

RURAL WATER SUPPLY

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MINISTRY OF WATER RESOURCES, PEOPLE'S REPUBLIC OF CHINA



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1. Overview

1.1 Evaluation Standards for Rural Drinking Water Safety

In November 2004, the Ministry of Water Resources (MWR) and the Ministry of Health (MOH) jointly issued the *System of Indicators for Safety and Sanitation Evaluation of Rural Drinking Water*, according to which, rural drinking water is assessed by the two grades of “safe” and “largely safe”. The system consists of four indicators: quality, quantity, level of convenience and assurance rates. As long as one of the four indicators stands below the lower end of the “safe” or “largely safe” range, the water in question cannot be considered as “safe” or “largely safe” drinking water.



Drinking water supplied to Miao Ethnic Group

Table 1 The System of Indicators for Safety and Sanitation Evaluation of Rural Drinking Water

	Safe	Largely safe
Quality	Compliant with the State's <i>Sanitary Standards for Drinking Water</i>	Compliant with the <i>Rules on the Implementation of Sanitary Standards for Drinking Water in Rural Areas</i>
Quantity	≥ 40~60 liters available water per person per day	≥ 20~40 liters available water per person per day
Level of convenience	≤ 10 minutes per round trip of manual water fetching	≤ 20 minutes per round trip of manual water fetching
Assurance rates	≥ 95% water supply assurance rate	≥ 90% water supply assurance rate

1.2 Current Status of Water Supply in Rural China

1.2.1 Modes of Rural Water Supply

Water supply in rural areas takes place in a centralized or distributed mode. Under the *Sanitary Standards for Drinking Water*, centralized water supply means that water is taken at a centralized source before it is carried to users by a water transmission and distribution pipeline network. Another form of the centralized mode is water supply from a public water-taking point including supply from self-constructed facilities. Under the distributed mode, users directly take water from a source without going through any facilities or a source that just passes through rudimentary facilities.

Priority has been accorded to projects of centralized water supply as parts of the efforts to implement the rural drinking water safety projects. The 11th Five-Year Plan period witnessed a dramatic increase in the ratio of the country's rural population with access to centralized water supply, which rose from 40% to 58% during this period before it hit 68% by the end of 2012.

1.2.2 Progress in the Implementation of Rural Drinking Water Safety Projects

Under the auspices of the Ministry of Water Resources (MWR), the Ministry of Health (MOH) and the National Development and Reform Commission (NDRC), a survey was conducted in 2005 to take stock of the status of rural drinking water safety. The survey and the follow-up audit found that at the end of 2004, 323 million rural residents nationwide, or 34% of the rural population, lacked access to safe drinking water. In 2005 alone, the number of rural residents with access to safe drinking water increased by 11.04 million. The 11th Five-year Plan period saw a rise of 210 million in the number of rural residents with access to safe drinking water. Accordingly, the size of the rural population without access to safe drinking water, as defined under the existing five-year plan, dropped to 102 million people. In addition, safe drinking water was made available to 18.7 million teachers and students at 45,000 rural schools that once had no access to safe drinking water.

Due to higher sanitation standards for drinking water,

changes in water sources, and the need to upgrade earlier projects, the number of rural residents across the nation without access to safe drinking water experienced an increase. In 2009-2011, NDRC, MWR and MOH undertook another joint survey of the status of rural access to safe drinking water. The findings showed that at the end of 2010, in addition to the 102 million residents that had been identified by the previous survey as living without access to safe drinking water at the end of 2004, an incremental population of 196 million people was unable to access safe drinking water nationwide.

In a bid to take a holistic approach to help the total population living without access to safe drinking water as defined under the previous standards and amended standards, NDRC, MWR, MOH and the Ministry of Environmental Protection (MEP) jointly developed the *National 12th Five-Year Plan for Rural Drinking Water Safety Projects*, which set forth an explicit target to ensure access to safe drinking water for all the 298 million rural residents who still live without such access, including 41.52 million rural school teachers and students. By 2015, new members of the population without access to safe drinking water as defined by the amended standards should acquire such access so that

the ratio of the rural population nationwide enjoying access to centralized water supply will rise to 80%.

In 2011-2015, the central government mandated a total of RMB 176.777 billion to be spent on rural drinking water safety projects, out of which RMB121.45 billion was from the central government budget. The investment managed to provide access to safe drinking water for 303.8 million rural residents, including 41.328 million rural school teachers and students.

2. Key Accomplishments and Challenges

2.1 Key Accomplishments

In 2009, China met the goal of halving the ratio of the population without access to safe drinking water by 2015, attaining the concerned millennium development goal 6 years ahead of schedule. In 2009, China International Engineering Consulting Corporation (CIECC) undertook a mid-term review on the implementation of the 11th Five-Year Plan for rural drinking water safety via a survey involving 50,000 rural households. The findings showed a satisfaction ratio of up to 96% among the farmers. In 2000-2015, the government succeeded in providing access to safe

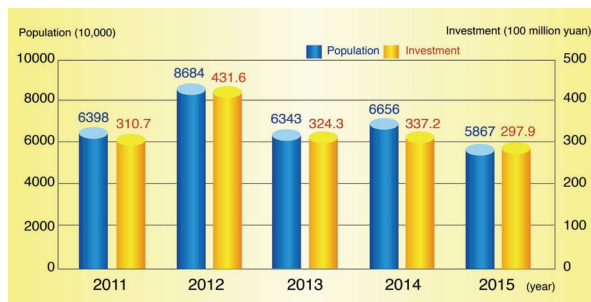


Chengnan Township Water Treatment Plant in Zhuji City, Zhejiang Province

drinking water for 584 million rural residents who had lived without such access.

- (1) Farmers have become healthier and enjoy better living and working conditions and environmental sanitation in the countryside.
- (2) Increased assurance rates of water supply enhance the capacity for drought relief and disaster preparedness.
- (3) More freed up rural labor force has boosted rural income and prosperity.
- (4) The improvement has contributed to ethnic unity, social harmony and stability.

“This year, we will ensure that 60 million more rural residents gain access to safe drinking water...” in the *Report on the Work of the Government (2015)*, delivered at the Third Session of the 12th National People's Congress on March 5, 2015.



The Chinese government will provide safe drinking water to 298 million rural residents and 41.52 million students and teachers in rural areas during 2011-2015. The proportion of centralized water supply in rural areas will be increased to 80% during this period.

2.2 Key Experiences and Practices

2.2.1 A government-led mechanism for addressing rural drinking water safety is set up.

The 2011 *Decision on Accelerating Reform and Development of the Water Sector* adopted, in explicit terms, a system of holding chief executives of regional governments accountable for access to safe drinking water. Local governments at all levels are required to treat drinking water safety projects as a key initiative of enormous relevance to people's livelihood. In 2013,



Dongshen Water Supply Project in Guangdong Province

MWR issued *Measures for Annual Audit of Construction and Management of Rural Drinking Water Safety Projects*. All governments at the level of province (autonomous region and centrally administered municipality) include in their annual performance evaluation the development of rural drinking water safety projects. The majority of provincial (regional and municipal) governments have entered into target-hitting pledges with their immediately subordinate governments at the city and county level. All provincial-level governments have promulgated dedicated implementation guidelines or administrative measures to ensure consistency in the construction and management of the projects, which as a result have proceeded smoothly.

2.2.2 Construction plans are developed for rural drinking water safety projects.

Since 2005, the central government has implemented the *2005-2006 Plan for Rural Drinking Water Safety Emergency Projects*, *11th Five-Year Plan for Rural Drinking Water Safety Projects Nationwide* and *12th Five-Year Plan for Rural Drinking Water Safety Projects Nationwide*. A goal has been set to ensure access to safe drinking water for the rural population in its entirety by 2015.



First-ever experience with tap water at farmers' home in Hebei Province

2.2.3 A financing mechanism has been adopted that relies primarily on government spending and is supplemented with farmers' input in the form of labor.

In 2005-2015, China's total spending on rural drinking water safety projects reached RMB 281.68 billion, out of which RMB 182.45 billion came from the central government budget on a cumulative basis. Local governments and the private sector contributed RMB 99.2 billion. On the whole, fiscal funds from the government accounted for 85% of the total project



Water plant in Wushan County, Chongqing City

investments. Rural households, as beneficiaries of the projects, were responsible for 15% of the spending on the projects in the form of both monetary and labor input. Sufficient financial availability has ensured smooth implementation of the rural drinking water safety projects.

2.2.4 An innovative approach to project management has guaranteed practical results.

As part of the efforts to ensure smooth construction and management of the projects, MWR has in recent years worked together with other competent authorities to develop or improve a series of policies and standards on construction and management of rural drinking water safety projects. These directives include, among others, the *Administrative Measures for Construction of Rural Drinking Water Safety Projects*, *Administrative Measures for Funding Construction of Rural Drinking Water Safety Projects*, *Circular on Boosting Water Quality Safeguards for Rural Drinking Water Safety Projects*, *Circular on Further Improvement in Construction and Management of Rural Drinking Water Safety Projects* and *Technical Standards for Village and Township Water Supply Projects*.

When it comes to project management, the following steps have been taken. First, an agency overseeing rural drinking water safety projects has been set up

at the county level. Second, the projects are subject to extensive public scrutiny. Third, farmers are mobilized to participate throughout the project process.

2.2.5 Stepped-up efforts are made to manage the operation of rural drinking water safety projects.

Specialized bodies are formed to manage larger-scale projects. Smaller water supply projects are collectively owned by the beneficiary villages or water users' cooperatives that the villages have formed. Operation and maintenance work is assigned to dedicated individuals. Distributed water supply projects are owned and managed by individual beneficiary farmers. Project operation and maintenance are primarily financed by water tariff. Any funding gap for project operation and maintenance is filled by subsidies from local governments or the village's collective coffers. In 2011, either on its own or in conjunction with NDRC, the Ministry of Land and Resources (MLR), the Ministry of Finance (MF) and the State Administration of Taxation (SAT), MWR issued the *Circular on Appropriate Adjustment of Electricity Tariff*, *Circular on Land Management for Construction of Rural Drinking Water Safety Projects* and *Circular on Tax Policy for Construction and Operation of Rural Drinking*



Safe drinking water supply project in Liangping County, Chongqing City

Water Safety Projects, which has helped reduce the cost of construction and operation of rural safe drinking water projects. To further enhance management and maintenance of rural safe drinking water works and ensure successful construction, effective management and long-term benefits of these works, MWR printed and distributed the *Guiding Opinions on Further Enhancing Management and Maintenance of Rural Safe Drinking Water Works*, requiring all concerned localities to take relevant measures for such enhancement.



Water treatment facility in Liaozhong County, Liaoning Province



Safe drinking water supply project in Xinzheng City, Henan Province

2.2.6. Water quality safeguard work is enhanced to ensure compliance with water quality standards.

In 2008, MOH started to monitor the sanitation of water quality for rural drinking water across the country. Monitoring is conducted for factory-produced water and tap water from rural drinking water safety projects nationwide during the high water period and low water period. Acting upon the MOH monitoring results, MWR gives instructions for annual improvement on a province-by-province basis. In 2013, in a joint effort with NDRC, the National Health and Family Planning Commission (NHFPC), and MEP, MWR issued a *Guiding Opinion on Strengthening Capacity Building for Water Quality Testing of Rural Drinking Water Safety Projects*, which identifies, in explicit terms, the goals and tasks for capacity building for water quality testing, testing frequency and indicators, as well as operation and management thereof.

2.3 Challenges

First, the ratio of rural population with access to centralized water supply in China remains modest. Second, rural water supply projects are so costly that they have to be built with a low level of ambition. Some communities with limited availability of resources have to resort to decentralized water supply projects or only seek to serve a single village with one project. Third, rural water supply projects are plagued by small sizes and high cost of supply, which fails to be sufficiently covered by water tariffs. The difficulty in introducing specialized management poses a daunting challenge to the viability of project operation. Fourth, rural sources of drinking water are characterized by complexity of types, limited sizes and wide geographical distribution. Protection of water source areas remains a tough job. Fifth, rural drinking water safety projects lack technical and managerial expertise. Specialized management is elusive for the projects. In addition, more often than not, village and



Water Users' Association established in Zhangye City, Gansu Province

township water supply projects are located in far-flung communities, which, with undesirable working conditions and poor compensation struggle to attract competent technicians and managers

3. Future Goals

The central government has mandated that access to safe drinking water should be made available across-the-board in the countryside by the end of the 12th Five-year Plan period and that the coverage ratio of centralized water supply projects in rural areas should hit 80%. During the 13th Five-year Plan period, the country will strive to move towards rural-urban equalization in terms of water supply by supplementing, upgrading and creating networks



Water supply pipe installation in Sichuan Province

among existing rural drinking water projects.

Enormous efforts will be made to boost the capacity for ensuring access to safe drinking water and tap water in rural areas. By 2020, universal access to tap water will largely materialize in the countryside; assurance rates of water supply and water quality will rise dramatically in rural areas; a scheme of rural drinking water safeguards will be introduced to cover the entire supply chain from “source to tap”; more reforms will be pursued for the system of managing rural water supply projects; more professional technicians and managers will be brought in to run rural water supply projects so that the projects can operate in a more resource-efficient way. One goal is to evolve towards a system under which the full cost of water supply will be covered primarily by water tariffs with supplemental input from other sources of subsidies. It is important to ensure that the water supply projects



will remain viable in the long run with a view to achieving access to safe drinking water for rural and urban communities alike.

4. International Cooperation and Exchanges

In its endeavors to ensure access to safe drinking water, 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 (WB) and the Asian Development Bank (ADB) as well as the governments of countries such as the UK and Japan. Since the 1980s, China has implemented multiple projects of rural water supply and environmental sanitation with credit and lending from the World

Bank. Since the 1990s, China and UNICEF has 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. Over the past few years, China and the UK have worked together to develop a method that allows water users to fully participate in rural water supply projects. The method is currently being disseminated across the country.

In recent years, China has undertaken a number of water and health 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 technicians and managers from these countries.



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