WATER, SANITATION AND HYGIENE
OVERVIEW

Since its participation in the first International Drinking Water Supply and Sanitation Decade (1981–1990), China has demonstrated long-term commitment to work with the international community to improve water supply and sanitation in the country, especially in rural areas. Through institutional improvement, technological innovation, internal and external exchanges, and capacity building strengthening, the Government laid the foundation for the rapid development of urban and rural water supply and environmental sanitation. These efforts have led to significant achievements in improving drinking water sources and sanitation facilities, and supported China to accomplish the water and sanitation targets set out in the MDGs.

The United Nations 2030 Agenda for Sustainable Development includes a goal focused on sustainable management of water and sanitation for all (SDG 6) that sets ambitious targets for “universal and equitable access to safe and affordable drinking water for all” (SDG 6.1), and “adequate and equitable sanitation and hygiene for all” (SDG 6.2). The indicators selected for tracking progress towards these global targets are the population using safely managed drinking water services, the population using safely managed sanitation services, and the population using handwashing facilities with soap and water. The 2030 Agenda emphasises the integrated nature of development and the interlinkages between progress on Goal 6 and progress towards related targets under other Sustainable Development Goals.

Rural drinking water safety

The central government has allocated funds for rural water supply since 2000. As the Eleventh Five-Year Plan (2006–2010) put forward the requirement of accelerating the implementation of the Rural Drinking Water Safety Project,^5^ the central government’s expenditure on rural water supply has increased significantly over time. During the Eleventh FYP period, the central government invested a total of RMB 59 billion, and local governments and the general public raised an additional RMB 46.3 billion, which collectively provided access to safe drinking water for 210 million rural residents.^5^ During the Twelfth FYP period (2011–2015), the central government invested a total of RMB 121.5 billion, and local governments raised RMB 55.3 billion,^7^ which essentially resolved the rural drinking water safety problem with 304 million rural residents and 41.3 million rural school teachers and students accessing safe drinking water.^8^

During the Thirteenth FYP period (2016–2020), the Government committed to implement the Rural Water Safety Consolidation and Upgrading Project to further improve the centralized water supply rate, the water supply guarantee rate, and the water quality compliance rate in rural areas, and promote the equalization of urban and rural public services. In addition, the Government incorporated the Rural Drinking Water Safety Project under the key support areas of the new ‘San Qu San Zhou’ poverty alleviation funds,^10^ with increased focus on the establishment of water infrastructure and improvement of water supply in poverty-stricken areas. These efforts are in support of providing access to centralized water supply for over 85 per cent of rural residents and ensuring over 80 per cent of rural residents can access piped water by 2020.^11^

Rural sanitation

Faecal management and sanitation reform have been key components of the patriotic health campaigns of China. In the 1990s, the Government incorporated the sanitation reform work into the National Programme of Action for Children in China in the 1990s and the Decision of the Central Committee of the Communist Party of China and the State Council on Health Reform and Development, which promulgated the ‘toilet revolution’ in rural areas. In 2004, the central government set up the cash transfer programme for sanitation reform in rural areas to promote the construction of harmless sanitary latrines. In 2009, sanitation reform in rural areas was further supported through its inclusion in major public health service projects for deepening the medical and health system reform. From 2004 to 2014, the central government accumulated invested RMB 8.4 billion, which established and improved 21.3 million rural household latrines.^12^

The decades of continued rural sanitation reform increased the percentage of rural households with access to sanitary latrines from 7.5 per cent in 1993 to 81.8 per cent in 2017. The Government of China aims to achieve the coverage of 85 per cent by 2020. Moreover, considering that the current harmless faecal management rate in rural areas is only 62.7 per cent, it is necessary to further advance the sanitation reform work. The Health China 2030 Plan proposes that most rural residents should be able to access harmless sanitary latrines by 2030.^13^

As important components of rural sanitation and ecological construction, the rural sanitation reform is also key to creating liveable, beautiful, and sanitary villages and towns, and promoting the healthy development of the new socialist countryside. In recent years, Chinese President Xi Jinping has repeatedly emphasized the importance of the ‘toilet revolution’ as a key component of the urban-rural civilization construction and rural revitalization strategy.^

Hygiene

According to data from the WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene (JMP), only 70 countries had comparable data available on handwashing with soap and water in 2015. The available data indicate that in the Least Developed Countries, 27 per cent of the population had basic handwashing facilities with soap and water, while 26 per cent had handwashing facilities lacking soap or water. The remaining 47 per cent had no facilities. At present, China lacks the relevant statistics to estimate the coverage of handwashing facilities.
**Water, sanitation and hygiene (WASH) in schools and health facilities**

The SDG targets aim for “universal access” to water supply, sanitation and hygiene which not only includes households but also WASH in schools, health care facilities and other institutions.

In recent years, the water supply and sanitation conditions in primary and secondary schools have greatly improved. Between 2011 and 2017, the proportion of basic education schools (including pre-primary schools, primary schools, junior secondary schools, and senior secondary schools) with centralized water supply increased from 54.2 per cent to 75.8 per cent, and the proportion of schools with sanitary latrines increased from 56.5 per cent to 80.1 per cent while most of schools with non-sanitary latrines are concentrated in the central and western regions of the country. School toilets in China are generally separated by sex, but often the number of stalls for girls are equal to or less than the number of stalls for boys, making it more common for girls to wait in line. In addition, some school toilets do not allow for privacy, and accessible designs for children with disabilities are not in place.

Statistics on the status of WASH in health facilities are not currently available in China.

**Challenges**

- According to estimates by WHO and UNICEF in 2015, China still had approximately 57 million people without basic access to drinking water services, 340 million people without access to basic sanitation services, including around 20 million people still practicing open defecation. China needs to continue its efforts to achieve the targets of “universal access to basic services” (including basic drinking water, sanitation and hygiene) for all and to “end open defecation”, as well as progressively increasing coverage of safely managed drinking water and safely managed sanitation services as set out in the SDGs.

- There are regional differences in drinking water and sanitation services in China, with the central and western provinces lag far behind the eastern coastal provinces. This is one of the bottlenecks for poverty reduction in the central and western regions, posing huge constraints on health, cultural and economic development. The constraints also affect the overall progress of a healthy China. Studies on multidimensional poverty have shown that the contribution of drinking water and sanitation on poverty is usually high but shows significant room for improvement. Advancing water and sanitation services can play a positive role in reducing multidimensional poverty, and can be included as a focus of the future poverty reduction work of the central and western regions. Therefore, during the Thirteenth FYP period, special attention should be paid to poverty-stricken areas, and effective community-led and government-assisted models should be adopted to provide basic drinking water, sanitation and hygiene services to the most vulnerable groups in order to eliminate the gap as soon as possible.

- To push forward the ‘toilet revolution’, it is necessary to consider how to encourage behavioural change and promote the development of healthy habits. This can include creating demand through institutionalizing community approaches to total sanitation, addressing behavioural barriers, creating a sustained social norm of not practicing open defecation, and promoting the proper use and safe management of toilet facilities. Specifically, the general public can be advocated to leave a clean public toilet for others.

- Although there is currently no nationally representative data, some surveys in selected provinces have found the rate of proper handwashing is low among residents. Handwashing and disease prevention knowledge should be widely disseminated to cultivate proper hand washing habits and strengthen interventions for targeted populations in key areas.

- Water, sanitation and hygiene services in schools and health facilities should be further improved to ensure that all schools and health facilities have universal access to basic water, sanitation and hygiene services by 2030 as set out in the SDGs. Existing evidence shows that WASH in school programme could reduce the prevalence of hygiene-related infectious disease and reduce absenteeism.

- Strengthen supply-side innovation, through changing the method of project promotion, such as establishing social norms, encouraging the public to actively use safely managed sanitation facilities; providing multiple types of funding subsidies to adapt to different situations; and strengthening the development and delivery of innovative technologies. It is necessary to identify the bottlenecks for development and advance the improvement of sanitation and hygiene services according to the needs of individuals, households and local conditions.

- Monitoring of water supply, sanitation and hygiene facilities and services should be strengthened, and monitoring methods and indicators should be designed to align with the WHO/UNICEF JMP, focusing on service accessibility and use. There is an urgent need to incorporate monitoring of water supply, sanitation and hygiene into the Government’s relevant surveys and administrative data information systems, and to publish them regularly through public channels such as statistical yearbooks.

- In China, new and old problems such as frequent floods and droughts, water shortages, serious water pollution, and ecological water damage pose serious challenges to ensuring water security. As a country prone to natural disasters, it is apparent that disasters frequently deteriorate environmental conditions, often resulting in higher costs for safe water supply and sanitation solutions. There is a need to consider the influences of climate change, environmental degradation and disasters during the planning and design phase.
The WHO/UNICEF JMP has produced regular estimates of national, regional and global progress on WASH since 1990. In the MDG period, indicators measuring ‘use of improved facilities’ were used to track progress of drinking water across countries. Drinking water sources are classified into two hierarchical levels based on technology as shown in the table on the right. Improved drinking water sources are those which by nature of their design and construction have the potential to protect the water source from outside contamination. Starting from 2015 with the adoption of the SDGs, the population using improved drinking water sources is subdivided into three groups according to the level of service provided: safely managed, basic and limited services, which form the JMP service ‘ladders’ shown in the table on the left to enable benchmarking and comparison of progress across countries and facilitate enhanced monitoring and promoting drinking water services.
Figure 7.2
Sanitation facility and service level


Similar to standard classifications of drinking water, sanitation facilities are also classified into two hierarchical levels based on technology shown in the table on the right. Improved sanitation facilities are those designed to hygienically separate excreta from human contact. Since the adoption of the SDGs, the population using improved sanitation service is subdivided into three groups according to the level of service provided, namely safely managed, basic and limited services, which form the JMP service ‘ladders’ shown in the table on the left to enable benchmarking and comparison of progress across countries and facilitate enhanced monitoring and promoting sanitation services. Meanwhile, the JMP continues to monitor the population practicing open defecation, which is an explicit focus of SDG target 6.2.

In China, sanitation facilities are normally classified as sanitary latrines and unsanitary latrines. Sanitary latrines not only separate excreta from human contact, therefore meeting the JMP criteria for ‘improved’, it also requires the latrines to be clean without flies, maggots and odor, the storage pit water-sealed and fully covered by a slab with no excreta exposed, as well as the waste removed and treated to be harmless. Among sanitary latrines, those that can effectively kill pathogenic microorganism and prevent infection are categorized as harmless sanitary latrines. Harmless sanitary latrines include flush toilets/pour flush latrines to piped sewer system, three-compartment septic tank latrines, double-urn funnel-shaped latrines, three-in-one biogas septic tank latrines, urine-diversion latrines, and twin-vault alternating pit latrines. In order to meet the SDG criteria for safely managed sanitation services, the waste from sanitary latrines must either be safely treated in situ or removed and treated off-site.

In China, harmless flush toilets/pour flush latrines to septic tank include: three-compartment septic tank latrine, double-urn funnel-shaped latrine and three-in-one biogas septic tank latrine.
Figure 7.3
Handwashing facility and service level

<table>
<thead>
<tr>
<th>SERVICE LEVEL</th>
<th>DEFINITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>BASIC</td>
<td>Availability of a handwashing facility on premises with soap and water</td>
</tr>
<tr>
<td>LIMITED</td>
<td>Availability of a handwashing facility on premises without soap and water</td>
</tr>
<tr>
<td>NO FACILITY</td>
<td>No handwashing facility on premises</td>
</tr>
</tbody>
</table>


Figure 7.4
Percentage of population having at least basic drinking water services, 2000–2015


Figure 7.3
The presence of a handwashing facility with soap and water on premises has been identified as a priority indicator for global monitoring of hygiene under the SDGs. In JMP, the handwashing service level is divided into three categories: basic, limited and no facility. Handwashing facilities may be fixed such as a sink with tap water, or mobile like basins used for handwashing. Soap includes bar soap, liquid soap, hand sanitizer or similar detergents, but does not include ash, mud, sand or other handwashing agents.

Figure 7.4
According to the latest estimates released by the WHO/UNICEF JMP in 2017, the proportion of the population having at least basic drinking water services rose from 78 per cent to 96 per cent between 2000 and 2015 in China, and urban-rural differences were basically eliminated.
Figure 7.5
Percentage of rural population benefitting from centralized water supply, 2005–2017

Figure 7.6
Percentage of rural population benefitting from centralized water supply, by province, 2017


Between 2005 and 2017, the proportion of rural population benefitting from centralized water supply increased steadily, from 42 per cent to 85 per cent. China has achieved the target of over 85 per cent of rural population with access to centralized water supply ahead of the 2020 timeline.

The percentage of rural population benefitting from centralized water supply varies widely across provinces. More than 90 per cent of rural population in most provinces of the eastern region benefit from centralized water supply. Provinces such as Liaoning in the eastern region, Jilin in the central region, and Qinghai and Sichuan in the western region have relatively low percentage (lower than 80 per cent) of rural population benefitting from centralized water supply.
Figure 7.7
Percentage of population having at least basic sanitation services, 2000–2015


Figure 7.8
Access to sanitary latrines and harmless sanitary latrines in rural areas, 2000–2017

Source: National Health Commission, China Health Statistical Yearbook, 2018

Figure 7.7
According to the latest estimates released by the WHO/UNICEF JMP in 2017, 75 per cent of China’s population in 2015 used toilets that meet at least basic sanitation service standards. The proportion in rural areas was 61 per cent, 25 percentage points lower than in urban areas. Due to the use of different definitions and estimation methods, the JMP estimates differ from those published by the National Health Commission (formerly the National Health and Family Planning Commission, see Figure 7.8).29

Figure 7.8
According to data from the National Health Commission (formerly the National Health and Family Planning Commission), the proportion of rural households having sanitary latrines increased significantly from 40.3 per cent to 81.8 per cent between 2000 and 2017. The proportion of rural households having harmless sanitary latrines increased from 19.3 per cent to 62.7 per cent. Although the increases were significant, China is still far from achieving the goal set out in the Health China 2030 Plan, which proposes that most rural residents should use harmless sanitary latrines by 2030.
The percentage of rural households having sanitary latrines varies greatly from province to province. More than 85 per cent of rural households in most provinces of the eastern region have access to sanitary latrines, while the percentage in provinces of the western region is relatively low. For example, Shaanxi province only has 47.2 per cent of rural households accessing to sanitary latrines.

In May 2018, the National Patriotic Health Campaign Committee issued the Standards of Rural Household Latrine Construction to scientifically guide the construction and management of rural household latrines, further improve the living environment in rural areas, and promote the ‘toilet revolution’. According to geographical conditions and preferences, rural households in different regions choose different types of latrines. The three-compartment septic tank latrine is the most common type, accounting for 37.6 per cent of all rural household sanitary latrines in 2017. The flush toilet to piped sewer system has also become popular, accounting for 17.7 per cent.

Since 2007, the twin-vault alternating pit latrine was introduced in rural areas, which is one of the six types of harmless sanitary latrines recommended by the National Patriotic Health Campaign Committee. By 2017, 1.79 million rural households had access to the twin-vault alternating pit latrines, accounting for less than 1 per cent of all rural sanitary latrines. As the percentage value is too small to be displayed in the figure, this value is merged into the other types of sanitary latrine category.
Between 2011 and 2017, the proportion of schools in the basic education stage with centralized water supply increased from 54.2 per cent to 75.8 per cent. The proportion of schools with non-centralized water supply decreased from 42.9 per cent to 23.6 per cent, and the proportion of schools without water sources decreased from 2.9 per cent to 0.6 per cent. According to 2017 data, the proportion of schools with centralized water supply in urban areas was 25 percentage points higher than that in rural areas. In terms of regions, the proportion of schools with centralized water supply in the eastern region was the highest, reaching 81.3 per cent, and the proportion of schools with non-centralized water supply in the central region was the highest, at 29.3 per cent.
Between 2011 and 2017, the proportion of basic education schools with sanitary latrines increased from 56.5 per cent to 80.1 per cent, and the proportion of schools with non-sanitary latrines dropped from 42.8 per cent to 18.8 per cent. The proportion of schools without latrines was about 1 per cent. According to 2017 data, the proportion of schools with sanitary latrines in urban areas was much higher than that in rural areas, with a difference of 24 percentage points. In terms of regions, the proportion of schools with sanitary latrines in the eastern region was higher than that in the central and western regions. Moreover, most of the schools with non-sanitary latrines were concentrated in the central and western regions.
**Water, Sanitation and Hygiene**

**Data sources and references**

1. **Improved water sources** – Improved water sources include piped water, boreholes or tubewells, protected dug wells, protected springs, rainwater, and packaged or delivered water (WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene, 2017).

2. **Improved sanitation facilities** – Improved sanitation facilities include flush/pour flush to piped sewer systems, septic tanks or pit latrines; ventilated improved pit latrines, composting toilets or pit latrines with slabs (WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene, 2017).

3. **Safely managed drinking water service** – Drinking water from an improved water source that is located on premises, available when needed and free from faecal and priority chemical contamination (WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene, 2017).

4. **Safely managed sanitation service** – Use of improved facilities that are not shared with other households and where excreta are safely disposed of in situ or transported and treated offsite (WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene, 2017).

5. **The rural drinking water safety** is divided into two levels, safe and basically safe, as measured by four indicators: water quality, water quantity, ease of access and water supply guarantee rate. If one of the four indicators fall below the safe or basically safe minimum standards, it cannot be defined as safe or basically safe drinking water (Ministry of Water Resources, Ministry of Agriculture, ‘Notice on Issuing the Evaluation Indicator System for Rural Drinking Water Safety’, 2004).


12. **Harmless sanitary latrines** – refers to sanitary latrines that are effective in reducing the infectious agents of biological virulence factors in feces. This includes three-compartment septic tank latrine, double-urn funnel-shaped latrine, three-in-one biogas septic tank latrine, urine-diversion latrine, twin-vault alternating pit latrine, and flush toilets to piped sewer system (Office of the National Patriotic Health Campaign Committee, Standards of Rural Household Latrine Construction, 2018).


National Health Commission, China Health Statistical Yearbook, 2018


Basic drinking water services – Drinking water from an improved source, provided collection time is not more than 30 minutes for a round trip, including queuing (WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene, 2017).

Basic sanitation services – refers to the use of improved facilities that are not shared with other households (WHO/UNICEF Joint Monitoring Programme for Water Supply, Sanitation and Hygiene, 2017).


According to the first survey on the situation of handwashing in five provinces in 2011, the proper handwashing rate of the surveyed residents was only 4 per cent.


WHO/UNICEF JMP utilizes nationally representative data from national statistical agencies and relevant ministries, including household-based sample surveys and census data, to derive fitted value of the percentage of population using various levels of drinking water and sanitation facilities and services. The estimates derived from different sources differ in value due to differences in methods and definitions.