Reform of Water Tariffs in Chongqing: A Case Study Review

Executive Summary

Water supply tariffs have always been a sensitive issue since they concern basic living standards of the general public, and there are typically conflicts of interest between the water provider and different consumer groups.

In the process of water tariff adjustment in Chongqing, an in-depth study was conducted by the Chongqing Development and Reform Commission. This study addressed the following issues: water subsidies and water quality; “metered costs” and “un-metered costs”; water tariffs and consumer behaviour; social costs of low water tariffs; water tariffs and resource efficiency; and water tariffs and social equity. The conclusions were quite straightforward and convincing, and served not only as a sound theoretical basis for the water tariff adjustment from 1.20 yuan/m³ to 2.00 yuan/m³ in Chongqing in 2001 (the rate was the highest in the nation at that time), but also accepted by representatives (including those from disadvantaged groups) at public hearings, which to a great extent eased public concern.

The case study in Chongqing resulted in a number of findings and recommendations, which are of general relevance for further water tariff reform in Chongqing as well as other cities. Some specific findings are as follows:

- Beneficiaries of low water tariffs are not always as intended. The original intention of the government was to maintain the water tariff at a low level through financial subsidy to decrease living costs for low-income groups. However, the investigation disclosed an embarrassing finding: high income groups, who consume the most water, are the major beneficiaries.

- There is a trade-off between “metered” water expense and “un-metered” water expense. The study showed that although the residents were paying a relatively low price for “metered” water
consumption, they had to pay a relatively high price for their “un-metered” water consumption, the latter typically being several times as expensive as the former. A major reason for this phenomenon is the poor quality of water available from the taps.

- Social costs and other problems resulting from low water tariffs include: the waste of water resources, pollution of the environment, additional costs for pollution control, health losses, severe financial deficit and inferior service of the water provider, as well as a public fiscal burden.

From the above, a number of water tariff adjustment principles emerge, namely:

- Principle No.1: Make sure it is a win-win game. Water tariff reform should not only aim at immediate revenue increase of the water company, but more importantly focus on decreasing the expenditure of the public in the long run, so that both the water provider and consumers will benefit.

- Principle No. 2: Fairness should be not only in formula but also in substance. Implementing a policy in which users pay full costs of supply based upon their levels of consumption is important in principle. However, disadvantaged groups should be entitled to specific assistance to ensure social fairness.

- Principle No. 3: Step by step implementation of the adjustment is required. Since people are used to the low-tariff consumption mode, government must take adequate account of the psychological process as well as the impact of increases in income in making tariff reform acceptable.

Therefore, both the tariff adjustment and the reduction of government subsidy should be done gradually to ensure a smooth transition both financially and psychologically for consumer groups.

- Principle No. 4: The ultimate goal of water tariff adjustment is to reveal the scarcity of water, promote healthy and rational consumer behaviour, and facilitate the harmonious development of society.

Background

The Chongqing Water Group Corporation was founded in 1999 in an attempt to change the management of urban water supply and sewage systems from the traditional government monopoly to an enterprise operation mode. At the beginning of its life, the company was confronted with a series of difficult situations.

First, neither the scope nor the quality of service could keep up with the rapid development of economic and social conditions. In terms of water supply, except for treated water from the very few treatment facilities newly built or renovated in the 1990s which could meet the water quality standards set for Category I water producers, about 72% of the total amount of the treated water could barely meet the standards set for Category II or III water producers.

Furthermore, only 20 percent of the hundreds of kilometres of municipal water distribution pipelines in the city proper could meet the national technical specifications for pipe materials (ductile iron with anticorrosive liner), resulting in
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Serious secondary contamination of the water distribution network. Moreover, water available from residential taps could hardly meet the national standards for drinking water quality.

In addition, the municipal sewerage system also faced serious problems with a wastewater treatment rate of less than 6 percent, while a huge amount of domestic and industrial wastewater was discharged directly into the Yangtze and Jialing Rivers through more than 600 outlets, which not only seriously polluted the source water for nearby water treatment plants, but also exposed urban residents to health risks and endangered the water environment of the Three Gorges reservoir and downstream cities.

Compounding these operational and management issues, the Chongqing water utility was also constrained by limited public finance. According to estimates at that time, by 2010, the Water Company would need up to 500 million yuan each year for new construction, extension or renovation of facilities to extend the service area and improve the quality of service, which was beyond the government’s total annual budget for all municipal construction activities. In fact, the accumulated debt and daily operational costs of the water utility has led to deficit spending by its financial administrations. Therefore, Chongqing’s water utility had no choice but to seek new financing from the market.

Seeking development through market mechanisms means an end to the traditional mode of purely depending on government finance, and inevitably involves the adjustment of water tariffs. For a long time, Chongqing’s residents have been used to a “low tariff” water consumption mode with the product or service provided by the municipal water supply treated as a form of “social welfare” rather than a “consumable commodity” in the market. The Chongqing Water Group Corporation needed to raise sufficient funds for service area extension, facilities expansion and service quality improvement through timely tariff adjustment. This, however, turned out to be in conflict with the habitual consumption psychology of the general public. For example, at a public hearing on water tariff adjustment in 1999, the Chongqing Water Group Corporation listed various reasons, including presentation of data on company debt and loss to justify the need for an increase in water tariffs, but this was dismissed with contempt by consumer representatives, who strongly rejected these arguments. The conflict of interest between consumers and water companies on the issue of water tariffs, placed the government in a difficult situation.

To address this problem, the Chongqing Municipal Government assigned the Chongqing Development and Reform Commission to conduct a study on urban water tariff reform, i.e. “Study report on the adjustment of tariff for water supply and sewerage service in Chongqing central districts”. The focus of the study was a comprehensive analysis of the pros and cons of water tariff adjustments in order to identify practical solutions for government decision-making. Several core issues discussed in the “Study Report” are presented in the following sections.
Beneficiaries of Low Water Tariffs

The general public were not going to approve the increase of water tariff if it would only benefit the water companies. Therefore, the report started with the most debated question, namely: who would benefit from the low water tariff?

Generally speaking, the price of a commodity should cover the resource cost, capital cost and operation cost, whereas the fact is, in China, capital investments in primary water utilities in most cities are funded by governments at various levels. The research group found out that cumulative capital investments in water utility facilities by the Chongqing Municipal Government prior to 2000 had never been taken into account in the computation of prices. In other words, at that time, the government subsidized 1.34 yuan/t in water tariffs through nonremunerative capital investment.

According to the parallel survey of “willingness to pay” targeting 2200 residents from different consumer groups done by the same team, residential water use is highly correlated with their economic status, i.e. wealthy households consume greater amounts of water than poorer households. The survey showed that households with a family income of over 10,000 yuan/month enjoyed a subsidy of 22 yuan/month, whilst residents whose family income was around 500 yuan/month received a subsidy of only 3 to 4 yuan per month.

The above findings are very embarrassing. The original intention of the government’s price subsidy should obviously be to reduce the cost of living for the general public, and in particular the disadvantaged groups. However, since the subsidy was based on a fixed unit rate for water charges rather than being distributed directly to actual users, the higher water consuming rich group benefited the most from the low-tariff policy. There are of course many precedents for this type of situation in fuel and food subsidies; governments have often tried to subsidize products designed to assist the poor, but all too often such policies have had perverse and unanticipated income distributional and social effects.

Costs of “Metered” and “Un-metered” Water

Another finding from the survey was that some residents claimed that billed water expenses based on the water meter may only account for a small portion of total water expenses. For example, for a three-member family consuming about 6 tons of water per month, the monthly water charge is 7.20 yuan (1.20 yuan/t) according to the reading of the water meter. However, in addition to that, the family would also need to spend extra money on bottled drinking water, or install a family-used water purifier. If 3 to 4 barrels of water were used, the average cost would be around 30 to 40 yuan; if the filter element of the water purifier is replaced every year, then the total costs would be around 80 yuan, which reflects an average monthly expense of 6 yuan.

Actually the residential water expenses are far more than those mentioned above. In some developed countries or regions, when a thrifty person gets thirsty he or she will usually drink free water from public taps, instead of paying money for drinks. However, in Chongqing or most cities in
China it was not easy to find public taps that can provide drinkable water. Even if there were taps available, psychologically speaking, people would rather choose to buy bottled water instead of risking their health to try such tapped water. Therefore if a family of three goes out once a month, there will be possibly another 6 yuan extra expense on drinks.

It seems that the costs of “un-metered” water consumption are usually several times higher than the costs of “metered” ones. Although in some cases, “un-metered” water is consumed voluntarily or as a luxury, such as sauna and swimming pools for fitness, in most cases, it is either passive or compelled, such as the use of bottled water or water purifiers.

There is thus an inverse correlation between the value of “metered” and “un-metered” consumption, particularly when the cost of health care due to poor quality of tap water is factored in. Among the 2200 residents involved in the survey, around 80 percent of them bore some sorts of costs of “un-metered” water consumption.

Paying extra for “un-metered” water consumption is of course against the original intention of most residents, as most residents alleged that they would not feel it necessary to buy bottled water or a water purifier if the tap water met drinking water standards.

Water sector insiders point out that there is a direct relationship between the poor quality of water delivered to households and condition of the water distribution system. The treated water from some water treatment plants in Chongqing (especially those constructed most recently) could quite easily meet the standards for quality drinking water, which means the root cause of the water quality problem can only be the secondary contamination from the water distribution network.

The secondary contamination of the water distribution network not only was a waste of the company’s primary water treatment efforts, but also triggered the endless “un-metered” water expense imposed upon residents. When being asked why no work has been done to rehabilitate the old network system, the Water Company’s reply was insufficient funding. This illustrates the general problem: if public finance can no longer provide sufficient support for the water utility, while residents will not approve the water tariff adjustment to raise funds for rehabilitation, the problem of poor water quality will remain unchanged, as will the high costs incurred for “un-metered” water consumption.

Other Social Costs of Low Water Tariffs

Low water tariffs result in the water providers’ inability to cover costs through billing revenue, the transfer of benefits from the poor to the rich, the need for “un-metered” water consumption, and a number of other issues.

The report points out that the relationship between water and wastewater can be described as “upstream” and “downstream” in the process of water consumption. The low charge for upstream use encourages excessive consumption, which not only results in waste of the resource, but also creates a high volume of wastewater downstream, and in
consequence, the aggravated environmental pollution and increase in downstream pollution control costs needed for building, operation and maintenance of wastewater treatment facilities. In other words, the lower the price of upstream drinking water, the higher the downstream wastewater treatment demand and costs required to be paid either by the government or the general public.

The problem of who wins and who loses continues. While many people are becoming satisfied with their basic needs and turn to seek a more rational and higher quality lifestyle, they sadly remain trapped on the issue of water use, i.e. paying less for water while consuming inferior quality drinking water day after day, with potentially serious adverse impacts on their health. The municipal Water Company also suffered a great loss. The water tariff was too low to cover the costs resulting in the deteriorating financial status. Moreover, many bottled water and water purifier manufacturers - as well as companies providing service for secondary water supply – play up the issue of drinking water quality as a means of promoting their own products and services as the means of safeguarding health. Helplessly facing these financial constraints while suffering criticism from the general public for the poor quality of water delivered to the households, the Water Company was in a situation of “lend your money and lose your friend”.

The situation of the government was even more embarrassing. Other government agencies have also been suffering a shortage of funding and increased deficit spending, and it was a pressing task for the government at various levels to allocate public revenues to cope with the more critical social issues like poverty relief, social welfare, sanitation, education and unemployment. However, such efforts have been hindered by the existing water tariff policy. On the one hand, the government has been considering the introduction of a market mechanism for urban water utilities to seek new funding channels, becoming responsible for their own profits or losses, and achieving financial autonomy. On the other hand, the extremely low price of water indicated the uncertainty of long-term profits within the water supply industry, which has impeded the involvement of social capital and foreign capital.

It can be seen from the above that the traditional low water tariff mode has created a vicious circle: financial subsidies → low water tariff → high water consumption → waste of resource → increase of pollution → aggravation of environment conditions → augmentation of environment rehabilitation costs → incremental enterprise losses → further increase of public consumption costs and public financial subsidy.

Key Principles of Water Tariff Reform

A Win-Win Approach

The report suggests that the main reason for the previous water tariff adjustment proposal being rejected by the general public was mostly due to the perception that the benefits of the tariff increase would only accrue to the water provider, and the general public could hardly envisage any gain. The fact is however that an appropriate water tariff adjustment would help the water utility industry generate more capital which could then be
transformed into public investment in building more facilities and improving drinking water quality, and finally achieve the decrease of “un-metered” water consumption. In other words, the starting point of the water tariff policy should focus not only on the Water Company’s revenue increase, but more importantly focus on decreasing the expenditure of the public in the long run, so that both the water provider and consumers will benefit.

Therefore, while launching the tariff adjustment policy, the Chongqing government made a commitment to use the estimated revenue increase from the price increase to service the debt financing (Japanese loan) for the billions of investment in the “Clean Water Project” between 2003 and 2008, which aims to provide quality water for residents in central districts within 8 to 10 years, so that the urban residents could benefit from the potential reduction of expenditure associated with “un-metered” water consumption.

**Fairness of Water Tariff Adjustment Policy**

The policy for water tariff adjustment should be defined by considering both “fairness in form” and “fairness in nature”.

First, considering the problem of inequity among the poor and the rich (due to subsidizing of water tariffs), the government should gradually reduce the non-remunerative capital investment (subsidy) in urban water supply, and implement a policy in which prices cover total costs and vary in accordance with the amount of water consumed. This policy must be complied with universally by all consumer groups concerned. Therefore, in 2001 the Chongqing Municipal Government decided to raise the water tariff from 1.20 yuan/ton to 2.00 yuan/ton as the first step to cover most of the costs, which would be subject to further adjustment according to the actual costs in the future.

In the meantime, specific policies were applied to the disadvantaged groups, with the previous “tariff based universal subsidy” replaced by “specific subsidy to specific group”, i.e. increasing the minimum living standard from 169 yuan/person/month to 185 yuan/person/month, unemployment pension from 201 yuan/person/month to 210 yuan/person/month and the minimum living standard for laid off workers from 205 yuan/person/month to 215 yuan/person/month, in order to ensure the basic living standards of the disadvantaged groups will not be harmed by the water tariff adjustment.

**Step by Step Increases**

The report points out that since the low water tariff had been implemented for very long period of time, water tariff reform must take adequate account of the psychological process as well as the extent of income increase for the general public to accept the change. Therefore, both the tariff adjustment and the reduction of government subsidy should be done gradually to ensure a smooth transition both financially and psychologically for the consumer groups.

Since the water tariff reform in Chongqing would involve three aspects, i.e. water resource, water supply, and sewerage
sectors, the Chongqing government therefore decided to adopt a step by step approach in order to avoid strong social reaction. First, the water supply tariff was increased in 2001 and would remain unchanged for some time; it would then be followed by tariff adjustment for water resources and sewage. At the end of 2005, the water tariff has remained at 2 yuan/ton, with minor tariff adjustments on water resources and sewage during that period of time, which has successfully secured the social stability.

The Ultimate Goal

The ultimate goal of water tariff adjustment is to reveal the scarcity of water, promote healthy and rational consumer behaviour, and facilitate harmonious social development.

It is fair to say that the 2001 water tariff reform has achieved certain effects in Chongqing, even though there are still debates on the tariff adjustment up to now. Nonetheless, according to the Water Company’s statistics, the amount of water consumption in the central districts was reduced by 3 to 5 percent shortly after the tariff increase, which indicates that consumer behaviour has been influenced. It can be expected that water resources will no longer be within the domain of free or cheap public goods, and people are starting to be more moderate in their consumption due to reasonable payment instead of unduly wasting the resource as they did when it was for free or at a very low cost under the welfare policy. It is also shown that economic and social development should not be based on unregulated exploitation of resources, and the leverage of market price can help rectify the economic and social development mode from the previously extensive growth to intensive growth, which is just the goal that a harmonious development society has been trying to achieve.

Conclusion

The 2001 water tariff rise in Chongqing experienced the process of change from intensive conflict of interests and contrary opinions to balance of interests and consensus of opinions, and the general public seems to have calmly accepted the tariff adjustment without triggering excessive social impacts. One of the main reasons was that most consumers now realize that the previous seemingly reasonable low tariff mode has been actually a cost to them, and both the water company and the consumer groups have been “losers” suffering from the low tariff policy. With growing economic and social development, people need to consume not only at reasonable price but also with acceptable quality; not only fairness in form but also fairness in nature. The government should use the leverage of price to guide the consuming behaviour of the public, implement a “user pays” policy based upon costs of supply and in accordance with the quantity consumed, whilst providing policy protection for disadvantaged groups. Only by this means can the government policy obtain the consent and support by the general public.

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