International Water Association

いつでも どこでも 安全で おいしい水を JWWA

Yokohama Waterworks Bureau

Asset management in water utilities for better management and customer satisfaction

より良い経営と顧客満足向上のための水道事業体のアセット･マネジメント

Satoshi Takizawa

Professor, Department of Urban Engineering, the University of Tokyo

The 7th IWA Regional Workshop in Yokohama. 2-3/2/2012

Importance of Water Supply Systems

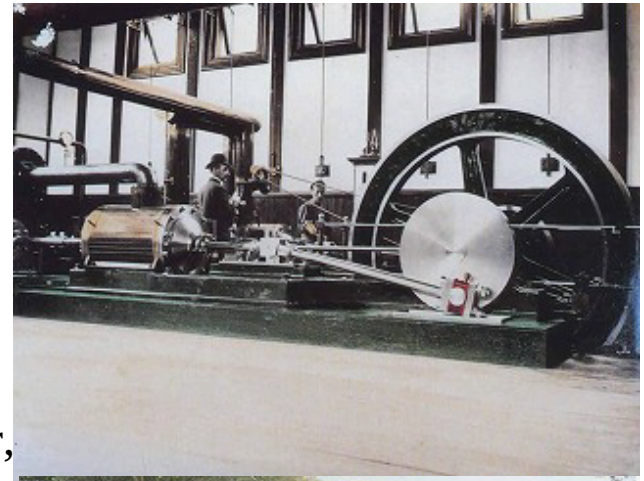
- Roles and benefits of water supply systems
  - Prevention of waterborne disease
  - Supporting our daily life, economy and industry
- Today's water supply systems require technology, human resources and investment for operation and maintenance
- The current investment of the Japanese water utilities
  - falls short of required amounts to maintain the current service levels
  - What about investments for future uncertainties?

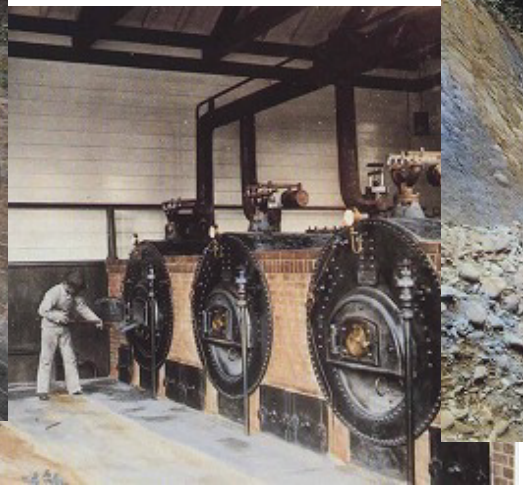
Changing society and natural disaster

- Society and economy
  - Decreasing population and increasing elderly population, and chinging lifestyle
  - Globalization, international trade and standardization
- Natural disaster and environmental change
  - Erath quake, storm and flooding
  - Climate change impacts and adaptation
- Any impact on water supply systems?
- How to maintain reliable and safe water supply systems in the future?

First Piped Water Supply in Japan

Mr. Henry S. Palmer,
a British Engineer.

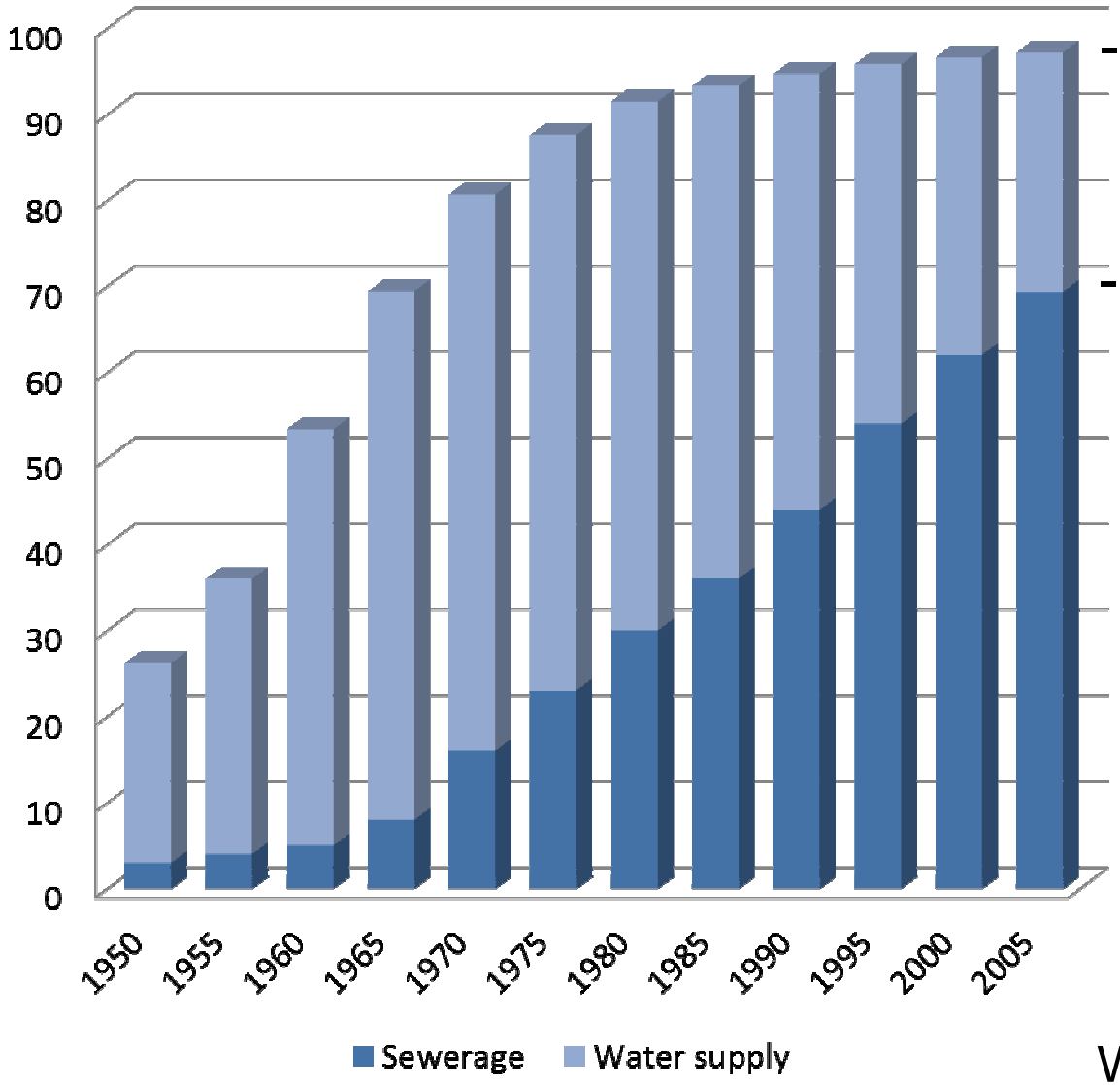




Source: http://park23.wakwak.com/~hotaru2/yokohamasuidou.html

Yokohama Waterworks was established in 17/10/1887

History of Japanese Water Supply



- Water supply: 97.5%.

- Sewerage: 73.0%.

Water shortage in 1964.

The present-day water supply systems in Japan: Safe, abundant and uninterrupted supply

Miyagase Reservoir
Built in 2001.
Capacity: 193 mil. m^3
Daily Supply: 150 mil. m3

But still challenges remain.

Not ready for the future climate change impacts.

Sameura Reservoir
Built in 1975.
Capacity: 316 mil. m3.
Water shortage in 2005.
水資源機構　早明浦ダムHPより

Climate change may exacerbate algal bloom in reservoirs

Causes taste and odor problems.

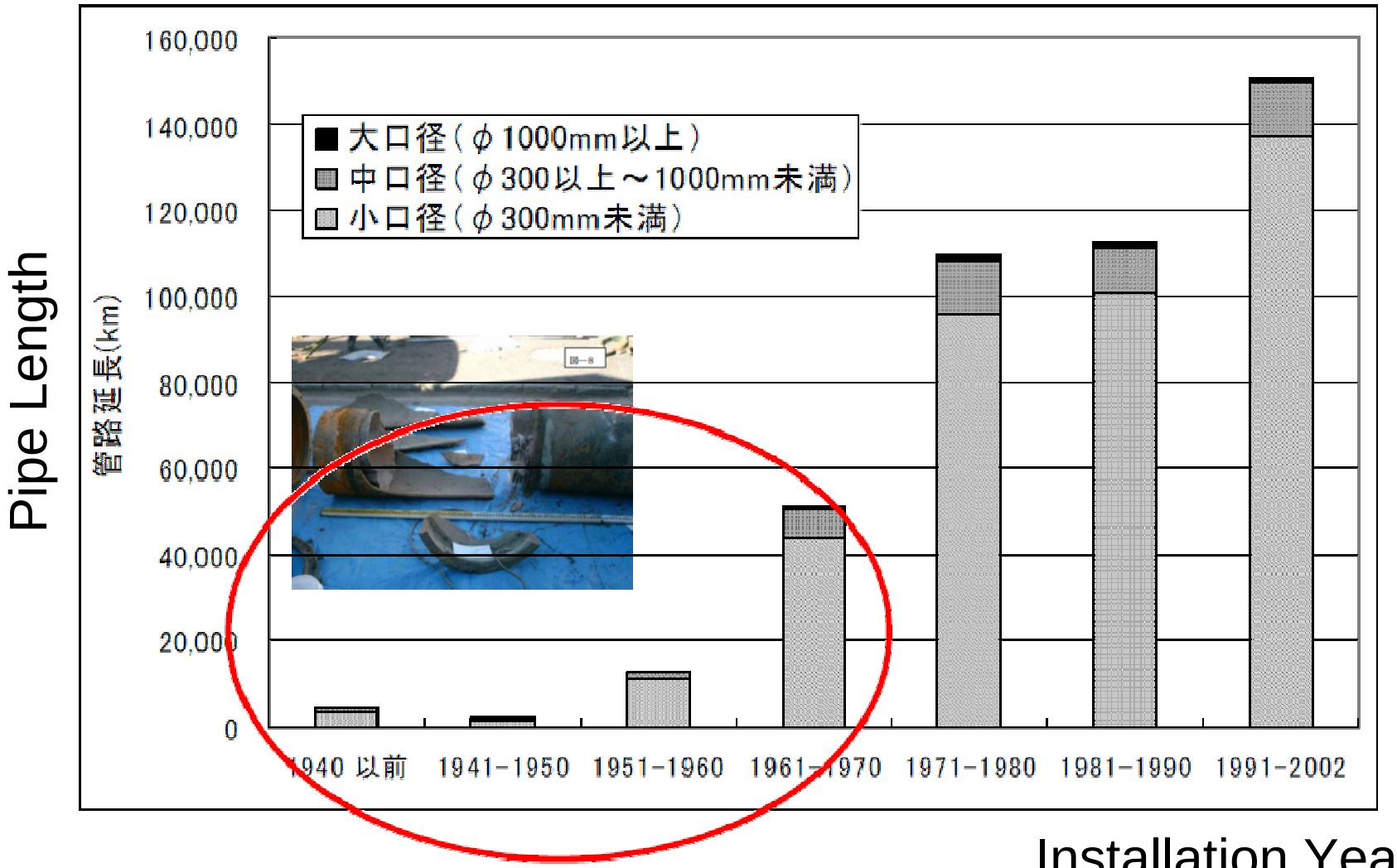
Pipe corrosion

Courtesy of Yokohama Waterworks

Cast Iron Pipe (CIP) without any protection from pipe corrosion

→ Pipe burst, poor water quality, customer complaints

Rehabilitation and replacement of Water Supply Network

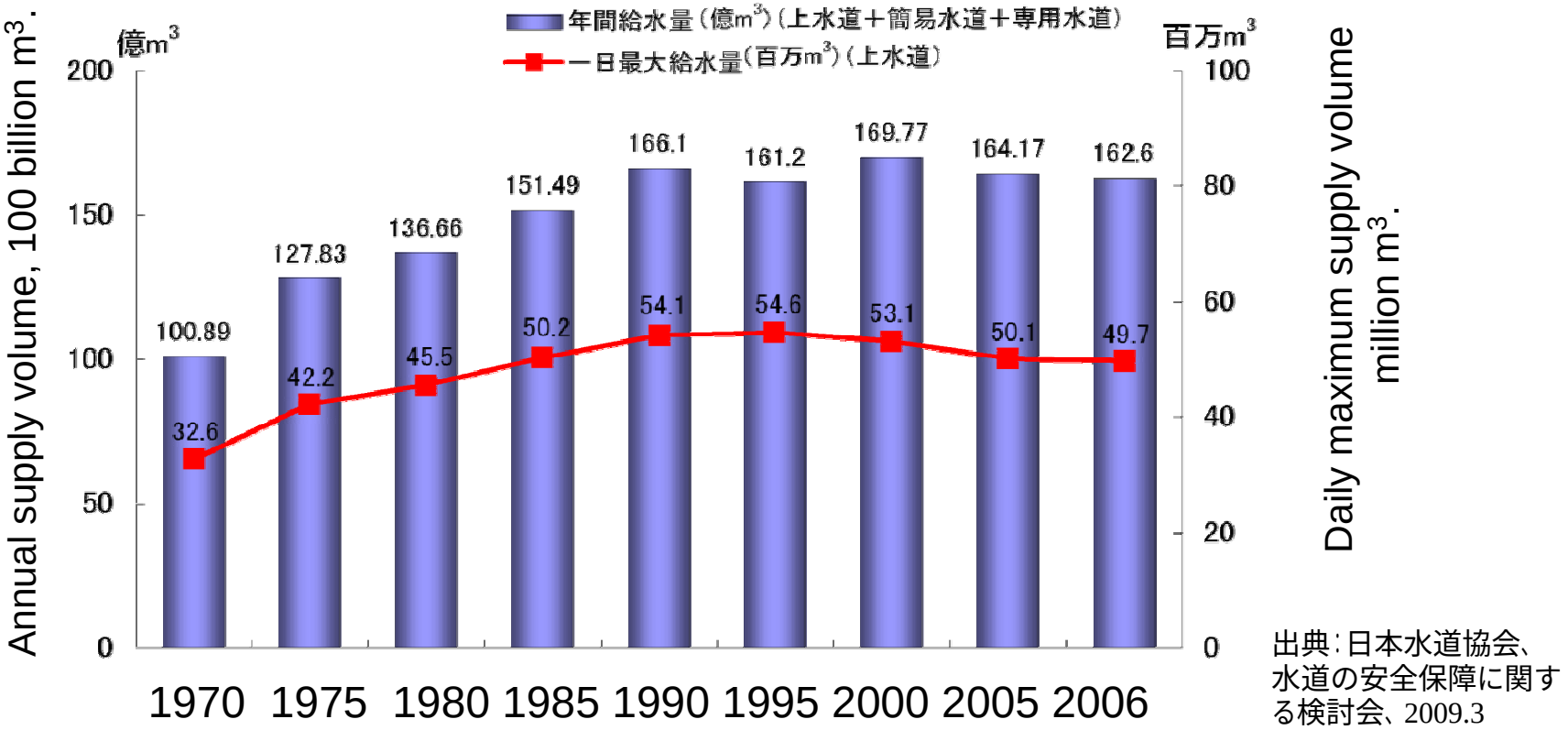


Pipe replacement work in a city

Yokohama Waterworks, 2006.

Citizen's understandings of the needs for rehabilitation and replacement are very important.

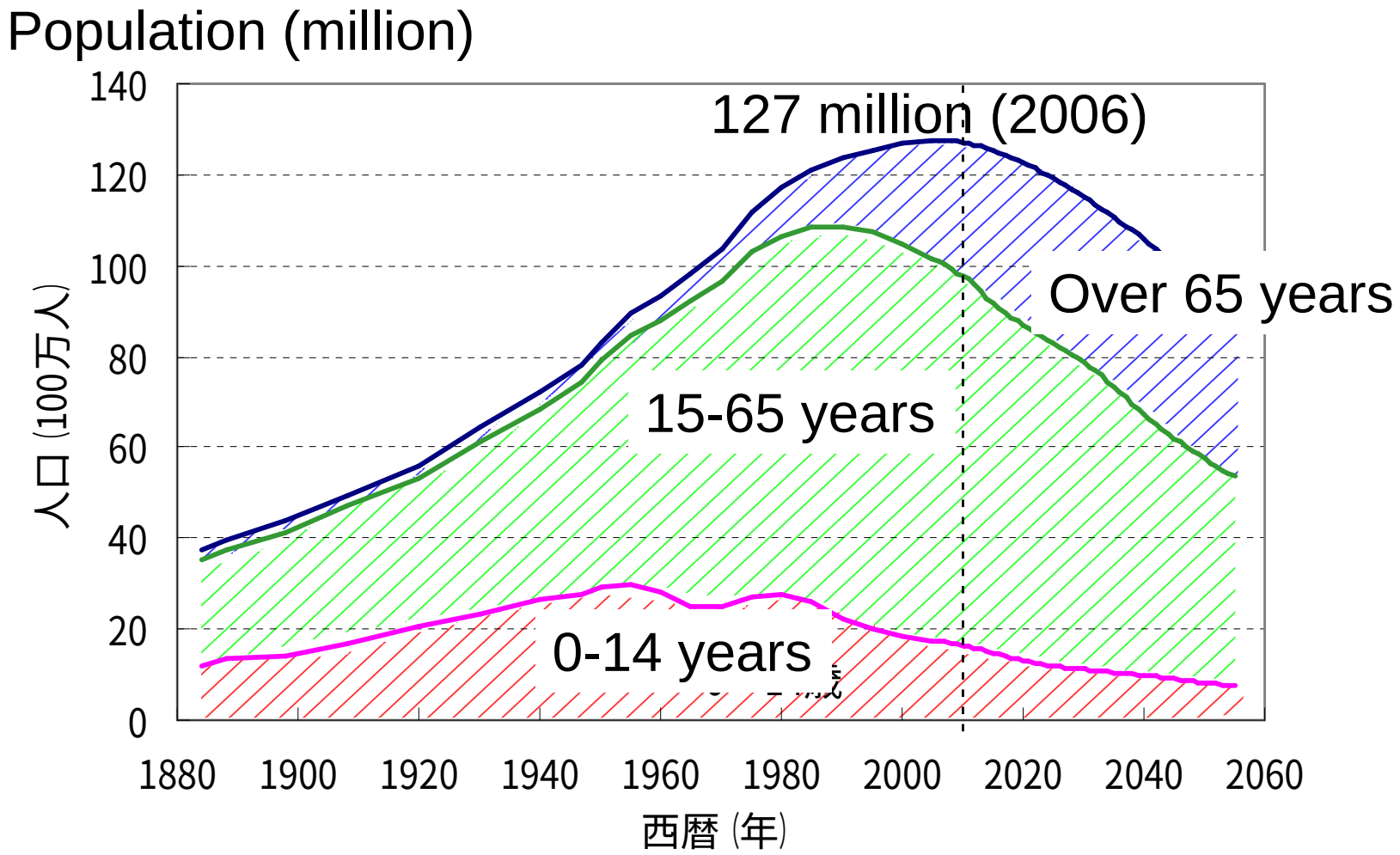
Shrinking supply volume



出典：日本水道協会、水道の安全保障に関する検討会、2009.3

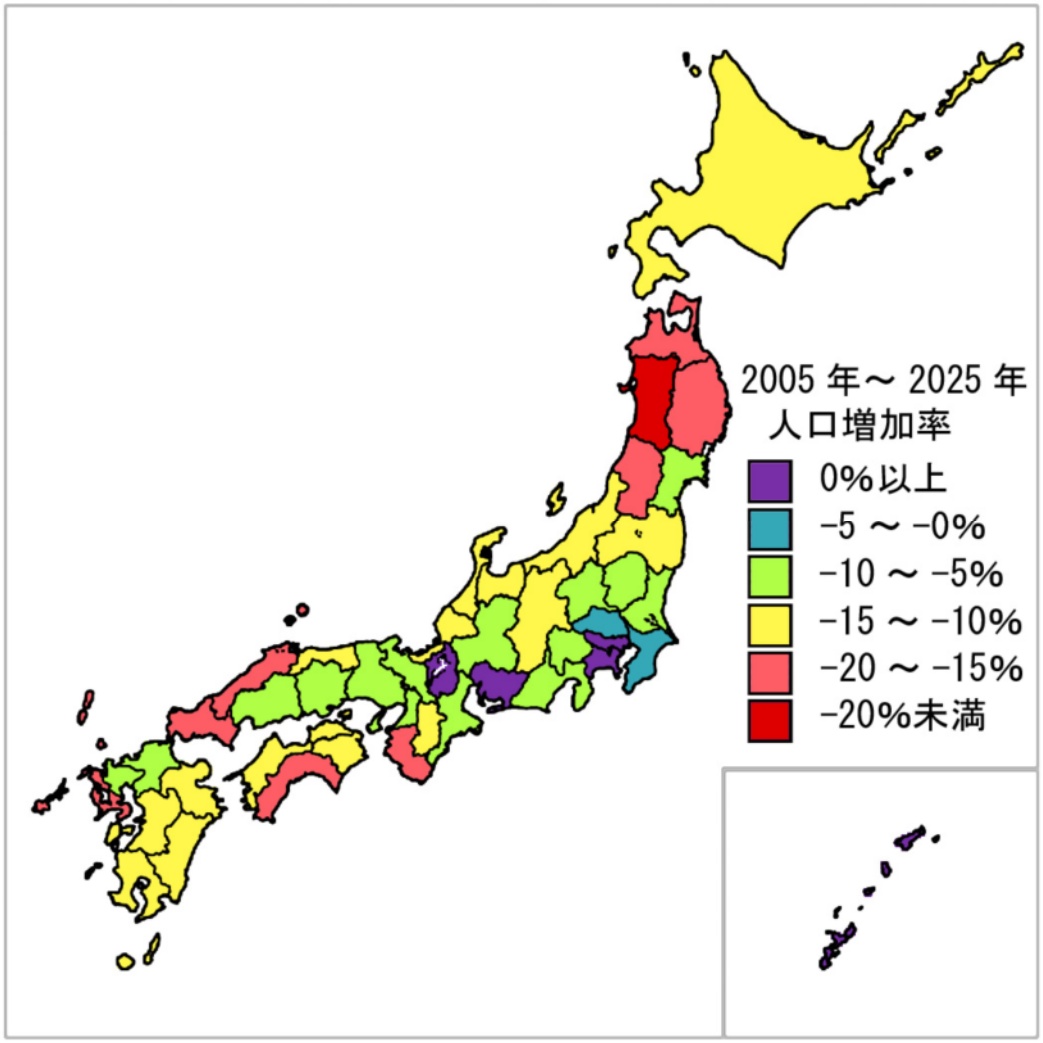
- Population decrease and life-style change brought about shrinking of water supply volume.
- Hence, the income of water utilities are also coming down.
- But, future investment needs will increase.

Population change in Japan



日本の年齢構造の変化
（国立社会保障・人口問題研究所データによる。2007年以降は推計）

Population decrease in rural communities goes even faster than the national average.

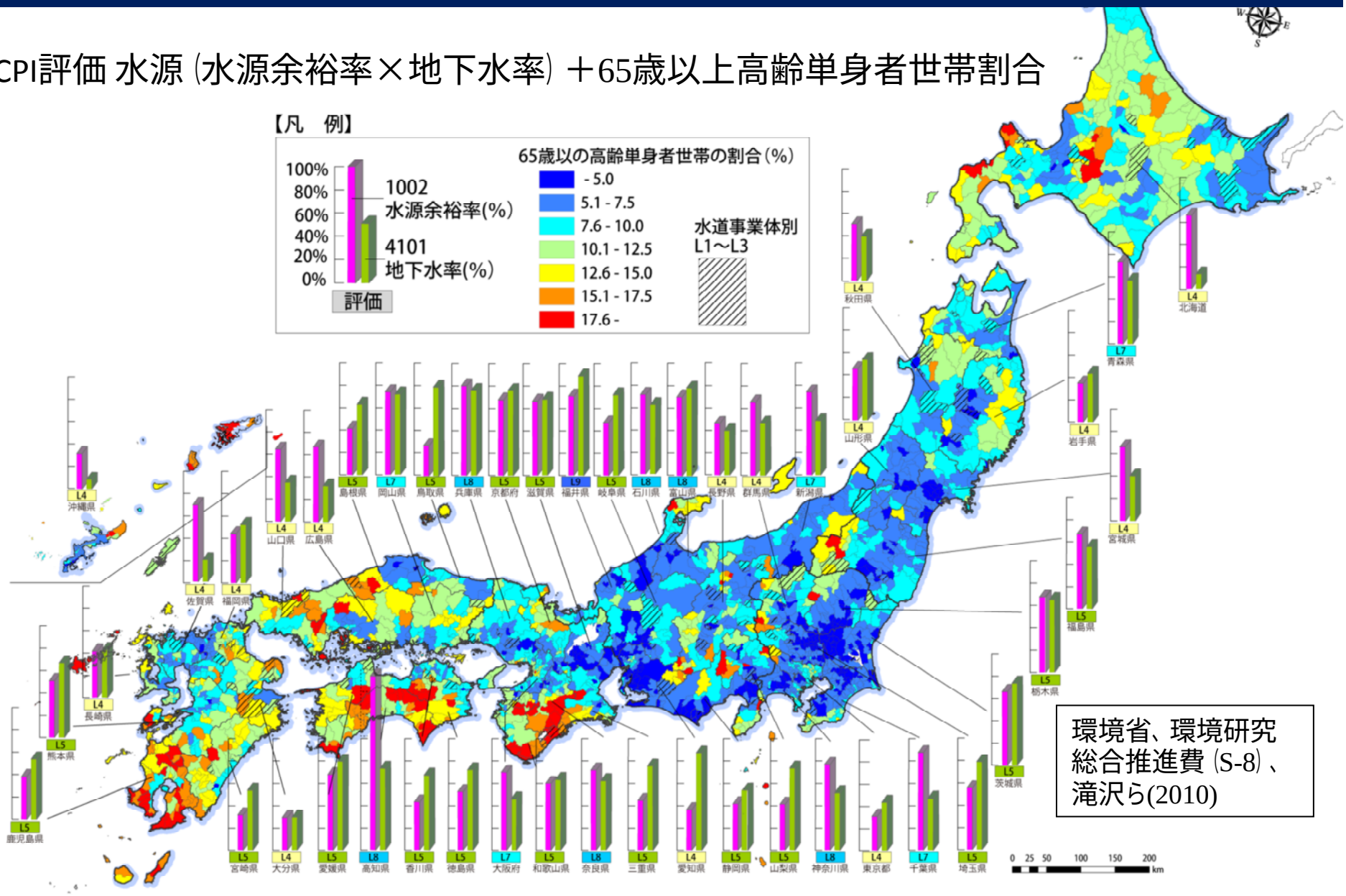


Population change between 2005 and 2025 in each prefecture.

(国立社会保障・人口問題研究所データをもとに推計)

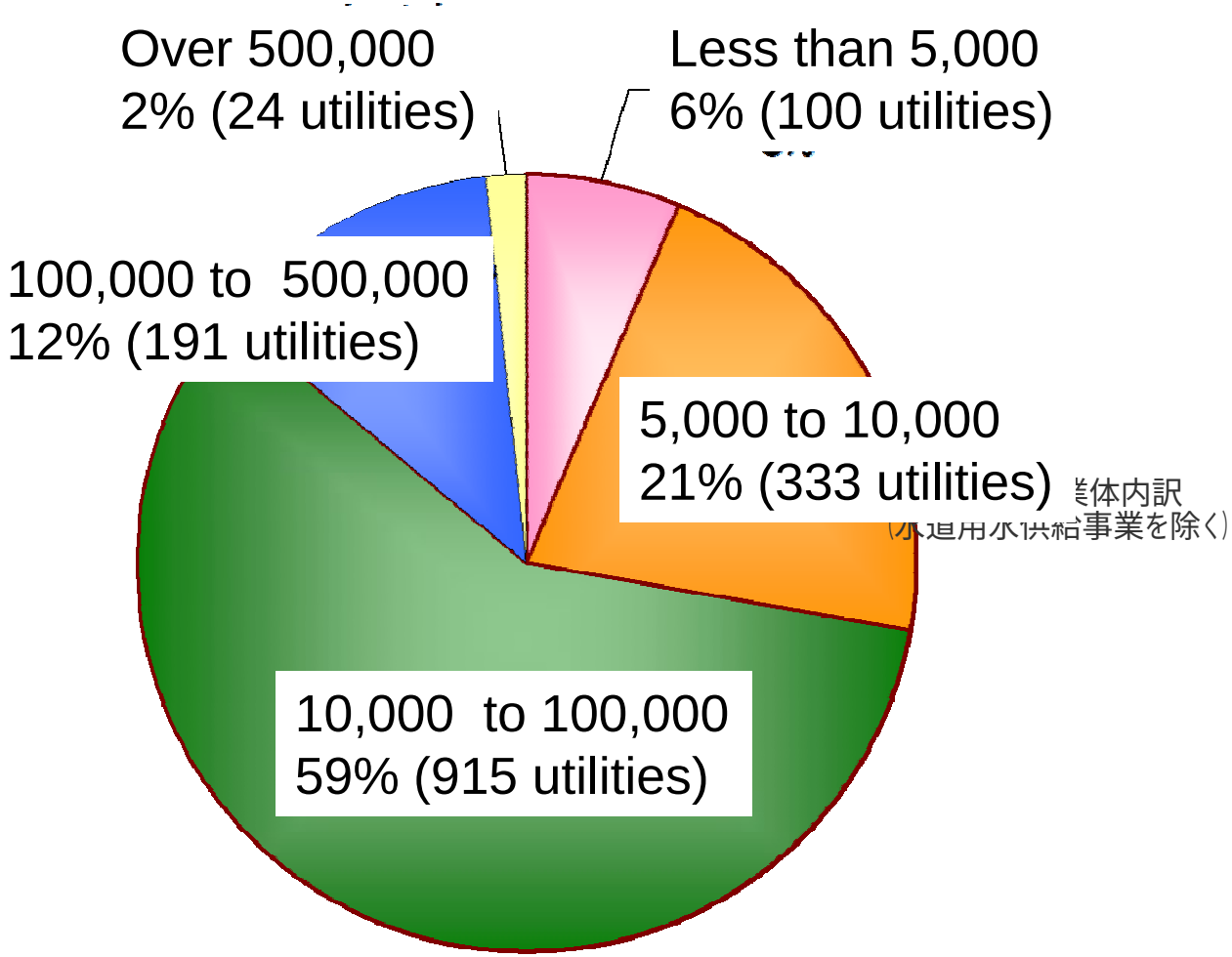
Elderly population and water sources

CPI評価 水源（水源余裕率×地下水率）＋65歳以上高齢単身者世帯割合



環境省、環境研究総合推進費（S-8）、滝沢ら(2010)

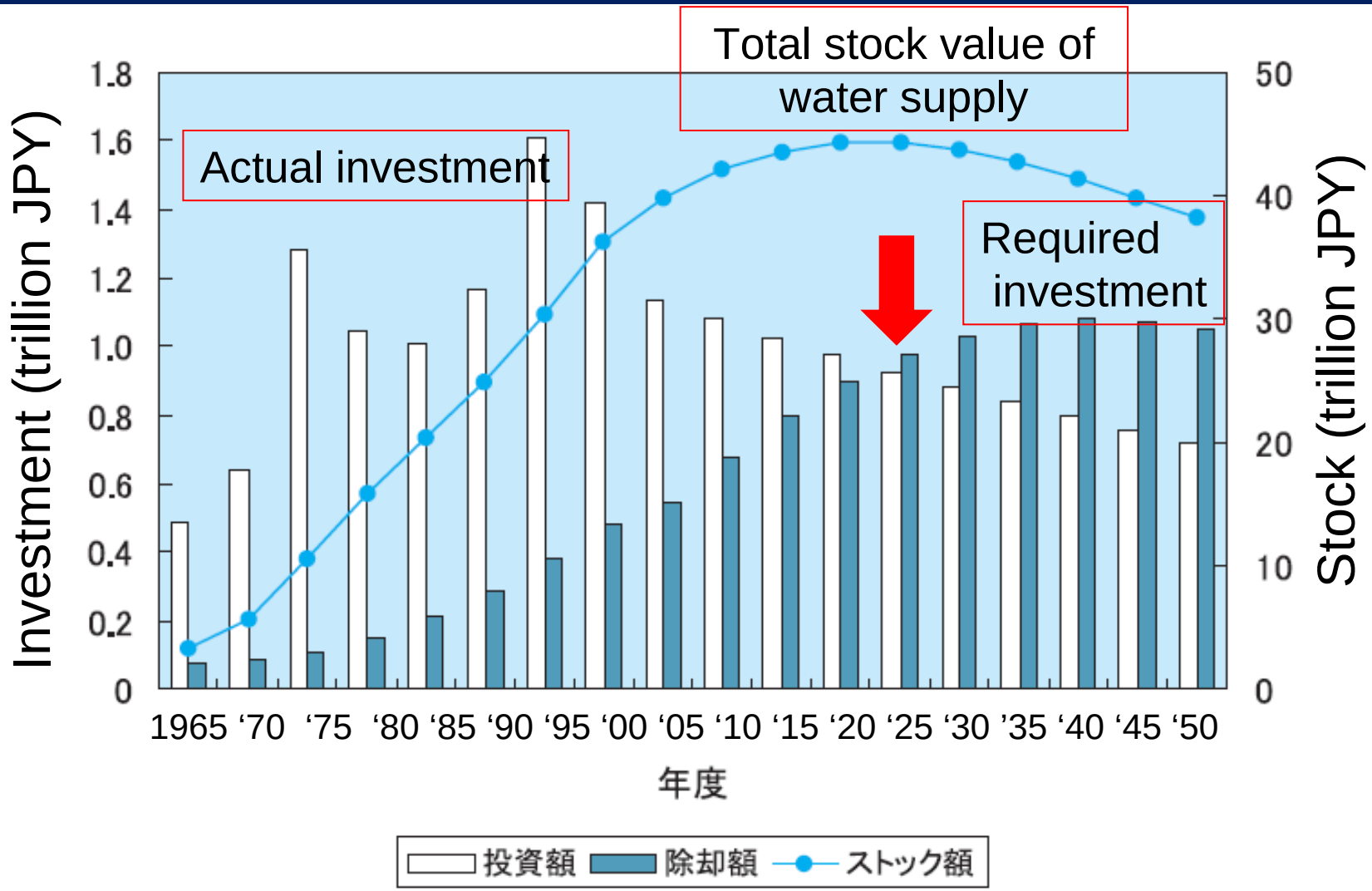
Many water utilities are small-scale



Service population

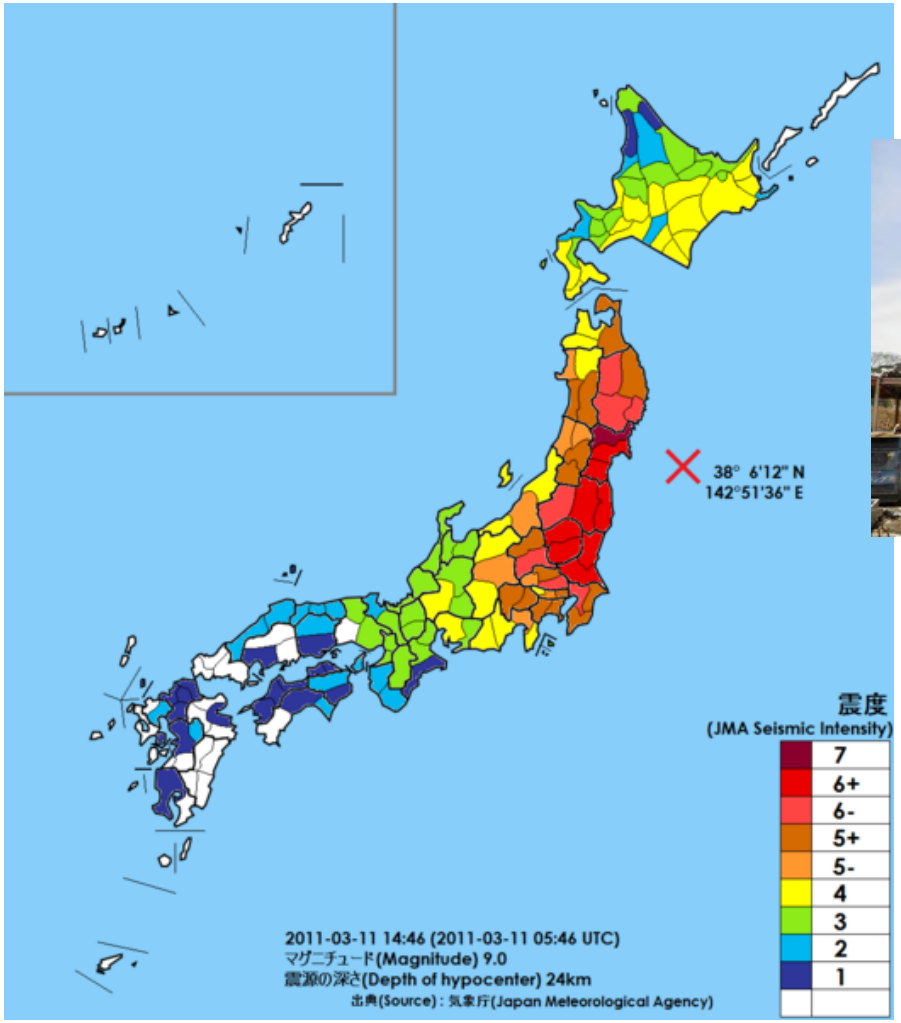
出典：日本水道協会、水道の安全保障に関する検討会、2009.3

Required investment will surpass the actual investment in 2025.



建設改良に対する投資額と更新需要（除却額）の推移（投資額が年1%減少する場合）
出典：水道ビジョンフローアップ検討会資料（平成20年）

The Great Earthquake of March 11, 2011.

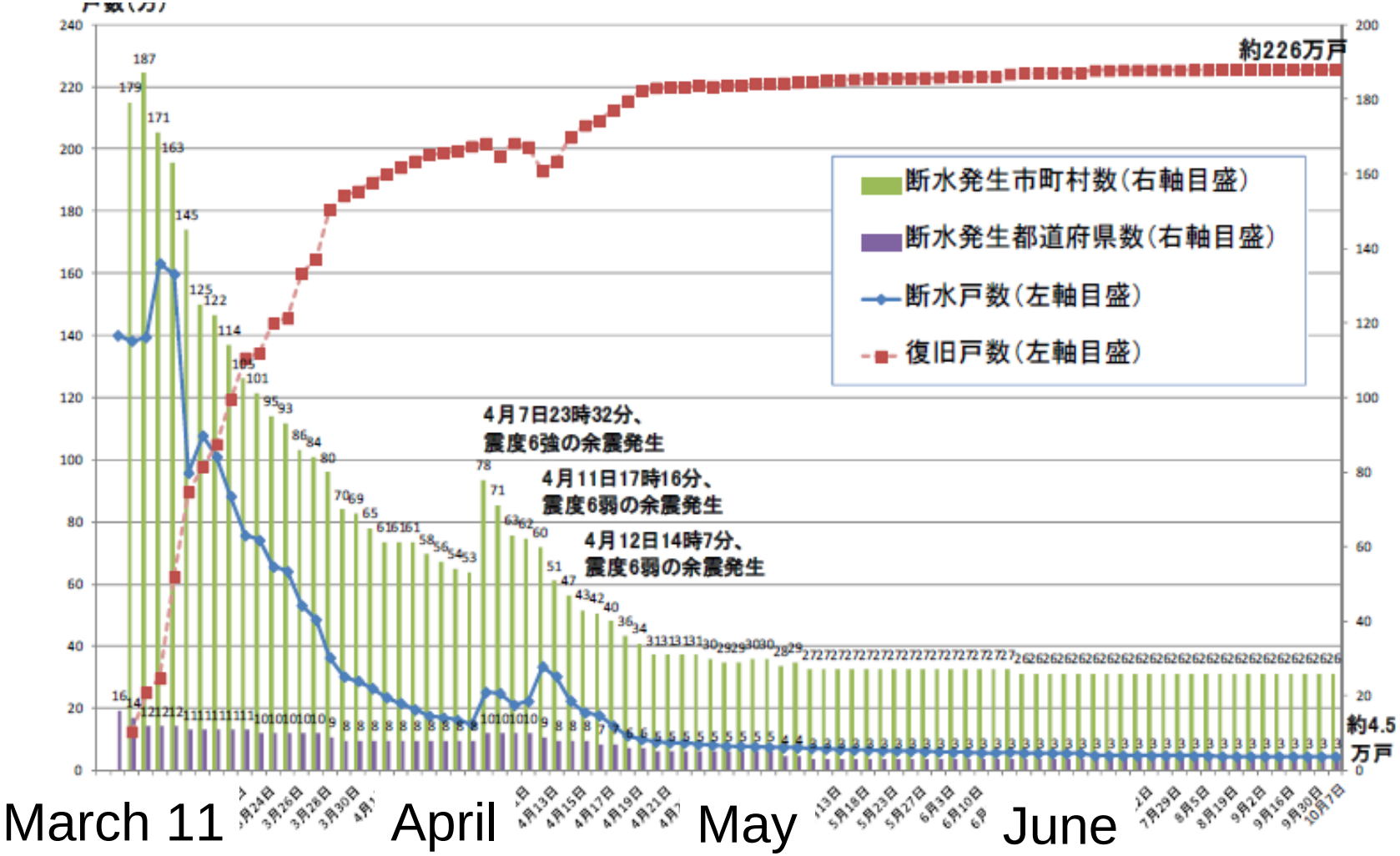


Magnitude of earthquake

The Great Earthquake of March 11, 2011.

Households in 10,000

Municipalities



出典:厚生労働省資料

Storm water flooding in the Amani Isaland


第4822号　日本水道新聞　2011年(平成23年)8月29日

奄美大島水害からの教訓

防災の日・日水協東北総会 特別企画

島嶼・山間部小規模水道被災から学ぶ

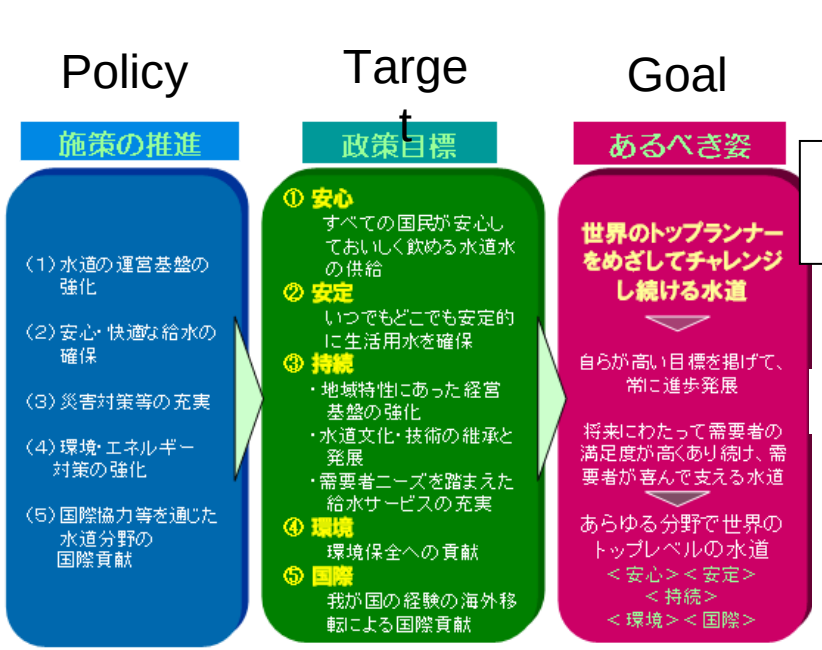
特別寄稿

東京大学大学院工学系研究科都市工学専攻 教授
滝沢 智

情報通信と物資輸送手段
相互応援の仕組みも必要

はじめに

National and Regional Waterworks Vision in 2008
水道ビジョン 2008年改訂



Five targets

1. Trust in safety and taste
2. Uninterrupted service
3. Long-term business continuity
4. Social responsibility for environmental protection
5. Internationality

Always try to be the best in the world!

Waterworks vision and asset management -1

- National Waterworks Vision 2004.
  - Target year: ca. 2014 in view of mid 21st century
  - Targets
    - Uninterrupted service
    - Long-term business continuity
  - Called for
    - Facility renewal plans based on long- or mid-term financial stability.
  - But, only a small percentage of water utilities took it seriously to make a long-term financial plan for renovation and replacement.

Waterworks vision and asset management -2

- Revised National Waterworks Vision, 2008.
  - Again called for
    - Implementation of plans for facility renovation and renewal based on mid- to long-term financial status.
    - Technically sound, well organized and efficient renovation and renewal by making use of *"asset management"*
    - Exploring the ways to secure the fund needed for facility renovation.
    - Promoting *"public relations"* to win the understandings of the customers.

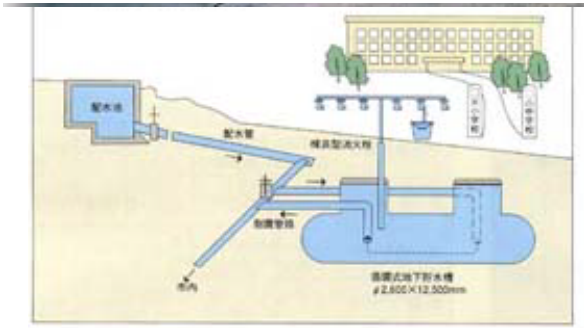
Waterworks vision and asset management -3

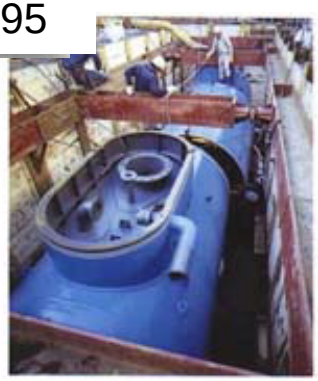
- Guideline for asset management in water utilities, 2009.
  - Aimed to make asset management easy to use in water utilities
  - Efficient and effective management of water supply facilities throughout the life-cycle
  - Sharing information on the status of asset, future needs for renovation, and finance among the staff members of water utilities.
  - Getting started with whatever you can.

Winning the customer support: Promotion of anti-seismic water supply

Earthquake and Emergency Water Supply

Hanshin-Awaji Earthquake, 1995





Emergency Drill

Underground water storage:

- ✓ Water Circulation System can maintain good water quality.

Promotion of Safe and Tasty Tap water!

安全でおいしい水道水供給の推進

- ✓Tokyo Metropolitan Waterworks.
- ✓Yokohama City.
- ✓Nagoya City.
- ✓Sapporo City.
- ✓and many more cities!

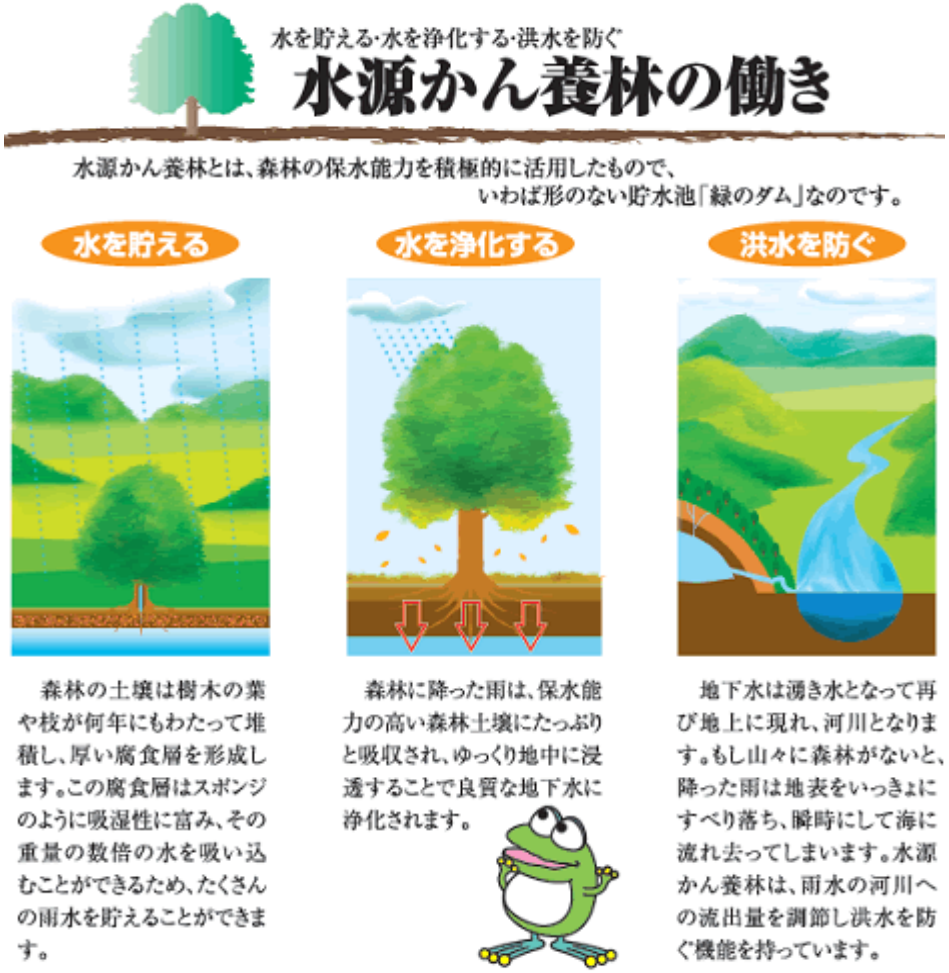
Drinking Tap Water Campaign in Summer

Summer Festival in 2010 at Nishiya WTP, Yokohama

Protection of Water Resources and Forests

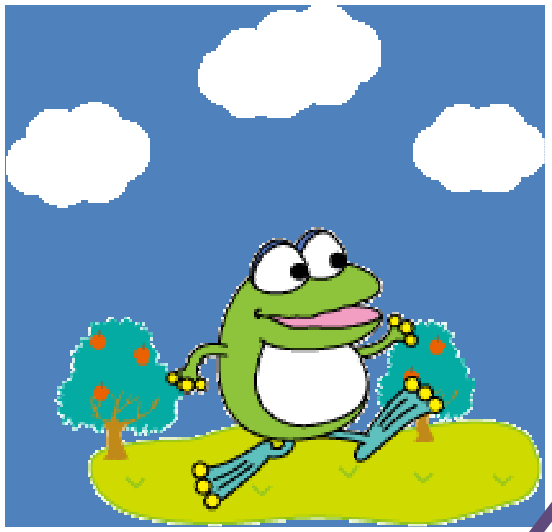
Water Exam. Yokohama

Teaching by Hama-pyon!



Promotion of water source conservation

Communicating with children: “Kids Page”



Curriculum Vitae

Name: Hama-pyon!

Birthday: June 1st, 1995. He is17 years old!

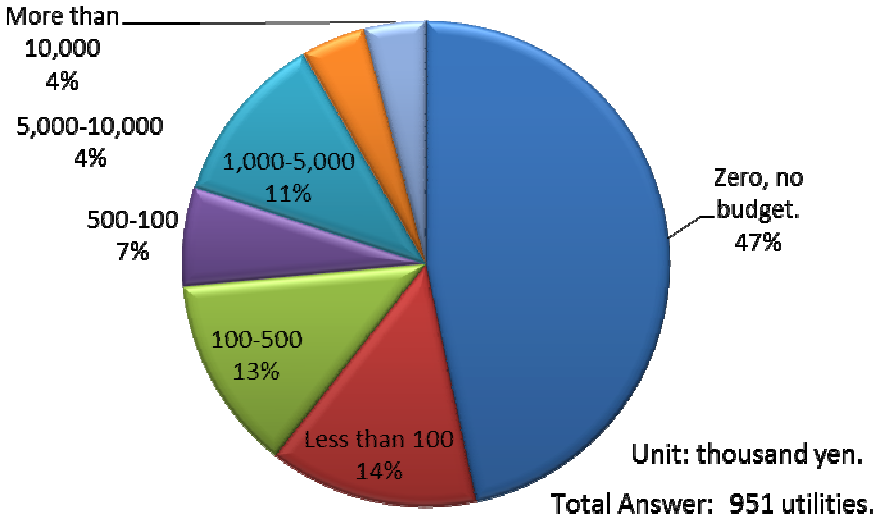
Sex: Unknown but sometimes calls himself “Boku” (a boy’s word for “me”)

Language: Looks like a flog, but can walk on two legs and speaks Japanese!

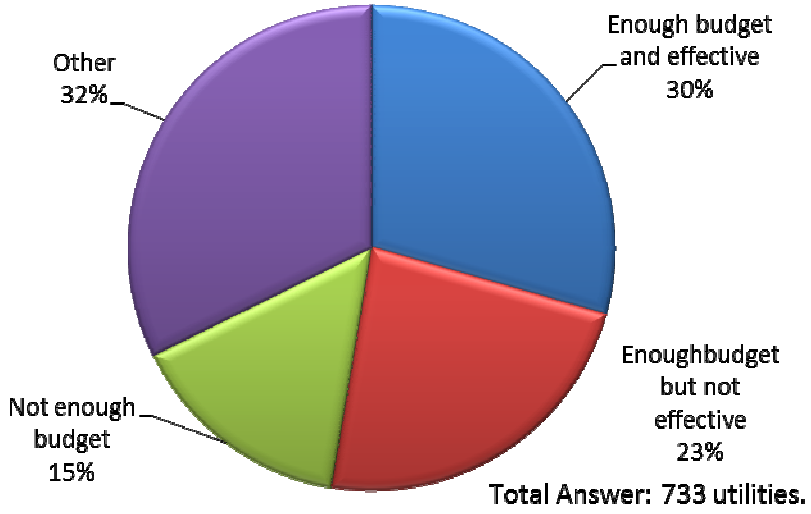
Budget and Effectiveness of Public Relations

JWWA Water Utility Survey on Public Relations, 2009.

How much is your annual budget for public relations?



How do you think about the budget and effectiveness of rublic relations?



Problems: 1. Not enough budget and human resources.
2. Effectiveness is not quantitatively measured.

Source: JWWA (2009)　出典：水道事業における広報活動に関するアンケート調査結果（日本水道協会、2009.5）

What do you want to inform the customers?

JWWA Water Utility Survey on Public Relations, 2009.

- Promotion of safety and good taste of tap water
- Importance of water, needs of water saving
- Earthquake emergency water supply
- Environmental impacts, CO_2 emission
- Water tariff and management of water utilities
  - Needs for rehabilitation and future investment

Source: JWWA (2009)　　出典：水道事業における広報活動に関するアンケート調査結果（日本水道協会、2009.5）

Roles of Public Relations

- Water Utilities must be *accountable* and *transparent*.
- Water utilities have important information such as water quality, water tariff, management and emergency response.
- The socio-economic environment surrounding management of water utilities is rapidly changing, and they need to adjust to those changes.
- Therefore, utilities must disseminate important information to the citizens by means of public relations.

Summary

- Future challenges
  - Changing demography, society and economy
  - Shrinking income, not enough investment
  - Too many small-scale water utilities and weak financial basis
- How to deal with these challenges?
  - Asset management as the most important tool for sound management
  - But, so far, not many Japanese water utilities fully incorporated asset management
- Public relations to win customer support
  - To share the information with customers
  - To incorporate customers' opinion into management