Measures to Provide Good-Tasting Tap Water in Japan

JWRC Study Group for International Comparison of Water Supply Services

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What is Good-Tasting Drinking Water?

Japan's Ministry of Health and Labour published the guideline values for good-tasting drinking water in 1985. The publication was a response to an increasing demand for better tasting-tap water among the general public, which was prompted by an intensified advertisement of bottled water by various manufacturers.

Guideline values for good-tasting drinking water set by Japan's Ministry of Health and Labour in 1985

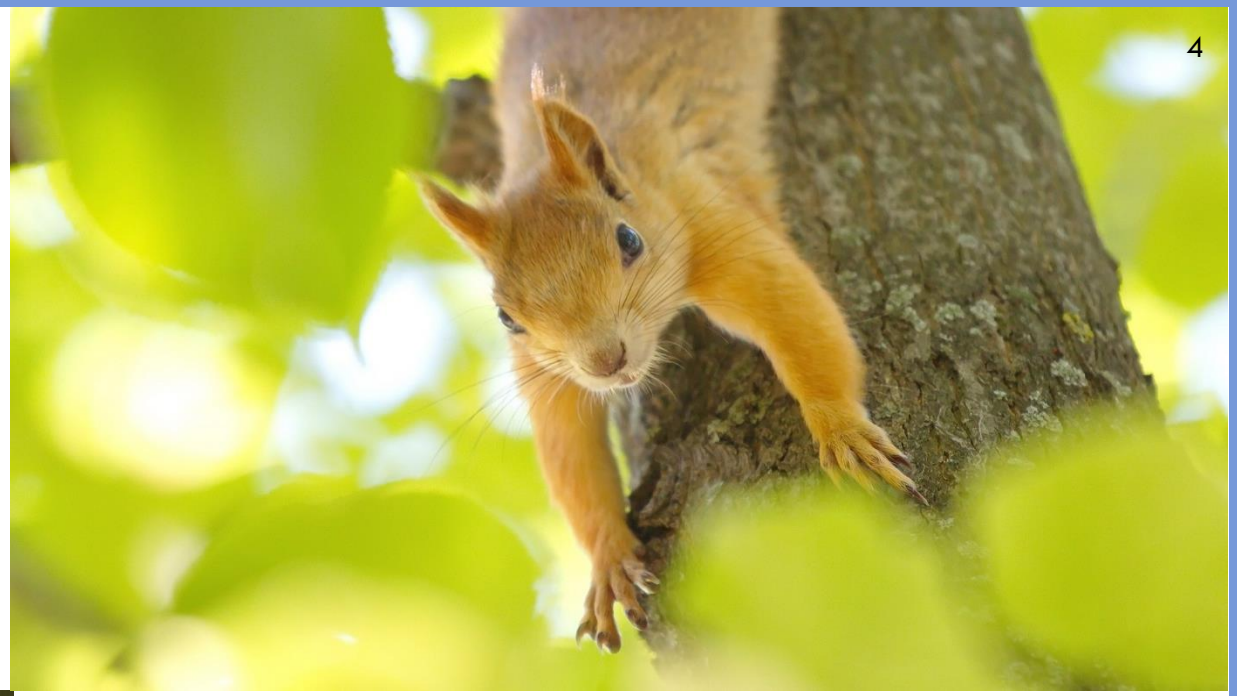
Item	Value
Total residue	30-200mg/L
Hardness	10-100mg/L
Free carbonate	3-30mg/L
Potassium permanganate consumption	≤3mg/L
Odor index	<3
Residual chlorine	≤0.4mg/L
Temperature	≤20℃

Source: The Research Group on Good-Tasting Drinking Water. 1985. "About Good-Tasting Drinking Water." The Journal of the Japan Water Works Association. Vol. 54 (5).

Measures being taken by Japanese water utilities to ensure good-tasting tap water

1. Technical Approaches
2. Communicative Approaches

1. Technical Approaches



1.1 Water Quality Targets on Good-Tasting Water

Method: Set more stringent local water quality targets than the national standards

Item	Unit	National water quality standards	Utility's water quality target	Target attainment (FY2016)
Residual chlorine	mg/L	0.1-1.0	0.1-0.4	86.2 %
Trichloramine	mg/L	-	0	100 %
Threshold odor number (TON)	-	≤3	1	100 %
2-MIB	ng/L	≤10	0	100 %
Geosmin	ng/L	≤10	0	100 %
Total organic compounds (TOC)	mg/L	≤3	≤1	100 %
Color	Color unit	≤5	≤1	100 %
Turbidity	Japanese unit*	≤2	≤0.1	100 %

Source: Tokyo Metropolitan Waterworks Bureau

*The Japanese turbidity unit is based on polystyrene latex suspension. Depending on the turbidity characteristics, 1 degree is equivalent to 0.7–0.9 NTU (Nephelometric Turbidity Unit).

1.2 Odor Control

Method: Advanced water treatment

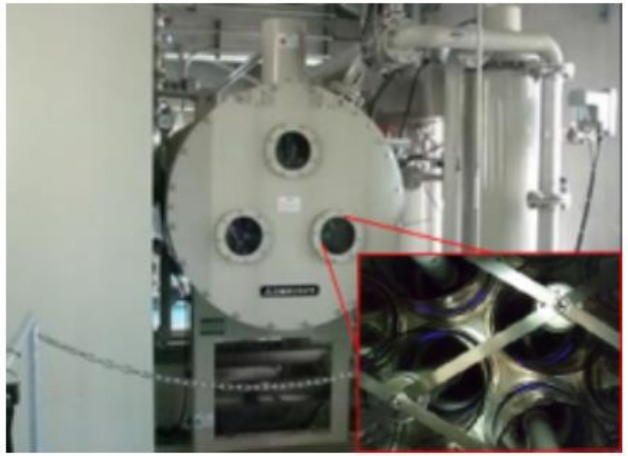
Certain combinations of water treatment processes are called an “advanced water treatment” in Japan (e.g. traditional rapid filtration combined with ozonation and biological activated carbon absorption).

The advanced water treatment process can remove various substances that a traditional treatment cannot, reducing musty odor and chlorine smells in the tap water.

Ozone contact basin

Source: Tokyo Metropolitan Waterworks Bureau

Ozone generator



Source: Chiba Prefectural Waterworks Bureau

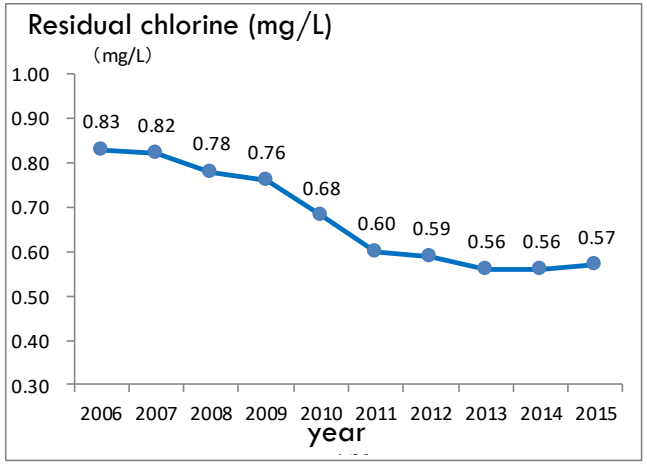
Ozone contact basin

1.3 Reduction of Residual Chlorine

Method: Automatic water quality monitors

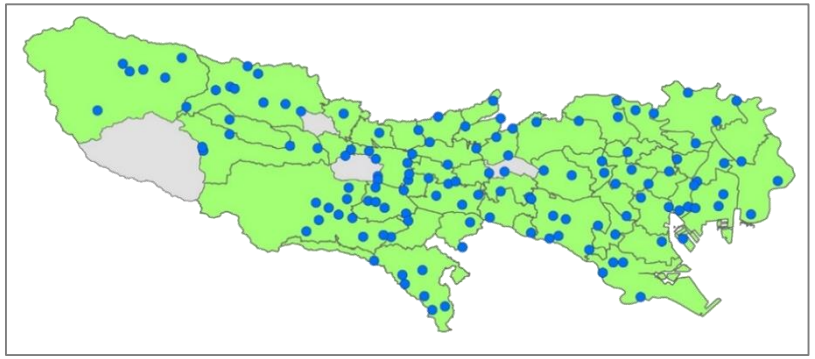
The 24/7 monitoring of residual chlorine at the distribution reservoirs and the customer tap contributes to a systematic water quality management.

Residual chlorine at the customer tap (average)



Source: Chiba Prefectural Waterworks Bureau

Automatic water quality monitors at 131 locations in Tokyo



Source: Tokyo Metropolitan Waterworks Bureau

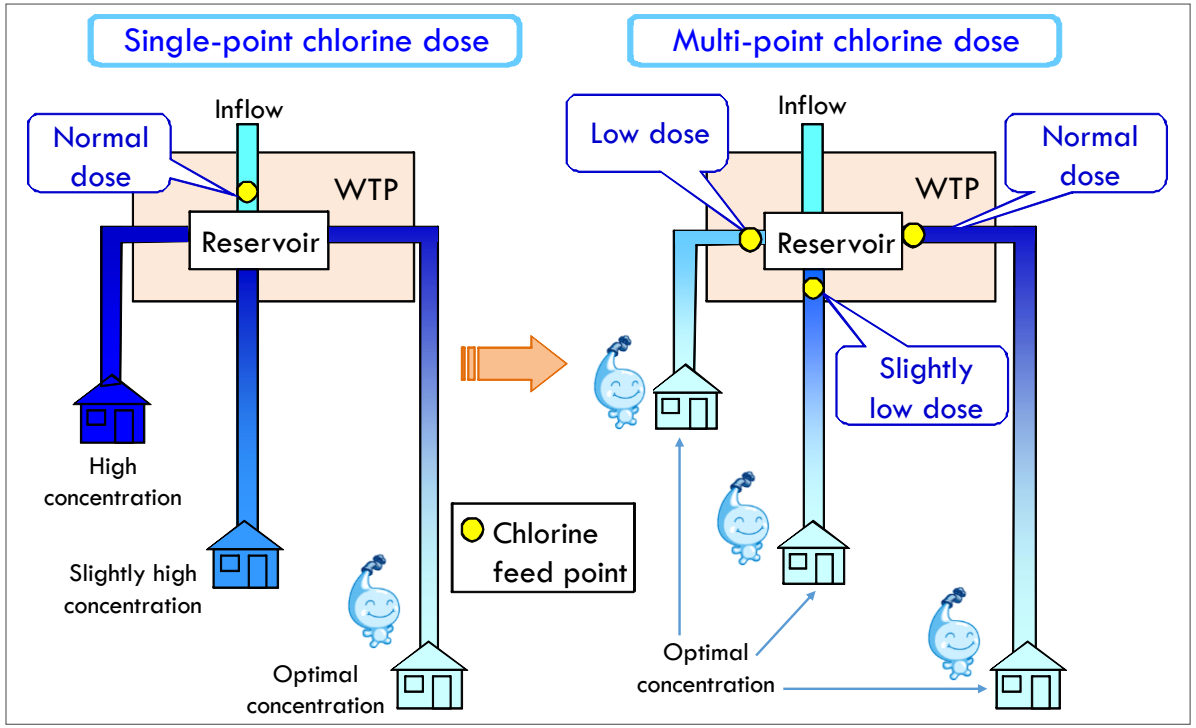
Automatic water quality monitors

Source: Public Enterprises Agency, Kanagawa Prefectural Government

1.4 Re-Chlorination to Keep Proper Residual Chlorine Concentration

Method: Additional chlorine feeder

Japan's Waterworks Act requires a certain amount of residual chlorine to be maintained at the point of customer tap. But dosing much chlorine at the water treatment plant (WTP) so that households far from the plant could meet this requirement might adversely affect the taste of tap water at the households closer to the plant. The chlorine feeder installed in the distribution network would allow plant operators to contain the chlorine dose at the plant, hence better tasting tap water even at the plant's nearby households.

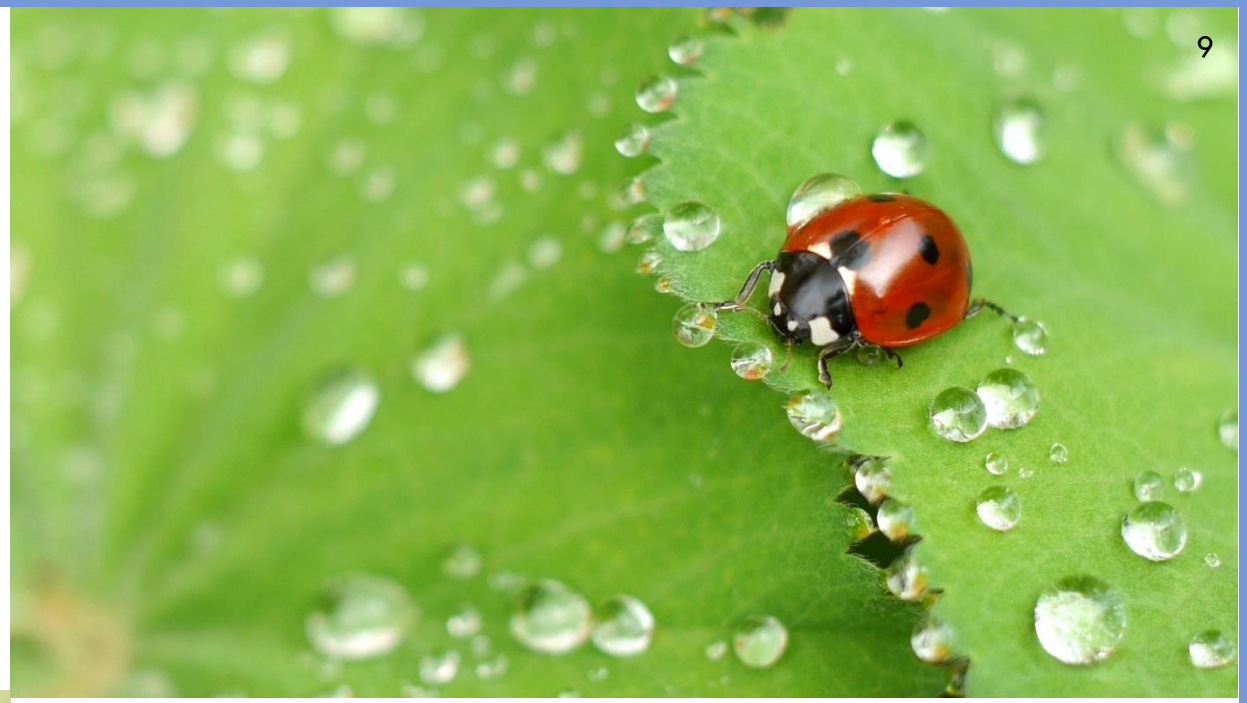


Source: Chiba Prefectural Waterworks Bureau

Additional chlorine feeder

Source: Public Enterprises Agency, Kanagawa Prefectural Government

2. Communicative Approaches



2.1 Educational Talk Events

Method: Utility staff talk about how good-tasting tap water is produced at local elementary schools to educate children.

Utility staff speaking at an outreach lecture

Source: Chiba Prefectural Waterworks Bureau

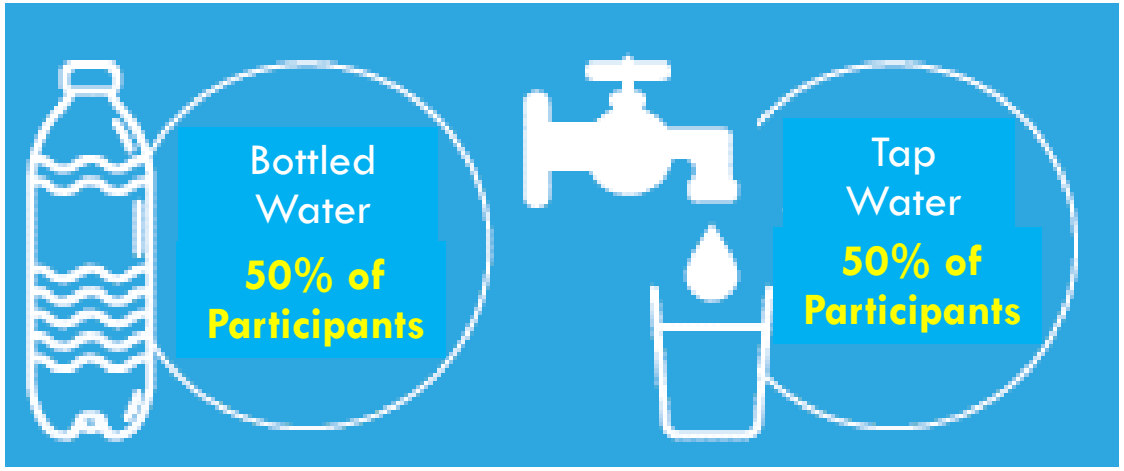
2.2 Public Water Tasting Events

Method: Promote the use of tap water by hosting water tasting events where local residents can compare the taste of bottled water and tap water.

At a public water tasting event

Source: Chiba Prefectural Waterworks Bureau

About half of the participants said "tap water tasted better." (of all the 17,6000 participants at various water tasting events hosted in Tokyo since 2012)

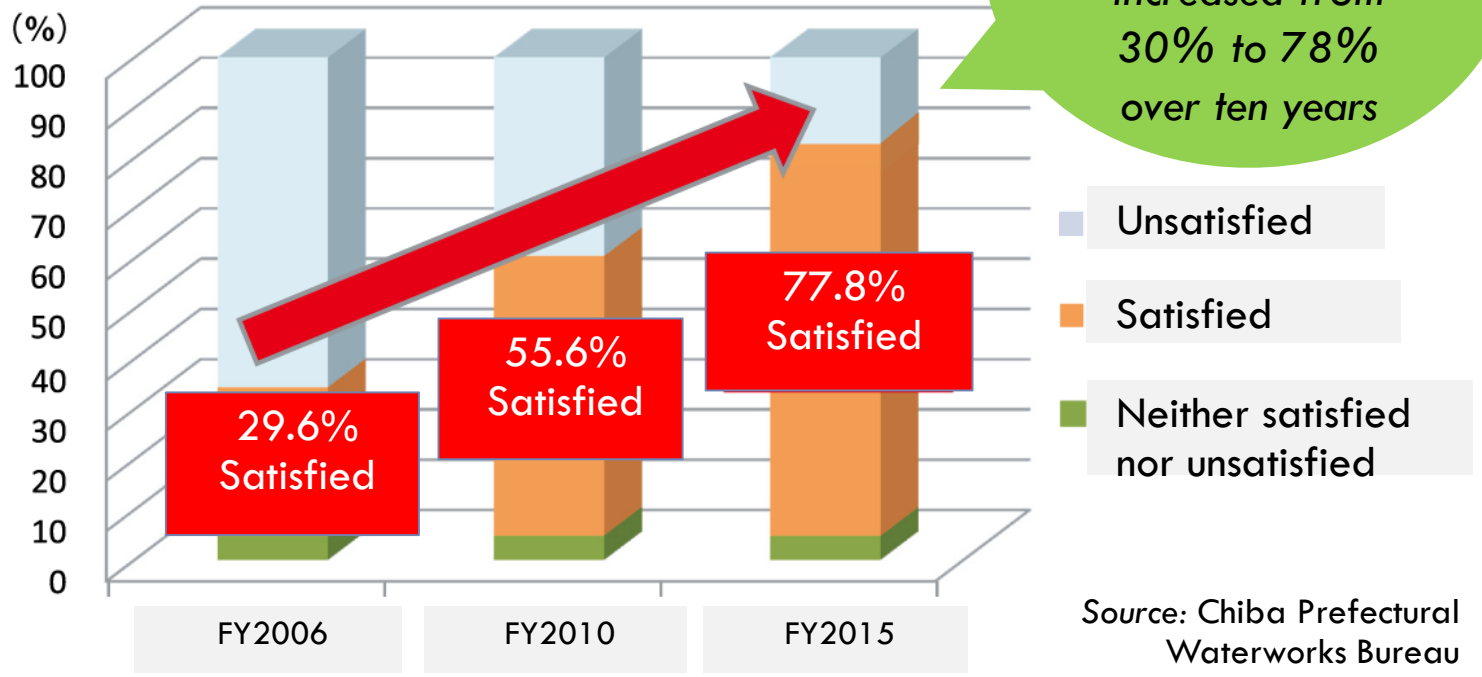


Source: Tokyo Metropolitan Waterworks Bureau

2.3 Special Meetings to Improve Tap Water Quality

Method: hosted special meetings to improve tap water quality with participation from the general public and academics. Reviewed and reflected their opinions and suggestions and enhanced customer satisfaction over the past ten years.

Meeting to improve tap water quality



Customer satisfaction for tap water increased from 30% to 78% over ten years

Source: Chiba Prefectural Waterworks Bureau

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