Urbanization in the People’s Republic of China

Urbanization in the People’s Republic of China (PRC) has been on an extensive and accelerated path. In 2008, more than 600 million people were residing in 655 cities, pushing the urbanization level to 45.7%. Based on current trends, the urban population in the PRC is projected to cross the 1 billion mark in 2030 and eight megacities—each with population of over 10 million—would be existing in the country by 2025 (Woetzel et al. 2008).

However, the rapid rate and sheer scale of urbanization is associated with increasingly pressing social, economic, and environmental problems. Clearly, new models of sustainable urban development are needed to cater to this phenomenal urban growth for the coming decades.

PPPs in the PRC’s Urban Water Supply Sector

Of the 660 large cities in the PRC, more than 400 are expected to face chronic water shortages. This is exacerbated by the (i) uneven distribution of water resources between the north and south regions of the PRC, (ii) industrial pollution contaminating many water sources, (iii) over-extraction, and (iv) relatively inefficient use of available water resources. The public urban water and sewerage infrastructure systems are generally underinvested and understaffed, making them largely inadequate in meeting demand. Low levels of water tariffs were also traditionally viewed as part of the public welfare structure.

To address these problems, the PRC began to deregulate the water sector in the 1990s, permitting private and foreign investment into the water supply and sewerage treatment. Private sector participation may be brought into public projects for several reasons, such as to compensate for and/or improve on the structural inefficiencies caused by state management, or to gain access to additional financing not provided directly by the government.

The existing poor infrastructure coupled with fast-growing demand for water has made the PRC one of the most active markets for PPPs.

The private sector can participate in the water market through various models ranging from full privatization of government assets to PPPs. Foreign investors are also permitted to hold majority stakes in joint ventures (JVs). Water supply projects tend to take the forms of build–operate–transfer (BOT), transfer–operate–transfer (TOT), and divesture models, reflecting the fact that most projects involve modifications or rehabilitation of existing facilities. Full or partial divestiture models are mainly intended to fund operation and management costs for existing treatment plants. Management and lease contracts are less commonly implemented.

There are currently an estimated 400 water supply and wastewater PPP projects in the PRC, although the exit of foreign investors from the water sector partially due to legal and regulatory

While the water tariff has been raised marginally, the joint ventures have helped finance the development of the water supply sector and improved the water service quality and quantity at a lower up-front cost for the government
restrictions has also been noted (Choi et al. 2010). Companies in the water sector include transnational water companies, foreign specialized operators, Chinese investment developers, privatized local water companies, and domestic operators.

**Ensuring Urban Water Supply in Maanshan**

Maanshan is a prefecture-level city in Anhui Province with a population of 1.24 million, of which 46.8% live in urban areas. The economic backbone of the city is its steel industry. Being located on the south bank of the Yangtze River and having high rainfall, the city enjoys abundant water resources. An estimated 88.7% of the urban population has access to water supply.

The city’s water authority is Maanshan Construction Commission (MASCC), which is also the main government agency responsible for urban planning, construction, and management. MASCC started a marketization process for the water sector as well as for other public utilities in 2002. The process was expected to reform the Maanshan Water Supply Company (MASWSC), which was established in 1958 as a state-owned and state-subsidized company responsible for the water treatment and supply to the city. The current water tariff consists of a basic water tariff, water resource fee, and wastewater treatment fee.

**PPP Structure**

MASCC started a joint venture with another state-owned enterprise (SOE), the Beijing Capital Group (BCG), for one water supply plant that sold purified water to MASWSC. The BCG is a large-scale SOE affiliated with the State-Owned Assets Supervision and Administration Commission of the Beijing municipal government. This plant soon outperformed other plants operated by MASWSC alone, and in 2004, this model was expanded to cover all the water supply plants in Maanshan City. The BCG took a 60% stake in the JV for CNY90 million while MASWSC held the remaining 40% stake.

The JV firm—Maanshan Beijing Capital Water (MASBCW)—was awarded a 30-year concession right and both parties are jointly responsible for the investment, operation, and maintenance of the water supply plants (except for pipe networks) and service obligations. While the pipe networks remain under the ownership of MASWSC, a lease contract was signed with the JV firm for the lease, use, maintenance, and upgrading. New pipe infrastructure construction for new developments or currently non-piped areas would be the responsibility of MASBCW.

MASBCW is assessed annually against a set of performance targets agreed upon between the MASBCW board and MASCC. These targets include (i) the investment of CNY18 million; (ii) selling 48 million cubic meters (m³) or more of water and

![Figure 1: Organization Structure of Maanshan Water Supply](image_url)
reclaiming more than 90% of water bills; (iii) meeting water service quality indicators, such as more than 99% of control points should meet required water quality standards and maximum water loss is set at 30%; and (iv) meeting client service indicators, such as public satisfaction of more than 90%, and others.

With the establishment of the JV, the government no longer needs to subsidize the city’s water supply plants. However, it can take over the facilities without indemnity if the concessionaire fails. The concessionaire must assume the relevant social duties as required by the government. The government also retained control over the water tariff.

The Maanshan government took steps at the outset to reduce the financing burden on the JV by retaining ownership of the existing pipe networks through MASWSC. MASBCW was indirectly subsidized by the government through a transfer of the water resource fee from the government’s books to that of the JV.

The government also facilitated the transfer of land use rights for the water treatment plants to MASBCW through an asset revaluation, which MASBCW paid to the local government. MASBCW was also allowed to hold a majority stake in the JV, which incentivized the SOE to perform.

Outcomes and Lessons
MASBCW has complied with the targets and requirements set by the government. The JV supplies potable water to a population of 560,000 with a realized production of 215,000 m³/day (water supply capacity is 335,000 m³/day). The total pipe network and the volume of water provision have increased. MASBCW has invested about CNY90 million into new infrastructure and capacity including another water treatment plant (with a designed capacity of 100,000 m³/day), renewing old infrastructure and developing a customer service system.

The JV has also turned over CNY18.7 million to the government in corporate income tax and other taxes, pipe network rent fee, and others. While the water tariff has been raised marginally by the government from CNY0.83 to CNY1.08 per cubic meter for household users, the JV has helped finance the development of the water supply sector and improved the water service quality and quantity at a lower up-front cost for the government.

Considerations for PPP Projects
Since PPPs have been introduced in the PRC with the economic reforms in the late 1970s, such projects have faced a number of constraints that hinder more successful and widespread implementation. Some of the key issues are outlined below.

References

Legal and regulatory risks
The legal and regulatory infrastructure in the PRC for PPP activities presents a risk to private investors. For example, laws that govern PPP activities are not always consistent with one another or government policies may be revised with little consideration on the impact on private partners.

Tariff pricing policies
The slow pace of deregulation of tariffs for public services could impact project profitability for the private investor.

Lack of transparency in bidding processes
Most PPP projects in the PRC remain hampered by a lack of transparency in the bidding and project supervision processes.

SOE participation
SOEs in the PRC have been involved in several PPP infrastructure projects, creating a category of public SOE partnerships. SOEs could increasingly crowd out local private sector firms as well as foreign participation.

Access to capital
While BOT projects and others of similar scale generally have a long-term horizon of up to a few decades, long-term financing options in the domestic financial markets in the PRC is limited.