

Sector Governance and Regulation for Nationwide Full Coverage of Water Supply Service



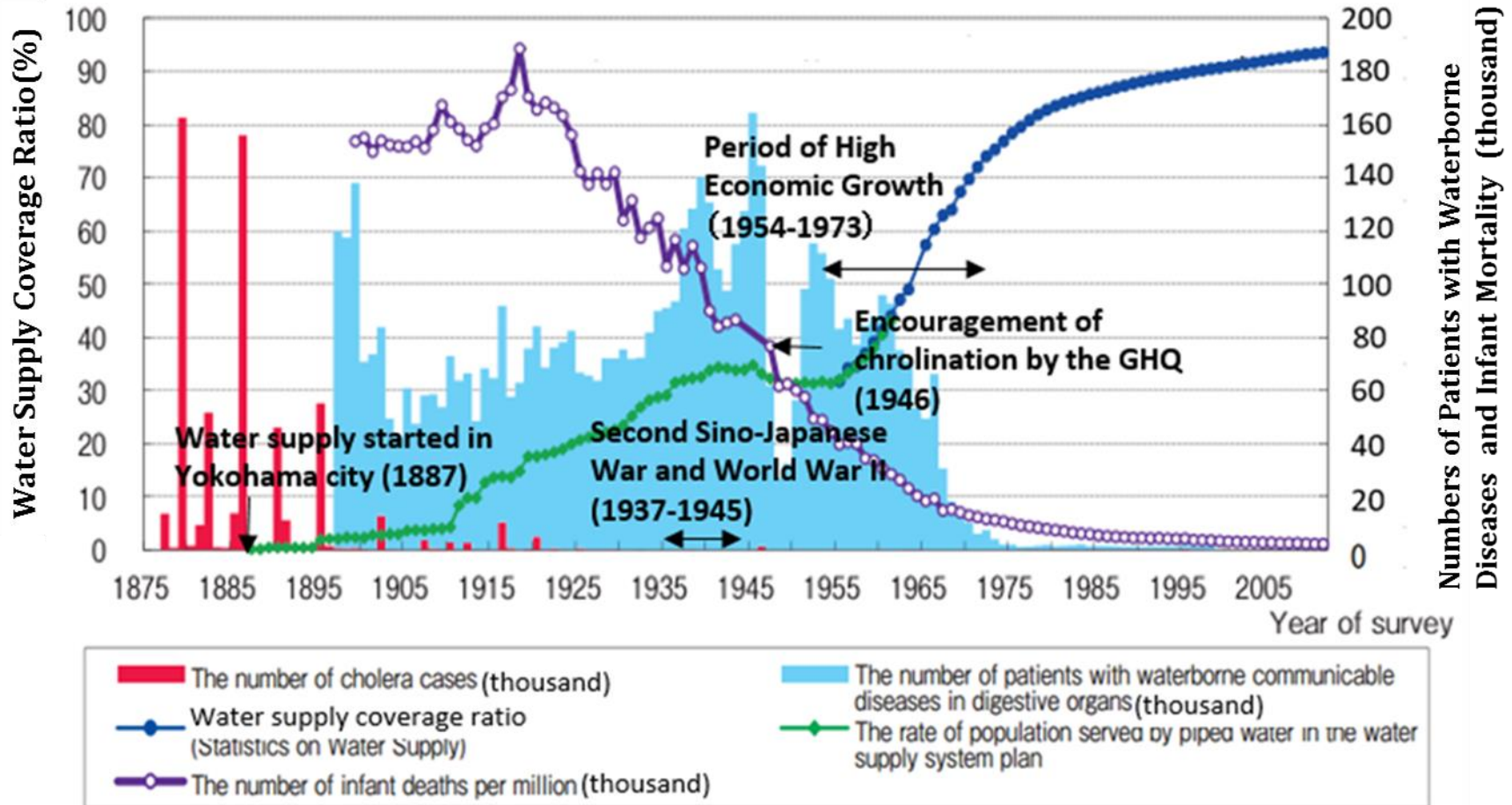
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The Ministry of Health, Labour and Welfare; regulatory agency of water supply (August 12, 2016)

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1. Introduction



Water Resources Department, Water and Disaster Management Bureau, Ministry of Land, Infrastructure, Transport and Tourism, "Water in Japan," <http://www.mlit.go.jp/common/001044443.pdf>

1. Introduction

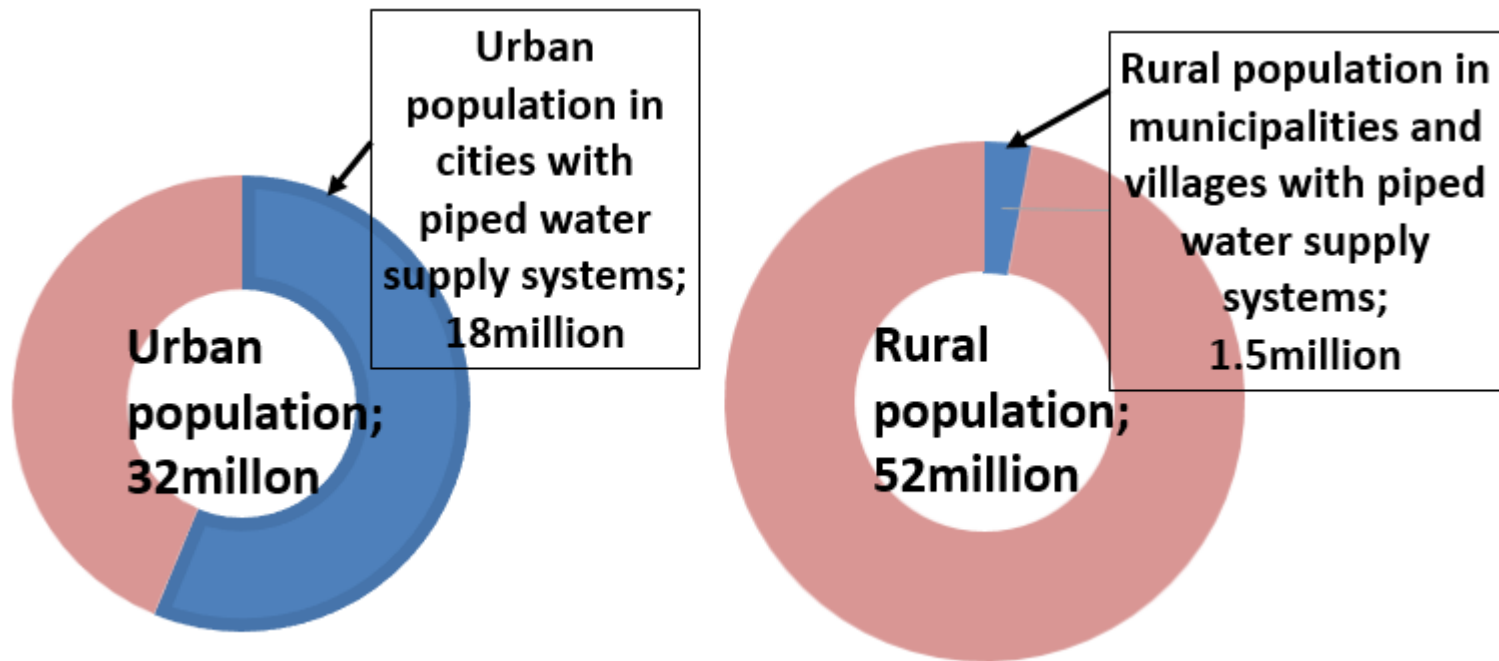
Frequently asked questions from the participants of water supply training courses

- Q1.** Why have Japan's water utilities been providing safe drinking water to the customer's tap on a **continuous 24 hours a day basis**?
- Q2.** What laws and regulations did Japan implement to achieve **nationwide full coverage** of water supply service?
- Q3.** How did Japan **develop laws, regulations and standards** for water supply? What kinds of factors helped water utilities to comply with them?
- Q4.** How do **small and medium scale water utilities** in Japan **comply with the laws, regulations and standards**? How do they supply safe water for 24 hours a day?

2. Purpose of Water Supply: Public Health

(1) Public Health Objective

- Water supply in rural areas was the problem.

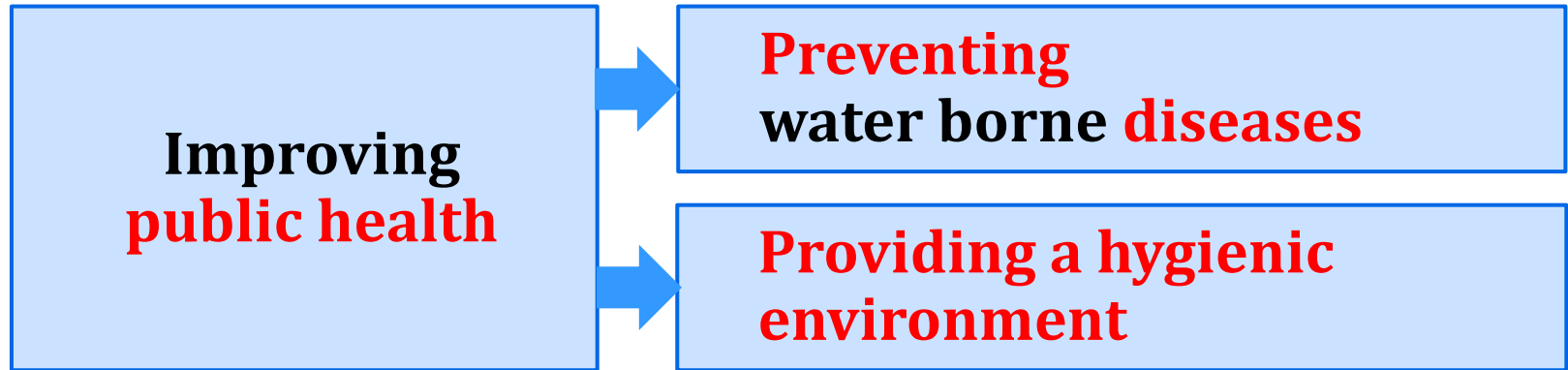


Population served by piped water supply systems in 1952

Source: Susumu Hani, the film “Water in Our Life,” 1952

2. Purpose of Water Supply: Public Health

(1) Public Health Objective



Article 1

Purpose of the Act

Improving public health and the living environment

Article 2

Responsibilities of the National Government and local governments

Waterworks are indispensable for the protection of human health

2. Purpose of Water Supply: Public Health

(2) Water Quality and Facility Standards to Secure Public Health



Article 4

Drinking water quality standards

- **Absence of contaminants**
Pathogens, Toxic substances
- **Free of excessive metal substances**
Copper, Iron, etc.

Article 5

Facility standards

- **Location and arrangement** for economical and easy practical operation and maintenance
- **Structures and materials** withstanding water pressure, earth pressure, seismic forces, etc.
- Free of water contamination and less leakage

2. Purpose of Water Supply: Public Health

(3) Modern Water Utilities and Their Contribution to Public Health

In Japan, **public health has improved**, as indicated by a reduction of waterborne diseases and infant mortality. This is direct result of increasing the coverage of **modern water supply systems** (continuous water supply by pressured pipes) and disinfection with chlorine.



2. Purpose of Water Supply: Public Health

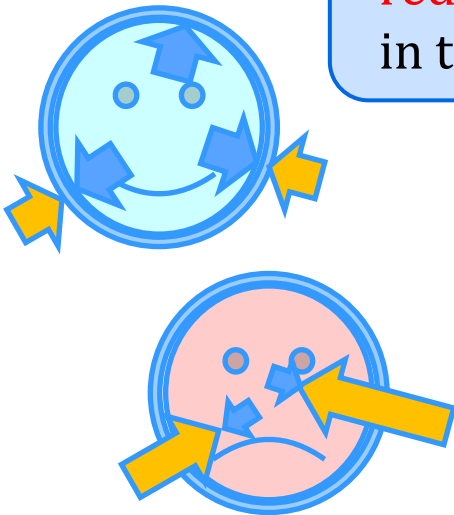
Column: Contamination of Drinking Water

If **the pressure** is maintained in the water pipe, a slight crack in the pipe may lead to leakage but pressure **would not allow contaminants to enter**.

Water outage would generally **reduce pressure or create negative pressure** in the pipe.

Contaminants may seep through the cracks.

This poses a risk to the safety of tap water and to public health.



3. Historical Path towards Nationwide Coverage

(1) Public Ownership

- 1890 Waterworks Ordinance
→ Water supply service **by public ownership and responsibility**
- 1946 **The Constitution of Japan**
→ Article 25 right to life clause → **water supply for all**
- 1957 Water Supply Act
→ Water supply for all including **rural population**
→ Large investment **for Small Scale Public Water Supply** in all municipalities

Article 25 of *the Constitution of Japan*

All people shall have the right to maintain the minimum standards of wholesome and cultured living. In all spheres of life, the State shall use its endeavors for the promotion and extension of social welfare and security, and of **public health**.

Goal 6 of SDGs; Sustainable Development Goals

Ensure availability and sustainable management of water and sanitation **for all**.

3. Historical Path towards Nationwide Coverage



Carrying water before promotion of water supply systems,
Source: Susumu Hani, the film “Water in Our Life,” 1952

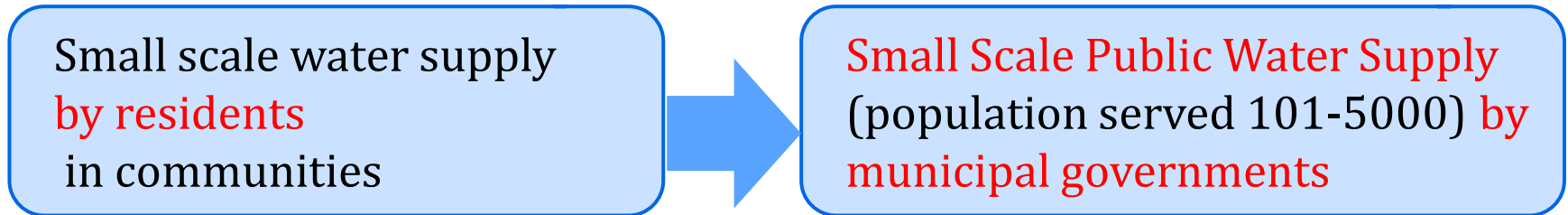
3. Historical Path towards Nationwide Coverage

(2) Water Supply Development in Urban Areas

Period	Characteristics of waterworks
Early stage of construction (1887 – 1945)	<ul style="list-style-type: none"> ● Mainly funded by bond floatation and own funds, financed by tariffs ● Small portion of subsidy by the national government
After World War II (1945 – 1954)	<ul style="list-style-type: none"> ● Technical support from GHQ (widespread introduction of chlorination) ● Subsidy for reconstruction following the war until 1954
Early period of high economic growth (1954 – 1967)	<ul style="list-style-type: none"> ● Rapid population growth and water demand ● Massive water resources development and expansion of water supply service areas by bond floatation ● No subsidy from the state government
Late period of high economic growth to the present (1967 –)	<ul style="list-style-type: none"> ● Targeted subsidy for water resources development, advanced water treatment, replacement of aging pipes, disaster risk reduction, etc. ● Debt repayment ● Asset management for rehabilitation

3. Historical Path towards Nationwide Coverage

(3) Development of Small Waterworks in Rural Areas



Type	planned service population	Accounting system	Funding source	Location
Municipal Water Supply	≥ 5001	Public enterprise accounting system	(mainly) Bond floatation	Urban area
Small Scale Public Water Supply	101-5000	General account	National subsidy and Bond floatation	Rural area
Facility for Drinking Water Supply	≤ 100	Self-financing by local residents	Joint investment by users and communities	Rural area

3. Historical Path towards Nationwide Coverage

(3) Development of Small Waterworks in Rural Areas

Enforcement of the Water Supply Act

- **Nationwide full coverage** of water supply service
- **National subsidy** for small scale public water supply systems

Human resource development

- Education for **staff of prefectural governments**
- They support planning and design **of small scale public water supply**

Leadership by mayors

- Promotion of water supply for improvement of living conditions in their villages
- Effective utilization of national subsidy

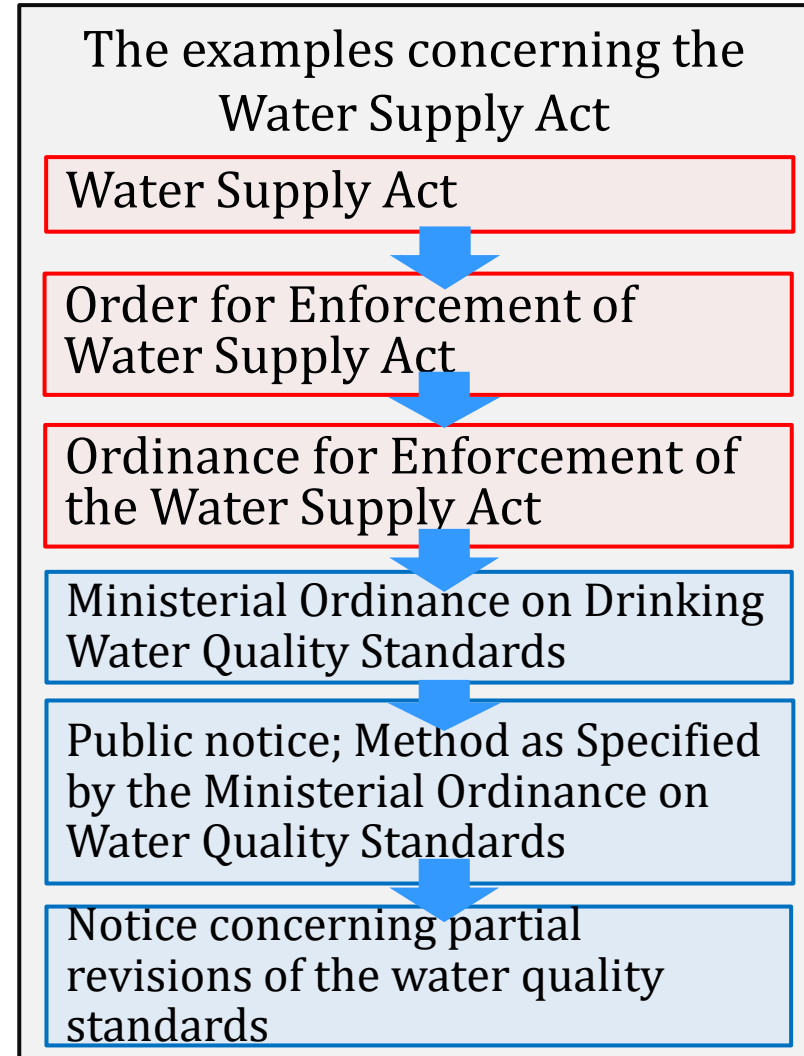
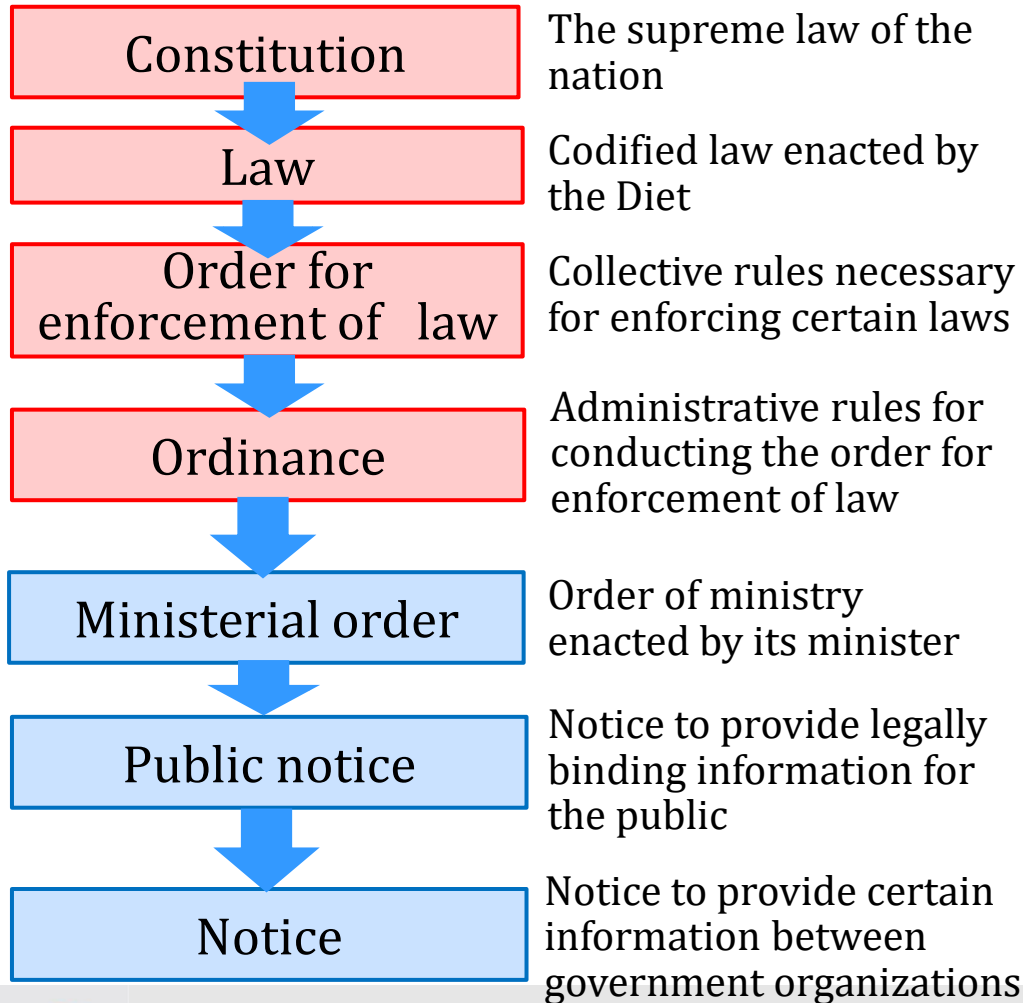
3. Historical Path towards Nationwide Coverage



Consultation with engineers of prefectural government and health center,
Source: Susumu Hani, the film *“Water in Our Life,”* 1952

4. Regulatory Framework and Administration

(1) Legal System



4. Regulatory Framework and Administration

(2) Approval (License) System of the Waterworks

1890 Waterworks Ordinance

- Public ownership principle
- Approval(License)
- Safe water supply



1957 Water Supply Act

- Public ownership principle
- Approval(License)
- Safe water supply
- Water quality standards
- Water supply facility standards
- Technical administrator of waterworks

Approval(License) for waterworks

- Special license for waterworks issued by the national government (or the prefectural governor). Licensing aims to make sure operators are able to deliver a continuous, stable, safe and clean supply of water.
- Application for Approval (License) requires the following;
 - Water volume and water quality of source
 - Maps and drawings of water supply facilities
 - Total amount of construction expenses and their planned funding source ,
 - Construction period
 - Water tariff and management plan

4. Regulatory Framework and Administration

Information provided in the application for Approval(License) is basis for **a master plan (Project plan)**

- Service area, population and water supply volume
- Outline of planned water supply facilities
- Planned date for start of water supply
- Construction expenses and finance
- Balance of income and expense
- Water tariff

(Construction design plan)

- Volumes of daily water supply
- Type of water sources and water intake points
- Capacity and quality of water resource
- Location of water supply facilities
- Water purification process
- Pressure of water distribution pipes
- Scheduled dates of commencement and completion for construction works

Attached documents;

- Evidence to explain reliability of raw water intake
- Location of water supply facilities
- Water source
- Layout plan, elevation, section and structural drawing for main water supply facilities
- Layout plan and longitudinal section for transmission and distribution pipelines

4. Regulatory Framework and Administration

Criteria for license

Article 8 of the Water Supply Act

Licensing of water supply services can be rejected, unless the application meets the following requirements:

- The commencement of water supply services is in accordance with the general demand of the community.
- The plan for the water supply services is certain and reasonable.
- Designs for construction of water supply facilities meet the Water Supply Facility Standard.
- The water supply service area does not overlap the service area of any other water suppliers.
- Water supply conditions meet requirements of articles of the Water Supply Act.
- In the case of water supply services applied by entities other than local public entities, there exists a certain financial foundation capable of performing the water supply services.
- The commencement of water supply services is required from a viewpoint of public interest.

4. Regulatory Framework and Administration

Waterworks Ordinance (1890)

- The first modern water supply system in Japan began supplying water in Yokohama city in 1887 and shortly thereafter in several other cities. Among these, some systems were installed privately and fell short of the facility standard or were poorly managed. Under these circumstances, the *Waterworks Ordinance* was promulgated in 1890.
- “Public ownership principle” and “Approval(License)” had been already defined in the *Waterworks Ordinance* and these concepts were further elaborated by the *Water Supply Act*.

Article 2: Municipalities may not install a water supply facility **without public funds**.

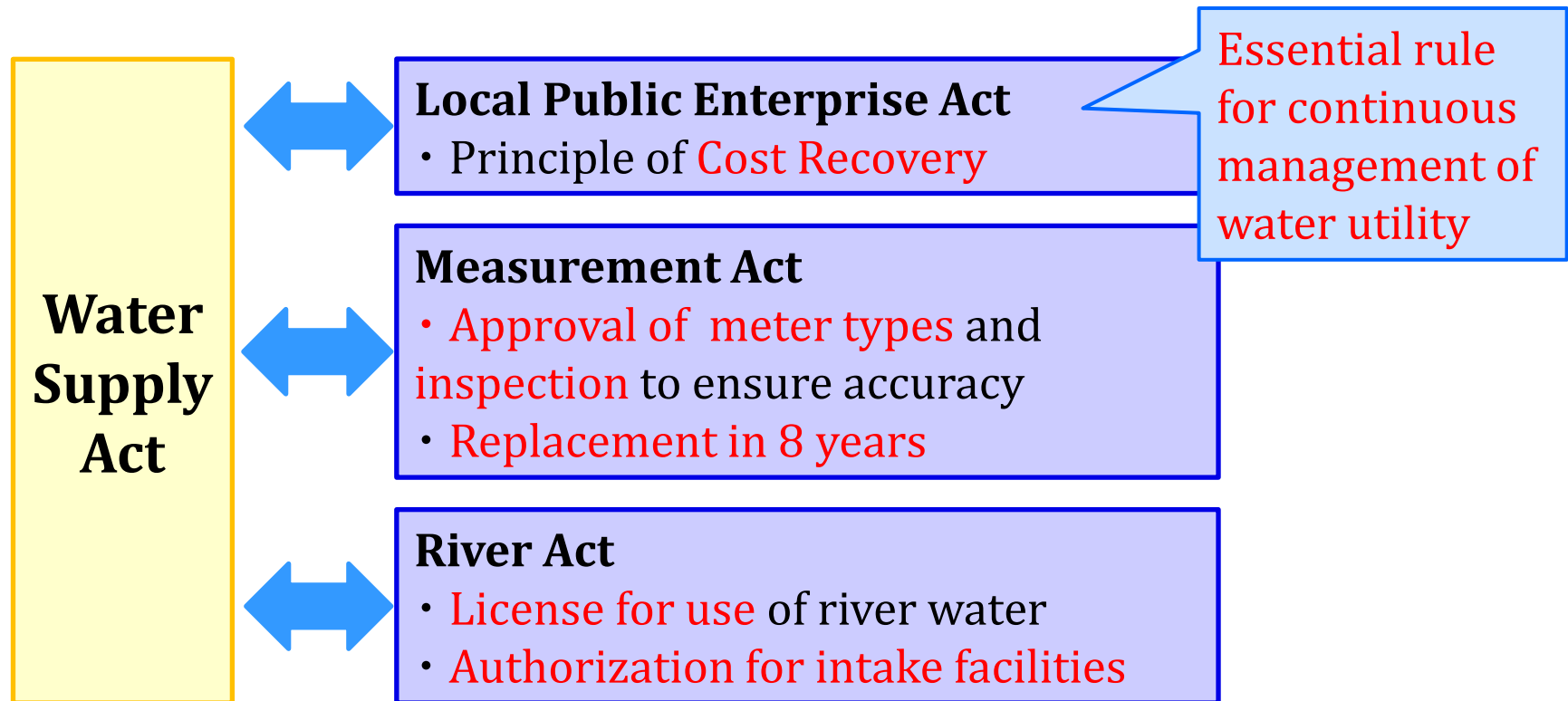
Article 3: Municipalities must provide a prospectus containing the following details through a prefectural governor to the Home Minister **for Approval (License)** to install a waterworks system.

Article 10: Anyone who has access to water supply services may request the mayor to test water quality and to check the volume.

4. Regulatory Framework and Administration

(3) Other Relevant Laws

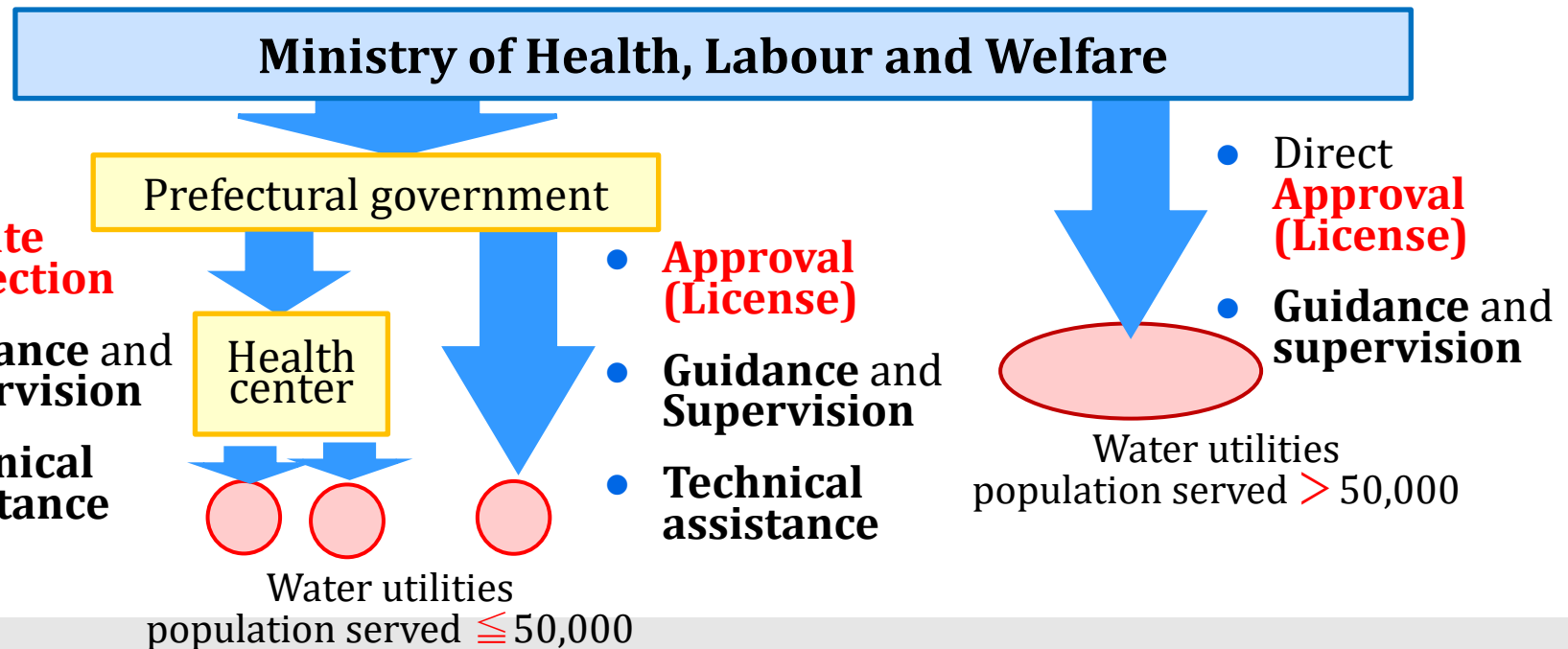
In addition to the Water Supply Act, **some related acts** supporting waterworks play an important role in operating waterworks and constructing facilities.



4. Regulatory Framework and Administration

(4) Administrative Framework

- Detailed rules of the Water Supply Act
→ **Order** for Enforcement of Water Supply Act,
Ordinance for Enforcement of the Water Supply Act
- **Administrative guidance** for rational execution of law is conducted as necessary based **upon ministerial order, public notice** and public notice of the Ministry of Health, Labour and Welfare, etc.



4. Regulatory Framework and Administration

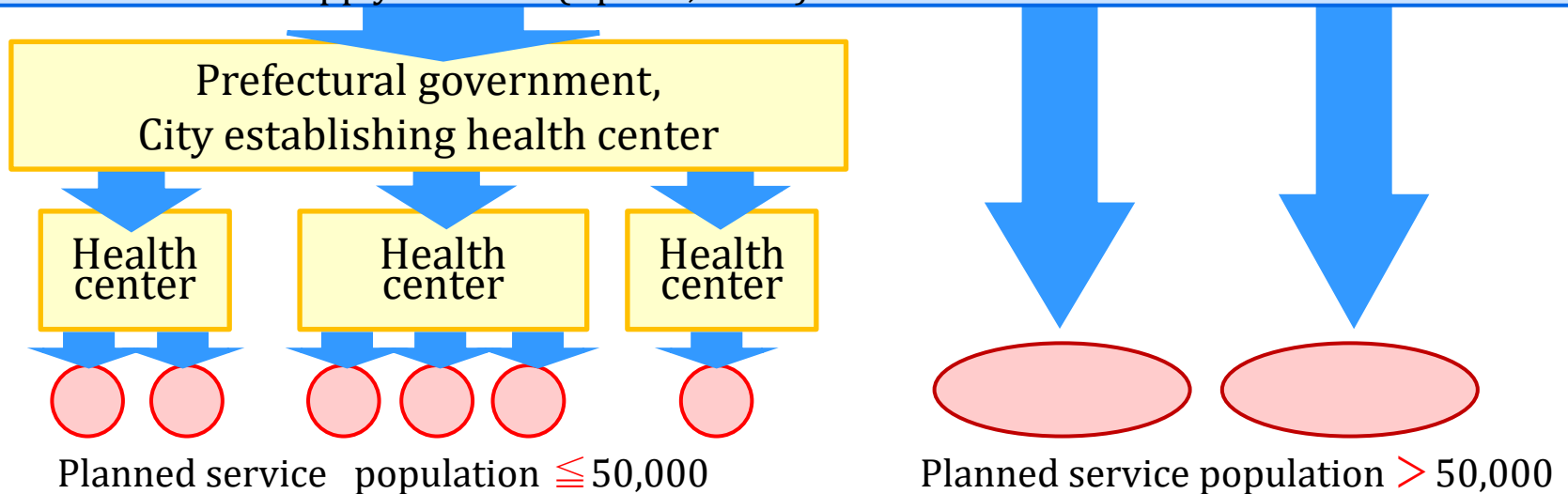
Japanese Administrative System for Water Supply

National Government:

the Water Supply Division of the Ministry of Health, Labour & Welfare

Ministerial order : Ministerial ordinance on Drinking Water Quality Standards (Order of the Ministry of Health, Labour and Welfare No. 101 of May 30, 2003)

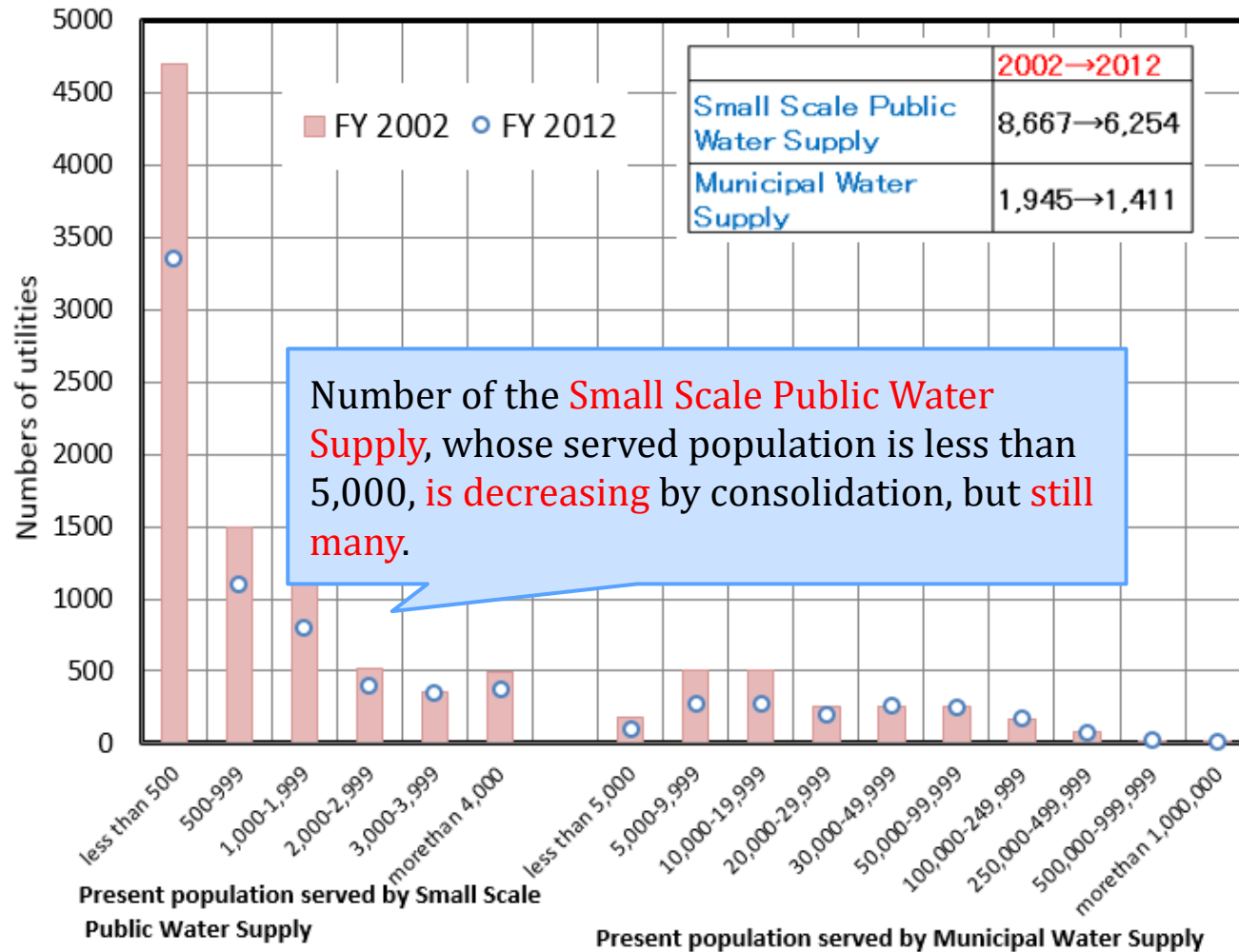
Public notice : Concerning partial amendment of the ministerial order which specifies technical standards for water supply facilities (April 8, 2008)



Health center: An organization established based upon the Community Health Act
Ensures comprehensive promotion of regional public health measures

5.Challenges in Maintaining Universal Coverage

"Water Supply Statistics," "Small Scale Public Water Supply statistics"



Numbers of water utilities according to population served (FY2002→FY2012)

5.Challenges in Maintaining Universal Coverage

Challenges Specific to Smaller Utilities

Water Supply Development with slogan “**Nationwide full coverage of water supply service**” in Japan.

Small and medium scale public water supply utilities contributed to progress of water supply coverage.

Small and medium scale public water supply utilities have **problems concerning renewal, maintenance and management, etc.**

Measures for solving problems

Planning of Water Supply Vision

Making of a master plan

Planning of Water Safety Plan

Ensuring continuity of safe water supply

Asset management

Correct recognition of current situation

Promotion of consolidation of water utilities

Consolidation with water supply utilities in adjacent areas

6. Lessons Learned (1)

- **(Continuous Pressurized Water Supply)** Japan introduced the modern water supply systems to reduce the incidence of waterborne diseases including cholera. Water supply facilities were built to treat and deliver a continuous supply of safe drinking water through **pressurized distribution networks** to customers **around the clock**. The modern water supply is one of the important determinants of public health and healthy living environment in Japan.
- **(The Water Supply Act)** Japanese government established the Waterworks Ordinance in 1890, and **the Water Supply Act** in 1957 to promote the establishment of water supply systems. These laws emphasize the technical aspects of the operations and focus on improving **public health** and the running of the water supply business for public good. The Water Supply Act defines **water quality standards** and **facilities standards**.
- **(Approval (License) of Water Utilities)** The Waterworks Ordinance instructed **municipalities** to construct water supply systems using **public financing** and requires waterworks to be **approved by the national government** (or the prefectural governor). The Approval(License) system ensures that all utilities have a certain level of **technical competence**.

6. Lessons Learned (2)

- **(Universal Access)** Based on Article 25 of the **Japanese Constitution**, all citizens shall have the right to maintain the minimum standards of wholesome and cultured living. The national government has provided **universal access** to water, including in rural areas.
- **(Financing of Urban Utilities)** **Urban waterworks** cover their expenses for facility construction with income generated from **tariffs** and with funds from **bond issues** and equity capital. Some national subsidies were also used.
- **(Government Assistance for Rural Areas)** **Utilities in rural areas** required extra **government assistance** in terms of **training** and **financial support**. The active role played by **local politicians** made it possible to set up the Small Scale Public Water Supply in these areas as a high priority.
- **(Enforcement of the Act)** Japanese legal system has many detailed stipulations spelled out in **government ordinances** and **public notices** to show how to abide by the relevant Acts including **the Water Supply Act**. The Act defines the administrative process for the development of water supply with **different levels of government working together**.

6. Lessons Learned (3)

- **(Acts Relevant to the Water Supply Act)** **The Measurement Act**, which stipulates **accurate metering and billing**. **The Local Public Enterprise Act**, which requires utilities to use specific **business accounting systems**, contributes to their sustainable financial operations.
- **(Challenges of Rural Water Supply)** Waterworks in rural areas were **developed using national subsidies**. They maintain their technical capabilities with the help of **the Water Supply Facilities Maintenance Manual**, and obtain **staff training** conducted by local governments. Other issues such as the **cost bearing** for facility renewal, **succession of techniques**, and **maintaining staff capability** in a shrinking work force, are serious challenges for their long term sustainable operation.