in many rivers, lakes, reservoirs and villages has obviously decreased, especially in dry seasons and water use peak periods. Some rural water supply projects in the northwest, southwest and central area, where the population is concentrated, have a problem of unstable water sources. The purification and disinfection facilities and equipment of some rural water supply projects are not fully equipped and operated in a standard manner, and the water quality guarantee is not high. There are many rural water supply projects with a wide scope. Some of them are small in scale. The number of small concentrated and scattered water supply projects has nearly occupied 99%. The water supply scale is small. There is a relatively insufficient water supply population in a single project, resulting in neither failing to attract nor retaining professional management talents and teams. Thus, local villagers have no way but to provide easy operational management, showing high difficulties in engineering operation management and protection.

3 Future Goals

3.1 Goals

Guided by Xi Jinping's Thought on Socialism with Chinese Characteristics for the new era, the government deeply runs through the decision-making deployment of the Party Central Committee and the State Council about comprehensively promoting rural revitalization and the Chinese-type modernized country, comprehensively, completely, and accurately carries forward the new developmental philosophy in the new developmental stage, stably promotes the transformation from rural drinking water safety to rural water supply safeguarding by insisting on people first, and realizes the effective connection between consolidation and expansion of poverty alleviation and rural revitalization. Upholding problem orientation and goal orientation, the government is based on the construction of stable water sources, implements the construction of large-scale water supply projects and transformation of small-scale project standardization, realizes high-quality development, keeps enhancing rural water supply safeguarding ability, and meets water demands for rural drinking, toilet changing, washing, and environmental hygiene. Based on both establishment and management, the government pays much attention to management, reinforced water quality safeguarding and water charge payment, and enhances operational management and service level so that rural people will have a sense of acquisition, happiness and safety during the co-construction and sharing process.

By 2025, the popularizing rate of national rural tap water will be up to more than 88%. The rural population ratio of large-scale water supply engineering services will exceed 60%. The government will improve the system and mechanism for long-term operation and management of rural water supply, perfect the mechanism for water price formation and water charge payment, and enhance the service level of water supply management. Meanwhile, the government will reinforce water source protection, enhance water purification and disinfection facilities, and ensure the safety of water supply quality. By 2035, the government will continue improving rural water supply facilities, enhance the operational management and protection level, and basically realize rural water supply modernization.

3.2 Key Tasks

3.2.1 Consolidating and Expanding the Achievements of Poverty Alleviation for Rural Water Supply

It is necessary to realize dynamic monitoring of drinking water in poverty alleviation areas, weak-water-supply areas, and drinking water status of people out of poverty and people with unstable water supply, reinforce searching, identify latent risks in rural water supply, establish the rapid discovery and response mechanism of problems, smooth channels for the masses to report and supervise, discover and solve problems of rural water supply as early as possible, and maintain dynamic reset. Also, it is essential to reinforce engineering management and maintenance projects, as well as consolidate and protect achievements of established rural water supply projects.

3.2.2 Promoting the Construction of Large-scale Rural Water Supply Projects

Within the coverage areas of large and medium-sized reservoirs and water transfer projects, it is essential to carry forward the integration of urban-rural water supply and the construction of water supply projects with thousand tons for ten thousand people, and realize the overall development of urban-rural water supply, and large-scale water supply development. In other areas, it is better to establish some water source projects of small reservoirs and pumping wells according to local conditions, update and transform old water supply pipes and facilities, and reduce network leakage and loss. Meanwhile, it is essential to implement small-scale standard project construction and transformation, reduce the number of water supply people only by depending on water cellars and tanks, and improve rural water supply safeguarding.

3.2.3 Improving the System and Mechanism of Engineering Management and Protection

It is essential to accelerate standard management of rural water supply projects. If condition permits, it is better to establish the sound and uniform institutions for rural water supply management services, enhance operational management and technical service level, clarify property rights of centralized rural water supply projects, and identify management and protection responsibilities, subjects, and expenditures.

It is essential to promote enterprise management and professional management for water supply projects with thousand tons for ten thousand people, sound water managers for small-scale water supply projects, reinforce technical training, implement governmental financial services, and enhance the professionalized management level.

3.2.4 Promoting Smartization Development of Rural Water Supply

It is necessary to improve electronic ledgers of rural water supply project information, found a single management map of rural water supply projects, accelerate comprehensive perception, real-time transmission, data analysis, and smartization application system construction of water supply, develop digital twin water supply projects and enhance the ability of forecasting, early warning, rehearsal and planning by combination with hydrology, weather forecast information and analysis of water supply and demand capacity.

4 International Cooperation and Exchanges

Before large-scale construction of safe rural drinking-water projects conducted by the Chinese government in 2005, China has received help and support from such international organizations as the United Nations Children’s Fund (UNICEF), the United Nations Development Program (UNDP), the World Health Organization (WHO), the World Bank and the Asian Development Bank (ADB) as well as the governments of countries such as the United Kingdom to ensure access to safe drinking water for rural residents. In the 1980s, China implemented multiple projects of rural water supply and environmental sanitation with credit and lending from the World Bank. In the 1990s, China and UNICEF explored and applied in some areas with success a “3 in 1” approach that features low cost, sustainable water supply, environmental sanitation and health education. Subsequently, China and the UK have worked together to



Drinking Water from the Newly-drilled Well

develop a method that allows water users to fully participate in rural water supply projects. The method is currently being disseminated in rural areas of China.

In recent years, China has undertaken a number of water safety projects in the developing world by sending technical experts to numerous African nations where the Chinese specialists guide their host countries in their efforts to build water supply projects. In addition, China has run training programs for a large number of technicians and managers from these countries.



A Mother in Remote Mountain Areas Gets Access to Tap Water

