

# **The Water Supply and Drainage System of Tianjin (1860-2000)**

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This research focuses on the transformation of Tianjin's water supply and drainage system from the 1860s to the twenty-first century. It sheds light not only on modernization and technical progress in the region, but also on the changing urban lifestyle and its influence on the environment.

To analyze this transformation process, I address how water as an essential life sustaining element affected cities, and I look at where water came from, how it circulated, and how it was discharged. Tianjin is the perfect place to examine these issues. Tianjin is the biggest port city in North China, which, with its 610-year history, occupies an important position in modern Chinese history. It was one of the first open ports in the mid-nineteenth century and had the highest number of foreign concessions. Modern techniques and ideas introduced by foreigners resulted in huge transformations in all aspects of the city, and its relationship with water became more troubled.

This project is divided into three parts: the water supply system, the water drainage system, and the urban human waste disposal system.

In the first part, I explore the traditional water supply system as well as when the first waterworks was built, how it expanded its service and was accepted by citizens, and what change it brought. Tianjin's traditional water supply system basically relied on intensive human labor. It was made up of two main elements: Shuifu (coolies who sold and delivered water for a living) and Shuipu (the water shop). Shuifu fetched water from the river and delivered it directly to the individual households or sold it to the water shop, while the water shop could store water and allowed the residents to buy water from morning till night. Since the first waterworks was built up in the concession area, new systems started to impact on Tianjin city. By the mid-twentieth century, over 90 percent of the urban area at that time got its water supply from the new system, and this number continued to increase in the PRC, especially during the late twentieth century, along with urban expansion.

The second part focuses on the transformation of Tianjin's water drainage system. In old Tianjin city, waste water and excrement were separated according to their different means of disposal. Waste water was poured into nearby channels and then ran into the river, while excrement was collected by the Fenfu (people who collected feces from households). Although dumping waste water was not heavy work, there existed one group of people, called Wushuifu (waste water man), who made a business of this. But most times, taking away waste water was only a part-time job for the Shuifu, and it was very convenient for them to carry away the waste water after delivering fresh water to a household. This old water disposal system was replaced by underground drainage pipes, but prior to the 1950s, the drainage sewers only covered a small part of the city, and the whole system wasn't completed until 2000.

The third part of the project examines how Tianjin's human waste disposal system changed. Since the Ming dynasty, collecting excrement had become a business in Tianjin. Fenfu collected feces from citizens and then sold this waste to the countryside as farming manure. They charged households for waste removal and got money from farmers as payment for the fertilizer too. After the modern drainage system was established, more and more waste water and feces flowed into the sewer instead of going to the farmers, thus weakening the old excrement business.

This transformation of the water supply and drainage system seriously influenced the urban appearance and lifestyle of Tianjin. It improved sanitation and public health, but at the same time cut off links between the city, and the countryside and nature.