



The collection system, which achieved a high collection rate(99.9%) of the water utilities with the largest water service scale in Japan



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INTRODUCTION

Bureau of Waterworks, Tokyo Metropolitan Government (hereinafter referred to as "Tokyo Waterworks") has supported citizens' life and urban activity in Tokyo for one hundred twenty years since the establishment of water supply as modern water service in 1898.

Although we faced a lot of challenges in the long history of Tokyo Waterworks, we overcame them respectively and cultivated ourselves along with development of Tokyo. Now, we have become one of the largest water utilities in Japan (Table 1).

Nevertheless, the collection rate of water charges, which means the rate that the loss rate of water rate is subtracted from 100%, what is called the final collection rate, has declined in the past during the construction process of collection system (sales operation), and now we have reached to 99.9%. This paper introduces main measures on the collection systems (sales operation) of Tokyo Waterworks, which contributed to getting higher collection rate.

Table 1 The number of water supply and profit on water supply in major cities.

| FY 2016 | Tokyo | Yokohama | Osaka | Nagoya | Fukuoka | Sapporo |
|--|---------|----------|--------|--------|---------|---------|
| Number of service connections (× 1,000) | 7,500 | 1,837 | 1,576 | 1,288 | 871 | 849 |
| Profit on water supply (× 100 million yen) | 287,211 | 64,544 | 59,694 | 41,887 | 31,327 | 37,555 |

*The number of service connections in Osaka lists the number of water supply household.

Improvement of reading the water meter and billing method

○ The meter readers read the water meters by using mobile PC (since 1993), and issues an inspection slips for customers to learn their consumption on the spot promptly.

○ We read meters on the basic date and send the bills every two months to most of the customers.

○ Issuance of bills regularly on every two months was established for customers and makes easy payment cycle.

○ As we have had problems in financial and laborer shortage until now, we have built these systems in stages by improving repeatedly (Table 2).

○ Furthermore, we started to outsource the reading meter service to non-public corporations in central 23 wards from 1980 and outsourced completely in 1990.

Table 2 Transition about frequency of reading the water meter and method of sending bills.

| year | Most customers | | Main reasons for changing or effect of the improvement |
|--|----------------|----------------|--|
| | Reading meter | Sending bills | |
| Beginning of the reading meter service | every 2 Months | every 2 months | |
| from 1969 | every 6 Months | every 2 months | Costs reduction due to the lack of financial resources and implementation of reading meters due to the lack of youth workers |
| from 1983 | every 4 months | every 2 months | Changing meter-reading frequency into every four months to avoid troubles because of delay in water leakage detection |
| from 1995 | every 2 months | every 2 months | Matching actual use of water supply and burden charge and realizing water leakage detection on early stage |

Improvement of payment methods (diversification)

○ We used to collect charges by the collection of money, however, we abolished it in 1974.

○ As a result, we realized to reshuffle suitable staffs, reduce expenses and others. Currently customers can choose three kinds of payment methods; account transfer, payment on invoice or by credit card (Table 3).

Table 3 Composition rate per payment method.

| | Account transfer | Payment on invoice | By credit card |
|---------|------------------|--------------------|----------------|
| FY 2016 | 60% | 27% | 13% |

◇ The account transfer

The account transfer has been started since 1967. Besides, we have actively promoted utilizing account transfer which is cheaper cost with higher collection rate. Moreover, we have discounted 50 yen (tax-excluded) per month when customers pay by account transfer since 2005.

◇ The payment on invoice

The payment on invoice is a method to pay charges by cash with invoice at the counters. Moreover customers can pay charges whenever they like for 24 hours, because there are approximately 8,000 convenience stores in Tokyo.

◇ The credit card payment

The credit card payment is the service that we carried out in 2007. Customers can pay with most credit cards because we contract with 14 credit card companies who handle many international brands.

○ In addition, the change of the composition rate according to the payment methods in central 23 wards

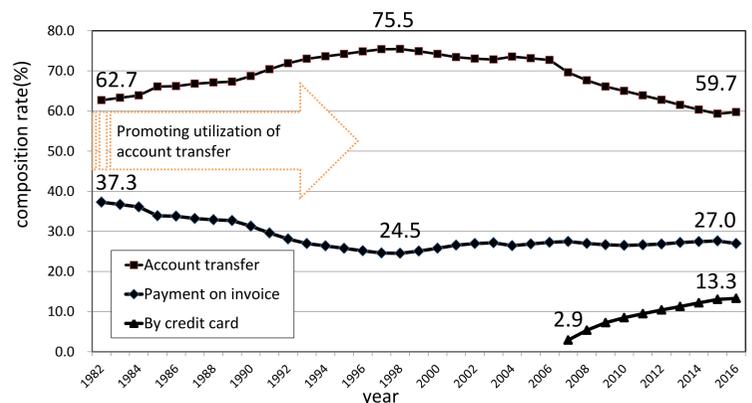


Figure 1 Transition of the composition rate according to the payment methods in central 23 wards.

Improvement of the charge collection cycle and structuring trust relationship with the customers before stopping water supply

○ We try for the early collection of the unpaid bills by abolishing the adding up system of the unpaid bills (sending two invoices at once) and improving the collection cycle in 2007 that is 2-3 months shorter in starting date of collection charges. Tokyo Waterworks does not impose arrears to the customers who paid late (Figure 2).

○ Nevertheless, the reason why the collection rate is high is that we build a relationship of mutual trust with the customers by conversation before stopping water supply automatically.

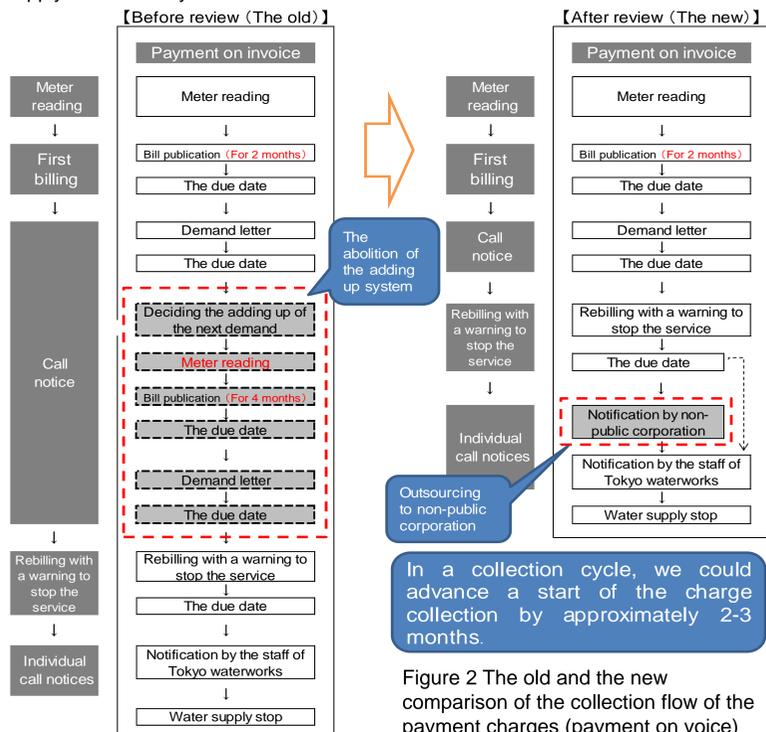


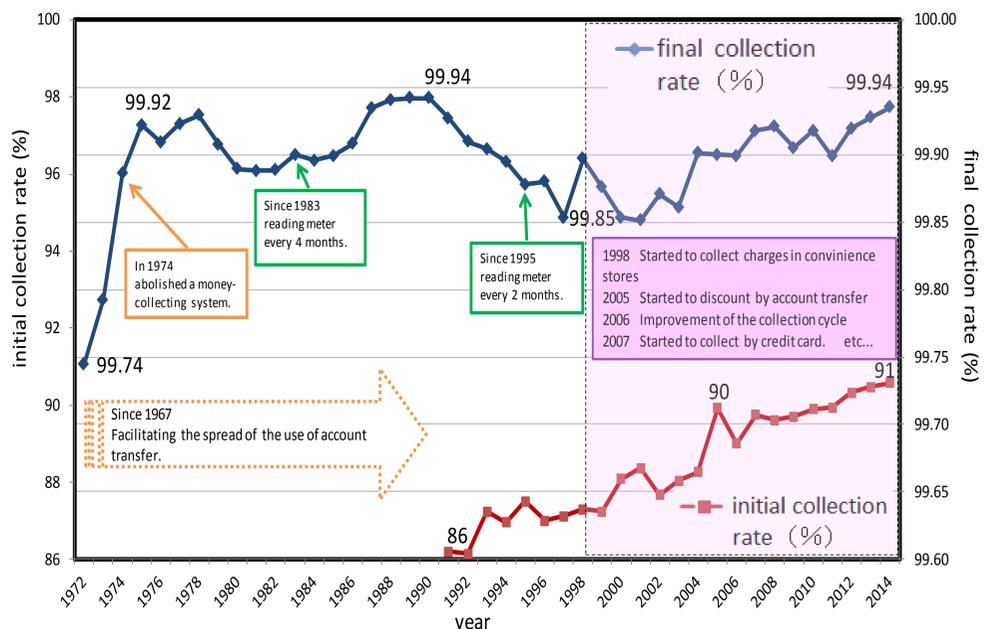
Figure 2 The old and the new comparison of the collection flow of the payment charges (payment on invoice)

Results and conclusions

Tokyo Waterworks has used various measures in response to the sophisticated customer needs with the times. As a result, the final collection rate reached 99.9% (Figure 3).

Tokyo Waterworks is the largest number of water supply in Japan and the world eminent business scale as well (7.5 million number of service connections). In such a large business scale, a strong financial fundamental is indispensable to realize sustained management. This becomes feasible by collecting water charges from customers in compensation for water supply service.

We will work to maintain and increase the collection rate continuously to renovate timeworn facilities



(Figure 3 shows the initial income ratio since 1991 due to lack of data before 1991)

Figure 3 Transition of the final collection rate and initial collection rate in 23 central wards.

References : [1] Tokyo Waterworks management plan 2016
 [2] Tokyo Waterworks international cooperation program [3] Business summery (2017 version)