



Rural water supply and sanitation in China

Shi Malin, China

THE MAJORITY OF the Chinese population lives in rural areas; based on statistics from the end of 1999 they account for 9.54 hundred million people, or 75.7% of the whole population of China. This means that the improvement of the water supply and sanitation in rural areas is an issue of fundamental importance. Improvements in water supply and sanitation in rural areas are targets for the government programmes 'Health For All by the year 2000' and the 'National Programme of Action for Child's Development in 1990s (NPA)'. They are also an important part of government disease control initiatives undertaken to prevent the spread of infectious intestinal diseases.

Current policies, organizations involved and current situation in water supply and sanitation in rural China

In 1980, in the 35th General Assembly, the United Nations initiated the "International Drinking Water Supply and Sanitation Decade" with a target of "universal access to safe drinking water and sanitation." The Chinese Government supported this initiative and formulated various programmes designed to improve the standards of drinking water in rural areas of China. The State Council designated the National Patriotic Health Campaign Committee, (NPHCC) as the National Committee for Action on the "International Drinking Water Supply and Sanitation Decade", with the deputy director of the NPHCC (minister of Public Health) as its director, with specific work in this area be carried out by NPHCCO.

Between 1986 and 2000, the objective of improving rural water supply has been included in three consecutive Five Year Plans for the national social and economic development. The general principles along which the government runs these programmes are that the government proposes plans, which are co-ordinated by the appropriate departments, and are designed to ensure the full support from society and participation of individuals. For water supply projects, the approaches are: "Individual projects are subsidised by the state, but attempts are made to raise funds from various other sources as well; they are adapted to local conditions, with scientific guidance provided by experts; the individual or company that constructs water supply systems should be responsible for their management for the maintenance of water quality, for charging tariffs based on actual consumption and for reinvesting profits in the water supply programme."

The main task for water improvement in rural areas is to improve the health standards of rural drinking water. At present, source treatment and water sterilisation levels for water sources (surface water, ground water, spring water, rain etc.), need to be improved to meet government safety standards, and the government is also working on improving the patterns of water supply and the ease of access to safe drinking water for the rural population. In 1991, the Chinese Government set down criteria for the implementation of the regulations on 'Standards for Water for drinking and domestic use'. The criteria to be tested include 22 categories, such as appearance and chemical, toxicological, and bacteriological indexes, each of which are divided into three classes. The standards for Class I water are those stipulated in the National Standards for water for drinking and domestic use; those for Class III which are the lowest acceptable values for drinking water are still slightly higher than those recommended by WHO for rural areas in developing countries. As a result of concerted efforts over the last decade, access to safe drinking water for China's rural population has increased considerably, and the standard of that water has also been improving. According to statistics from the end of 1999, beneficiaries of improved water supply accounted for 91.83% of the total rural population in China; at present 53.3% of the rural population drink piped water, 23.53% drink hand-pumped water, and 14 % improved water from other sources (see Table 1), while the percentage of rural drinking water reaching government safety standards increased dramatically from 23.7% in 1985 to 62.1% in 1998. (See Chart 1).

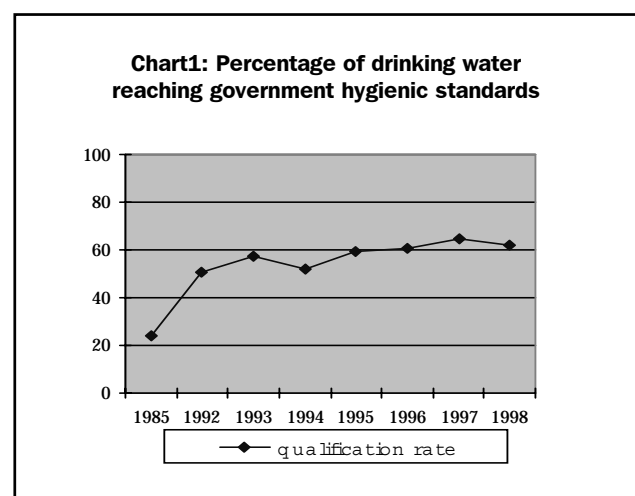


Table 1. Progress in provision of safe water supplies in rural China

Year	1 (10, 000)	2 %	3 %	4 %	5 %
1985	84883	49.8	14.1	11.7	24.1
1990	88238	75.5	30.7	19.6	25.2
1995	91773	87.0	43.7	22.3	21.1
1996	95108	86.9	45.0	23.0	19.2
1997	95401	88.9	48.1	23.6	17.2
1998	95399	90.6	50.4	23.9	16.3
1999	95399	91.8	53.3	23.5	14.0

1. Total Rural Population
2. Accumulated Water Supply Beneficiaries
3. Population with Piped Water
4. Population with Hand-pumps
5. Population with other water sources

Table 2. Progress of Sanitation in Rural China

Year	Total Rural Population (10,000)	Coverage rate of sanitary latrine (%)	Hygienic Treatment rate of nightsoil (%)
1993	91963	7.5	13.5
1996	95108	20.9	21.0
1997	95401	29.6	25.4
1998	95399	35.0	28.5
1999	95399	39.8	29.5

Sanitation in rural China began comparatively late. The first baseline survey of rural latrine provision was carried out in the end of 1993, and statistical records on latrine improvements in rural China were only begun in 1995. The baseline survey showed that the coverage rate of latrines in rural China was only 7.5% at the end of 1993, but increased to 15.7%, 29.6% and 35.03% in 1995, 1997 and 1998, respectively.

The coverage rate of rural latrines by the end of 1999 was 39.83%. (See Table 2), which means that the Chinese government fulfilled a year ahead of schedule its commitment to the international community to provide sanitary latrines to 40% of the rural population in China by End of 2000.

Based on the current status of economic development in rural China and the tradition of using human waste as an

agricultural fertiliser, a sanitary rural latrine is defined as follows: a latrine with full walls, roof and pit, odourless and fly and maggot-free, in which the pit is airtight and has a cover, and the waste can be cleared up and undergo treatment. There are five main types of sanitary rural latrines in China which are: three compartment-pit, double urn, biogas, VIP latrines and urine diversion ecological latrines.

The planning and implementation of rural sanitation are carried out by the NPHCC, the same body that deals with drinking water standards. The NPHCC is an organisation responsible for policy, planning, and implementation which reports directly to the State Council; it has 25 departments including the ministries of finance, policy, health, agriculture, construction and the environment, and the state planning council, etc. The head of the first committee was Premier Zhou Enlai, and the current head is The Vice-Premier of the State Council Li Lanqing. The NPHCC has an administrative arm called the National Patriotic Health Campaign Committee Office (NPHCCO), which is headed by the minister of health. With the strong support of the committee members from all departments, the NPHCCO, as the executive and management unit for the programme, organises and implements projects to improve rural water supply and sanitation, including those run with international co-operation.

Achievements and experience gained from international co-operation on sanitation and safe drinking water programmes

A considerable proportion of the programmes aimed at improving drinking water and sanitation standards in rural China have been sponsored by or organised in co-operation with international organisations. From 1982 until now, UNDP, WB, WFP, EEC, WHO, UNICEF, Germany, Japan and Australia, have all co-operated with China in working on improvements in rural water supply and sanitation. At present, NPHCC is organising and implementing environmental sanitation and hygiene education projects supported by the UNICEF and a water and environmental sanitation loan project from the World Bank.

There has already been 4 batches of the World Bank loan projects with a total value of 3.206 hundred million US dollars. In addition Chinese local and national government agencies contributed 1.4328 hundred million US dollars, and the rural population a further 2.2240 hundred million US dollars, making a total investment of 6.8628 hundred million US dollars. The project has been implemented in 18 provinces, autonomous regions, and municipalities, reaching 167 counties and 38970 villages. This has meant that safe drinking water in adequate quantities has been provided for a further 22.67 million people in rural China.

With the improvement of drinking water quality and the increase in the consumption of safe water, the incidence rates for water-borne diseases in project areas have gone down markedly. Based on a survey of 1.11 million people, the incidence rates of enteritis, dysentery and hepatitis A decreased by 87.8%, 80.4% and 78.1%, respectively. Moreover after improving the standards of drinking water in areas with high fluoride levels, there was no further evidence of fluorosis. In many areas, after improvements in water quality were made, a piped supply replaced the various energy-consuming methods previously used for collecting water, leaving labour power available for other work and resulting in noticeable economic benefits. Improvements in water quality and supply also promoted the development of individual businesses and enterprises in small townships and villages resulting in considerable increases in per capita income in the project areas.

When formulating the project 'Standardization of design for rural water supply', we initiated multi-level management on project design, experts were consulted for advice, there was a strong emphasis on quality control, and the desires of the rural population were taken into account and all their demands met. Groups have been trained in over half the provinces in the country to provide a backbone force able to launch rural water supply and sanitation using scientific and efficient methods.

In 1994-1995 UNICEF successfully implemented a project to improve rural water supply and sanitation in four provinces. In 1996-2000 they continued on rural environmental sanitation and hygiene, which provided 2.5 million US dollars of aid, and 21 counties in 8 provinces and autonomous regions were designated as project sites. The overall objective is to assist the Chinese government for the achievement of sanitation goal stipulated in NPA.

The project has been running for nearly five years now, and there have been significant achievements in many areas: increased advocacy and mobilisation, raising awareness, the development of appropriate technology and improvements in capacity building, the construction of sanitary latrines, and the promotion of rural environmental sanitation and changes in personal hygiene behaviour. According to statistics from the end of 1999, Chinese national and local governments have committed 5.4 million US dollars to projects designed to improve sanitation and water supply, and the rural population has invested a further 12.28 million US dollars. With these funds 440,000 latrines were built, greatly improving the quantity of sanitary latrines in rural areas.

The project also supported the first –ever national conference on rural sanitation. It was jointly organized by NPHCCO, National Working Committee on Children and Women, All China Women's Federation and Central Youth League have generated momentum in many provinces to come up with concrete plans and budget allocation on sanitation, which would continue not only for 2000 but also beyond 2000.

Communication has been strengthened to make the rural population know sanitary latrine and its advantages, build and properly use sanitary latrines, and improve their surroundings and personal hygiene.

This programme was implemented under the “three in one” approach that emphasised the issues of water supply, environmental sanitation, and hygiene education. It supports low cost and easily maintainable sanitary latrines, advocates saving water and installing toilets in homes, and encourages the participation of women and children in programmes related to water supply and sanitation, as well as paying more attention to education about sanitation in schools. It also adapts to suit local conditions. One of the key functions of the programme is to train up a core trainers in order to improve the capability and quality of local staff at all levels and guarantee the sustainable development of the project.

While working on projects in conjunction with the World Bank and UNICEF we have learnt the following:

- The active participation of the rural population is vital for success in any project.
- A strong executive body and co-operation between departments are important safeguards of the implementation of projects.
- Funds should be collected in many ways, and the collection of the total amount required is a necessary guarantee of the completion of the programme.
- Projects often serve as models, and what they demonstrate drives the direction of the development of national programmes for improvements in sanitation and water supply.

The experience gained from this international co-operation will be a useful asset when working on the future direction of water and latrine improvements in rural China.

Perspectives for the new century

Improving water supply and sanitation in rural China presents a considerable challenge for us. However we feel we cannot only focus on these areas but should also be taking a lead in the promotion of healthy rural environments, the control and prevention of diseases, and the development of healthy villages and towns using water and latrine improvements as entry points. For the new century, we have established clear and definite objectives: by 2005, the percentage of national rural water supplies that are safe or undergoing improvement should reach 95%. The rate of access to piped water should reach 60%, the percentage of rural drinking water reaching government standards of cleanliness should be 65%, and the prevalence of sanitary latrines in rural areas should reach 55%. By 2010, the percentage of national rural water supplies that are safe or undergoing improvement should reach 97%. The rate of access to piped water should reach 70%, the percentage

rural drinking water reaching government standards of cleanliness should be 70% and the prevalence of sanitary latrines in rural areas should reach 65%.

However it should always be kept in mind that improving rural water quality and latrine sanitation standards in China is an extremely difficult task. The main difficulties in improving water standards are as follows: first, the hygienic standards of the drinking water of 1.2 hundred million of the rural population have not been improved at all because they live in poor areas with severe shortages of funds. Second, the treatments used for the well water and rainwater drunk by over two hundred million rural residents remain stuck at elementary stages of improvements to water quality and far from acceptable safe drinking water standards. Third, in rural water processing plants established at the beginning of 80's, the technology used has become outdated; the water cleaning facilities are simple and the water pipelines are ageing and both need improving and modernising. Fourth, the drinking water sources in several places have been severely polluted.

The main difficulties in improving the quantity of sanitary latrines in China are: first, in some places, the consciousness of the leadership about this issue has not been raised. Second, the traditional views of a lot of peasants have not been fundamentally changed, and they are unwilling to spend money on the construction of latrines. Third, there is a large disparity between the demand for funds to improve latrines and actual investment, efforts to collect money have not always gone smoothly, and so they lack sufficient funds. Fourth, the technical guidance cannot keep up with current needs, and the few types of sanitary latrine currently available cannot meet the needs of the people in different regions in China.

The solutions to the problems of improving rural water supply lie in increasing investment, designating funds in government budgets for the improvement of rural water, and working hard to get further loans. In rural areas of China, there is currently a trend towards construction of tap water facilities. We intend to popularise the construction of water treatment plants with appropriate quality controls in central townships, which can supply water to surrounding villages. The water factories charge fees according to the quality of the water, in accordance with the “water brings more water” programme.

We are currently working hard on several aspects of the programme, in order to deal with the current problems in the work to improving rural sanitation

- Through advocacy and mobilisation, we are improving knowledge about these issues among leaders at all levels, and trying to change traditional attitudes and concepts. This is in order to motivate peasants to participate in the programme, construct their own sanitary latrine, initiate a healthy and sanitary way of life, and develop their capacities for self-protection and care.

- With a unified lead by the government, and the planning and co-ordination of NPHCC, we will mobilise the health, agriculture, construction, and finance ministries at national and local levels, as well as the women's federation, and the Communist Youth League to co-operate extensively on these issues. Each will be obliged to offer active support in the form of finance, personnel, and technical assistance.
- We will help ensure projects continue to encourage 'individual pays, government supports', mobilization of funds through different channels, helping the rural population to depend upon themselves for the construction of sanitary latrines and actively participate in changing their own living environment.
- We will suit measures to the actual circumstances in each location, and work scientifically to improve latrines so that we can construct latrines that meet the people's demands. Training has been launched every-

where. Sufficient technical guidance should be ensured at grassroots level, Demonstration of good models and replication have been carried out.

- We will strengthen education about personal sanitation and hygiene, and increase communication about the correct ways to use sanitary latrines. We will also train people to have better hygiene habits and are aiming in this way to improve overall environmental sanitation as effective measures for preventing and controlling diseases.

SHI MALIN, Deputy Director, National Patriotic Health Campaign Committee Office, Ministry of Health, Beijing, People's Republic of China
