



UN-HABITAT

Working Toward “ Building a Water-Conserving City”



Treasure our water

Fukuoka City Waterworks Bureau
Water Supply Department, Water

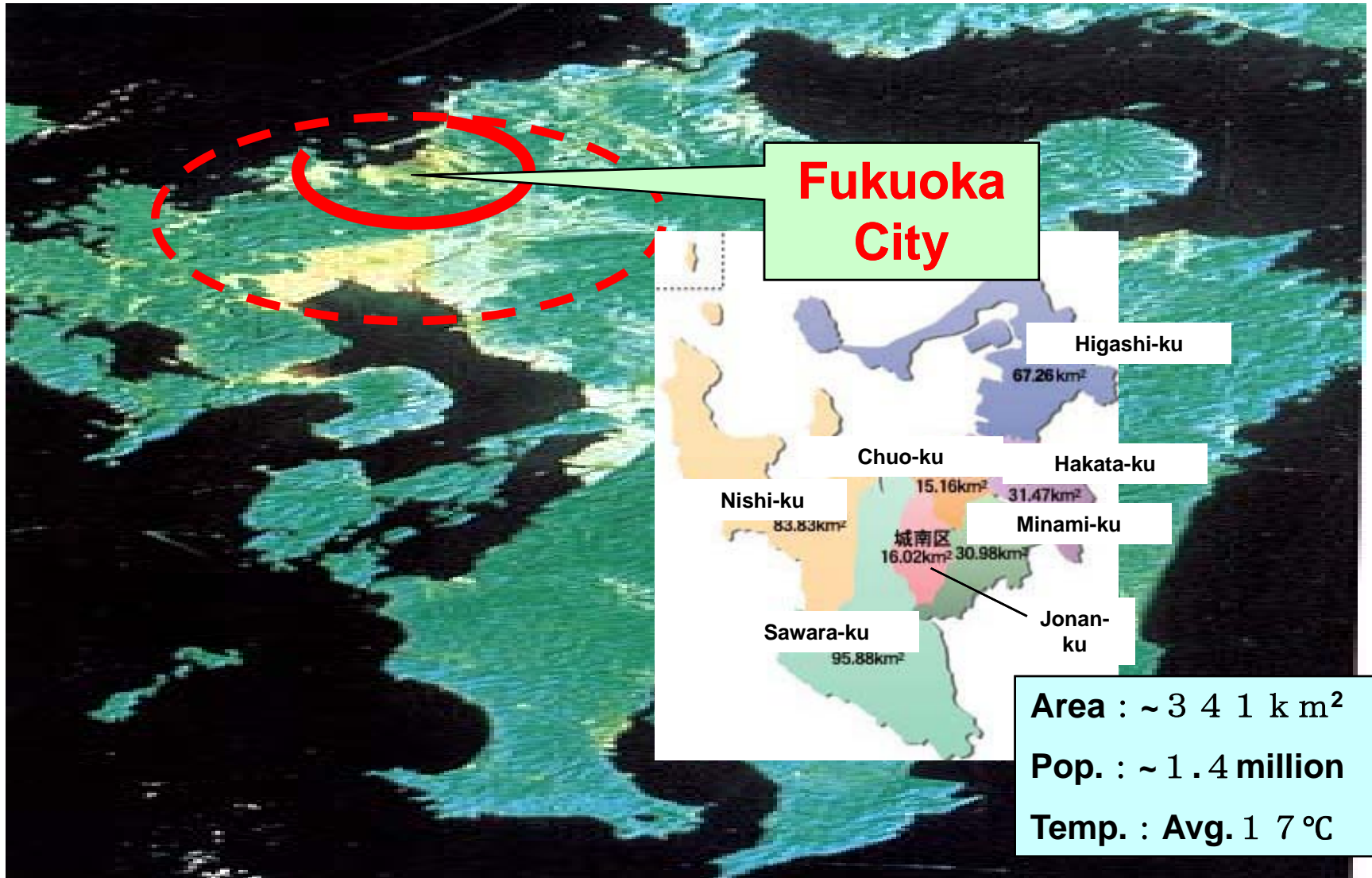
Conservation Promotion Section



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- 2 . Fukuoka's Water Conditions**
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 - Policies for water conservation**

Kyushu



Sights to see in Fukuoka



Waterfront district



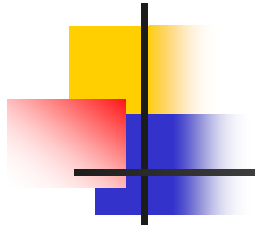
Hakata Dontaku festival



Nakasu



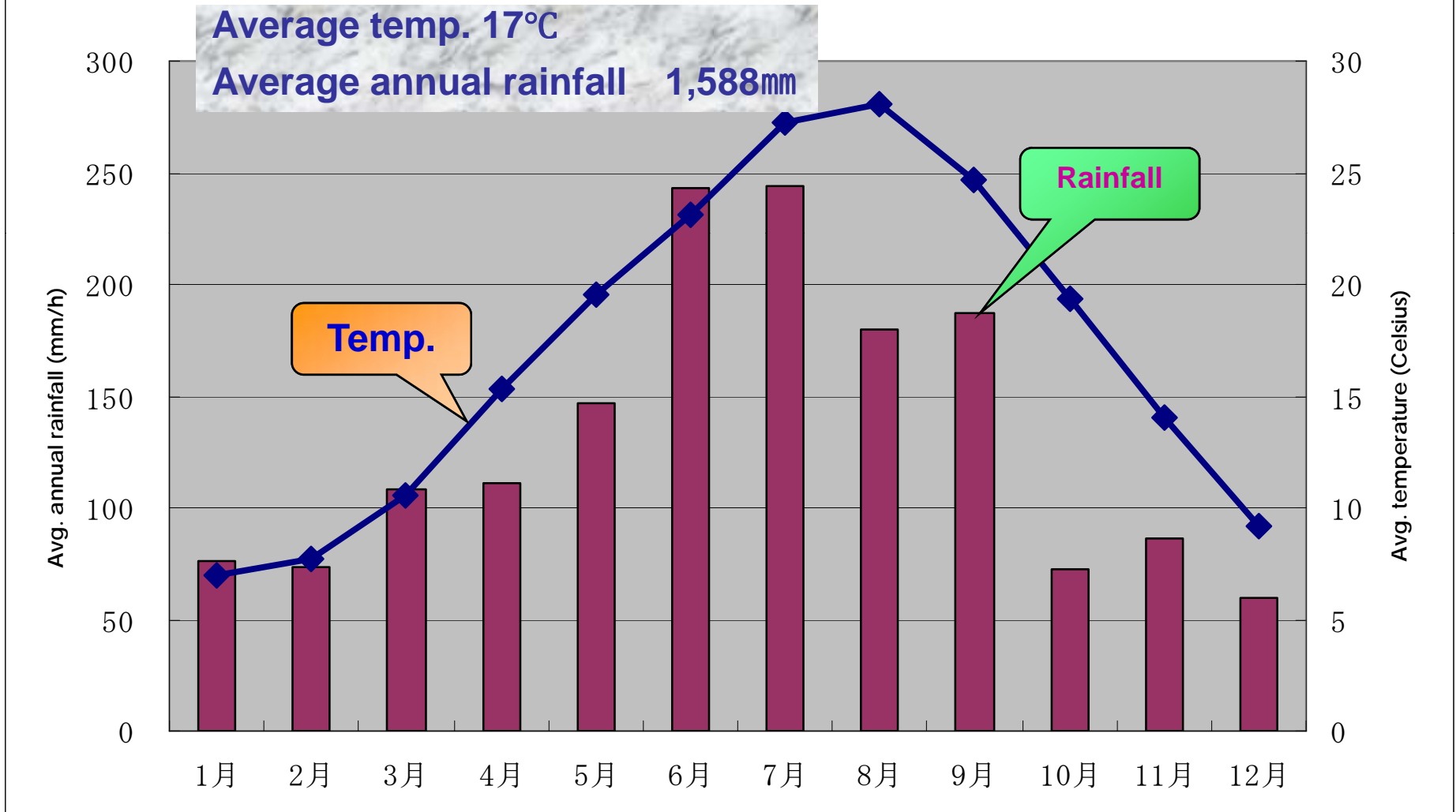
Hakata Gion Yamakasa festival



Fukuoka's Water Conditions

Fukuoka's weather

Temperature and annual rainfall trend over the past 20 years (1989-2008)



The Drought of 1978

Dried up reservoir



**Water supply restriction:
287 days**

**Average water supply
cut-off : 14 hours /day**

Dispatch of water trucks



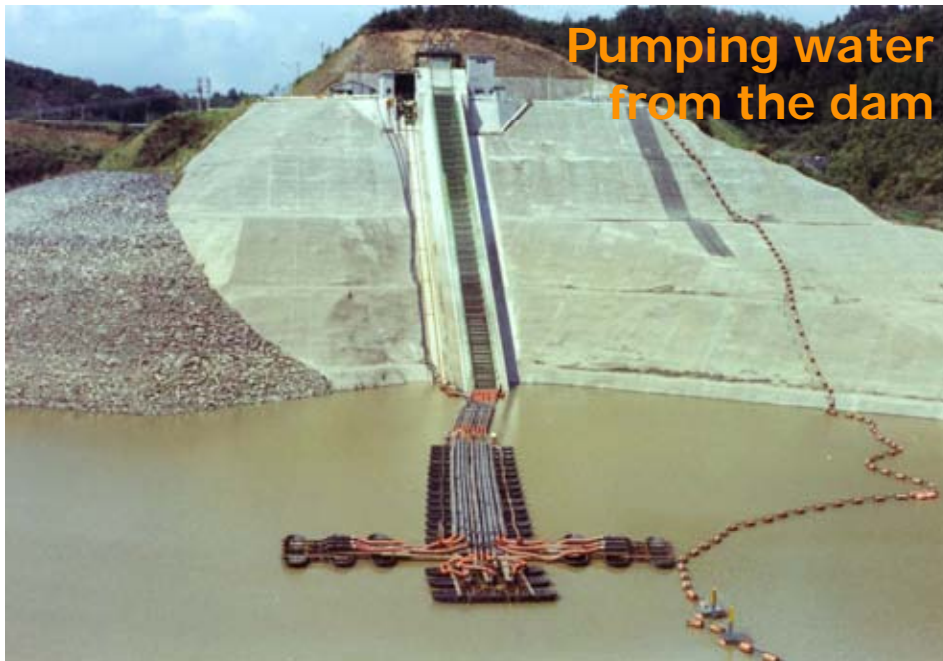
**Households with complete water supply
cut-off Approx. 45 , 000 (13%)**

**Occurrence of “red water” (TNT waste
water) and polluted water**

**Water tap valve adjustment (tightening)
required assistance of non-Waterworks
Bureau staff**

The Drought of 1994

Zuibaiji Dam (11 . 4 %)



Water supply restriction : 295 days

Average water supply cut-off: 8 hours /day

Sefuri Dam (32 . 7 %)



No households with complete water supply cut-off

No occurrence of “red water” (TNT waste water) and polluted water

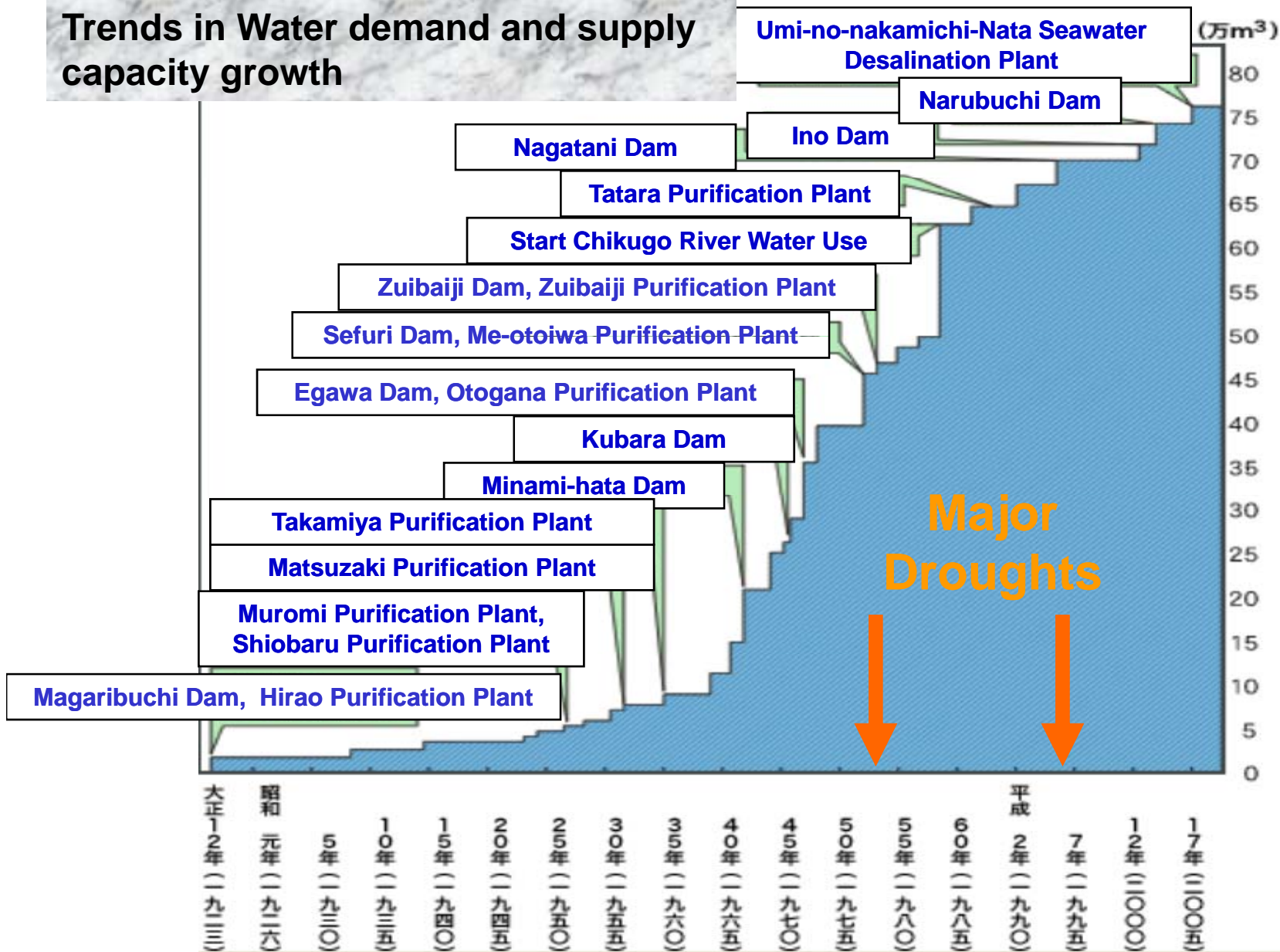
Water tap valve adjustment (tightening) handled fully by Waterworks Bureau staff



Water supply development

Water supply development

Trends in Water demand and supply capacity growth



Nagatani Dam (Pump-based dam)

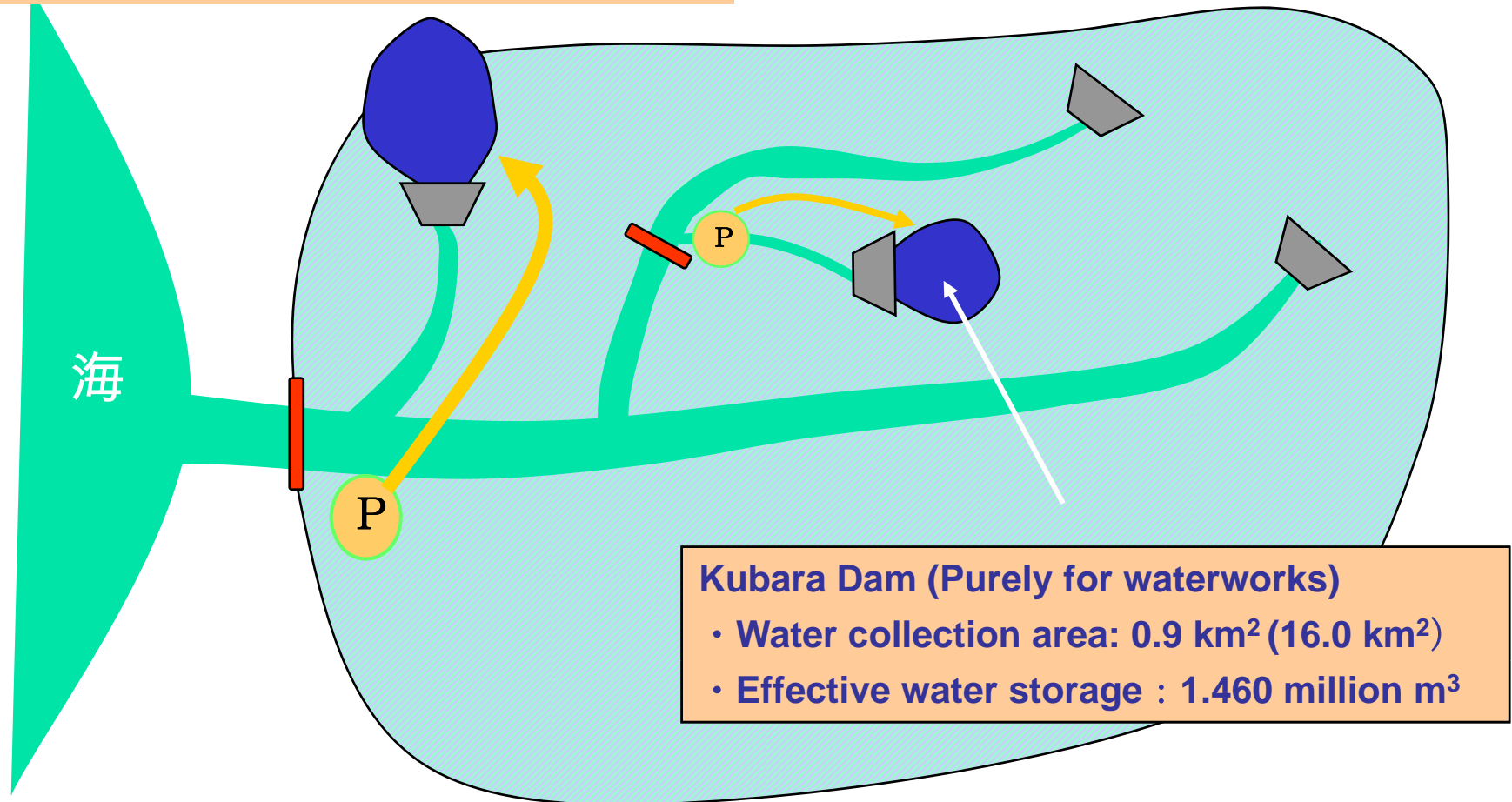


Critical in droughts

Pump-based dam

Nagatani Dam (Purely for waterworks)

- Water collection area: 1.8 km² (93.2 km²)
- Effective water storage : 4.859 million m³
- Pump capacity : 100,000m³ / day



Kubara Dam (Purely for waterworks)

- Water collection area: 0.9 km² (16.0 km²)
- Effective water storage : 1.460 million m³

Seawater desalination plant





Building a Water- Conserving City

Building a Water-Conserving City

Water Conservation Promotion Ordinance

(Passed 2003)

Policies for Effective Water Use

- Building of the Water Management Center for water supply control
- Water pipe maintenance project (Repair and re-installation of old and decaying pipes, etc.)
- Leakage prevention project
- Reuse of treated sewage for misc. use
- Rainwater harvesting (Fukuoka Dome and others)

Policies for Water Conservation Promotion

- Raise water conservation consciousness
- Promote diffusion of water conservation equipment (water-saving tap valve, water-saving toilet, etc.)
- Water conservation fee structure (progressive)



Policies for the effective use of water

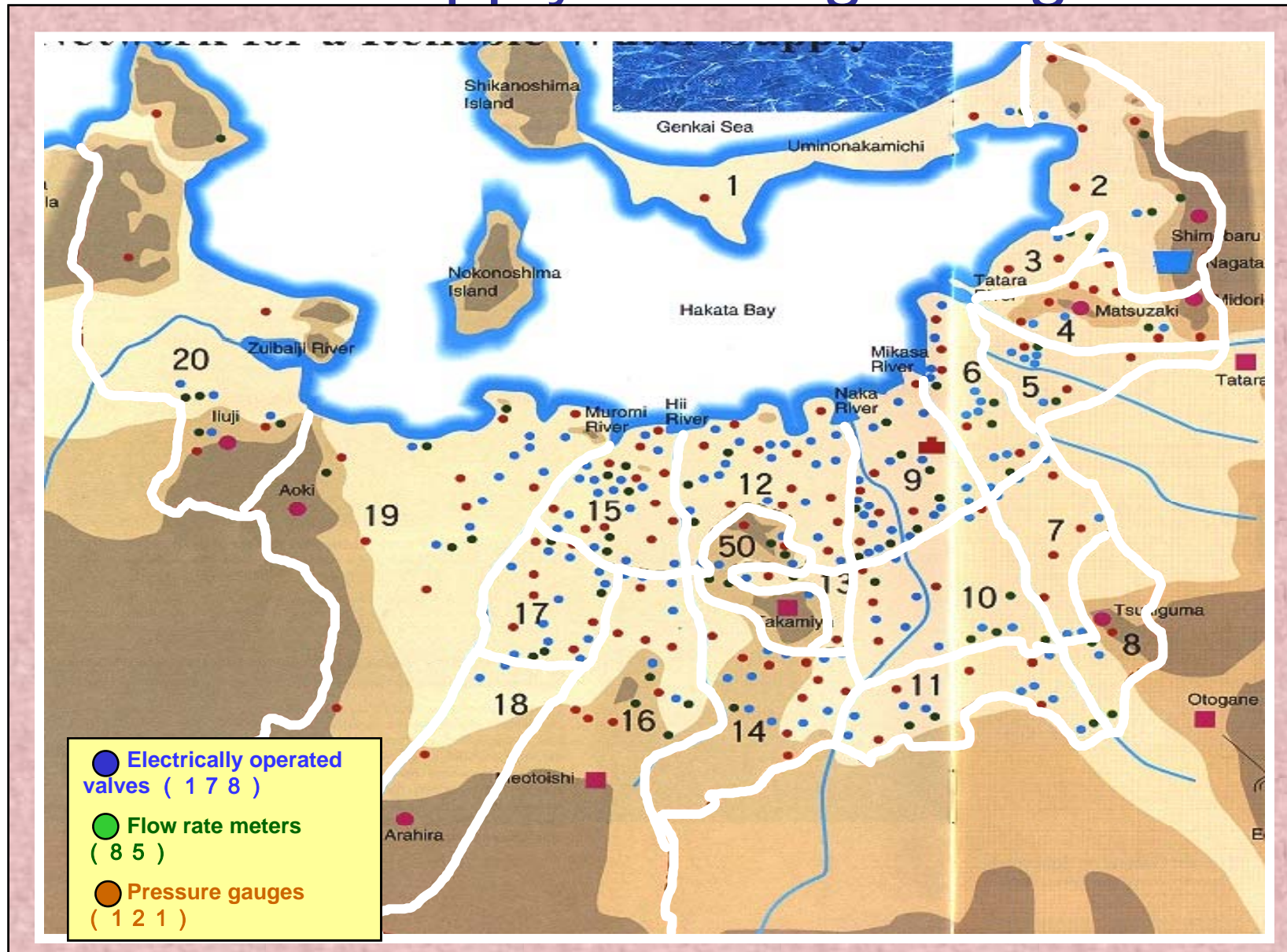
Water Management Center (Water Supply Control")

System installation: 1981

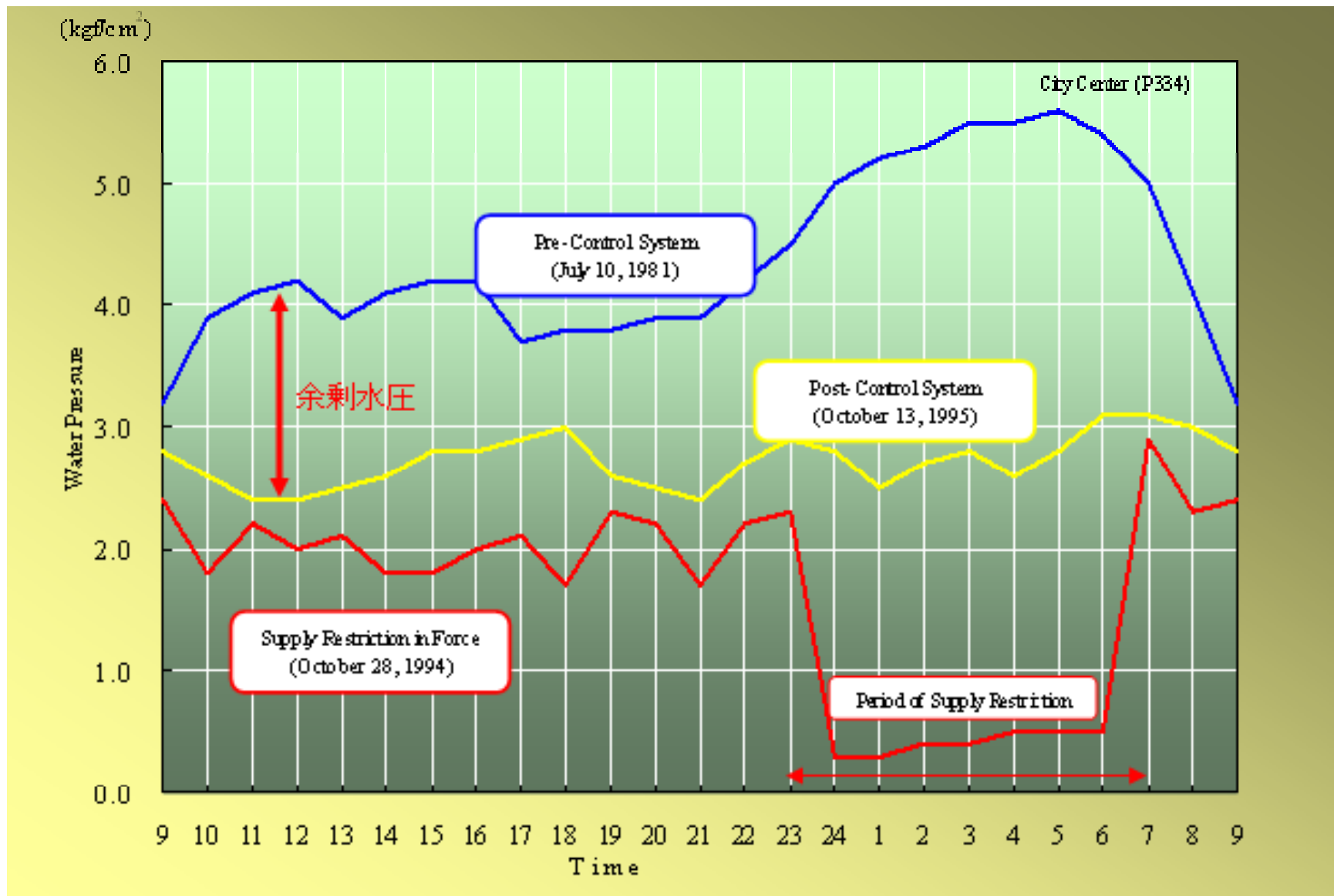
Construction cost : JPY 5 billion (~USD 50 million)



Water supply blockage diagram



Water Pressure Regulation Time-series Graph

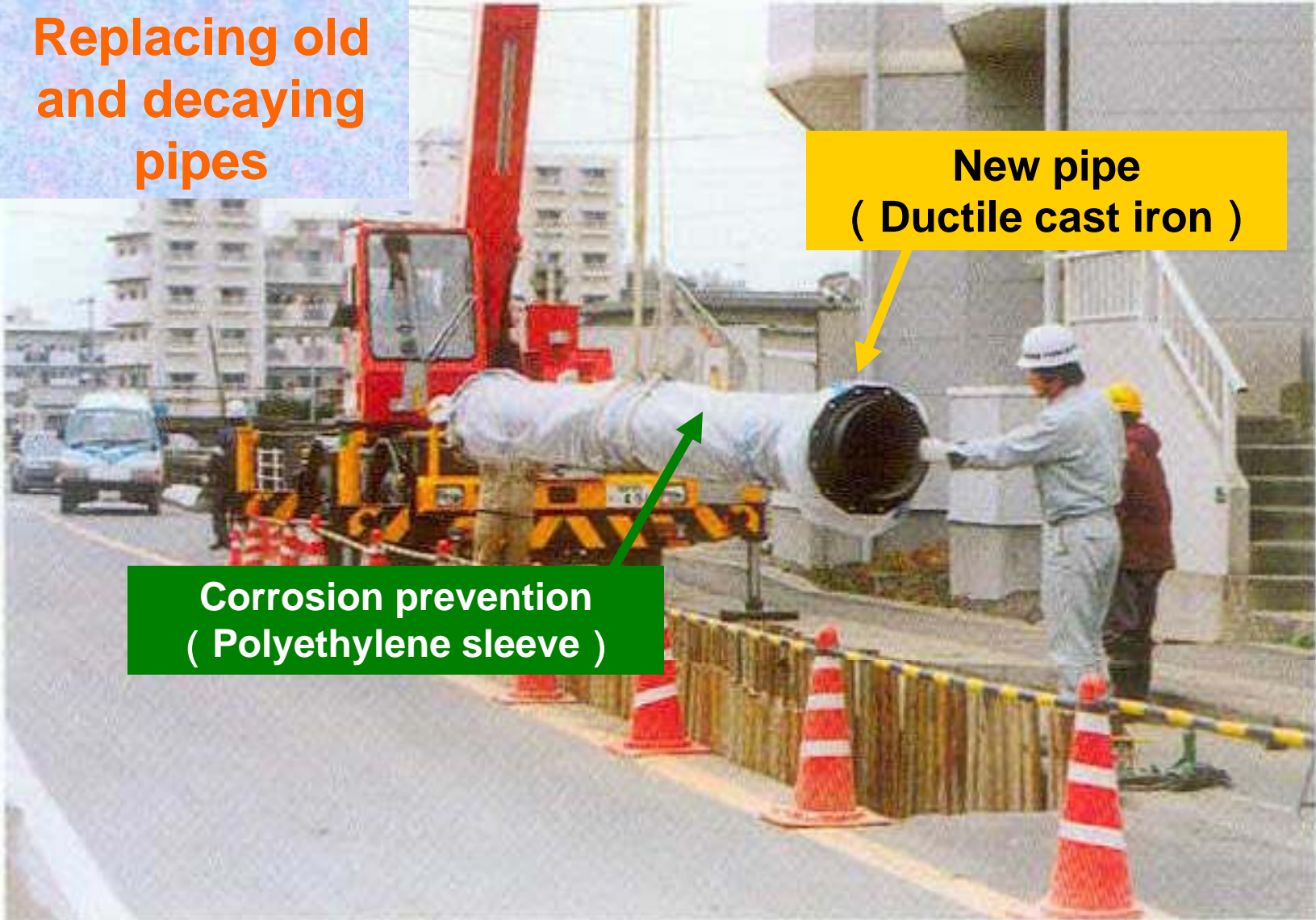


Water pipe maintenance project

Replacing old and decaying pipes

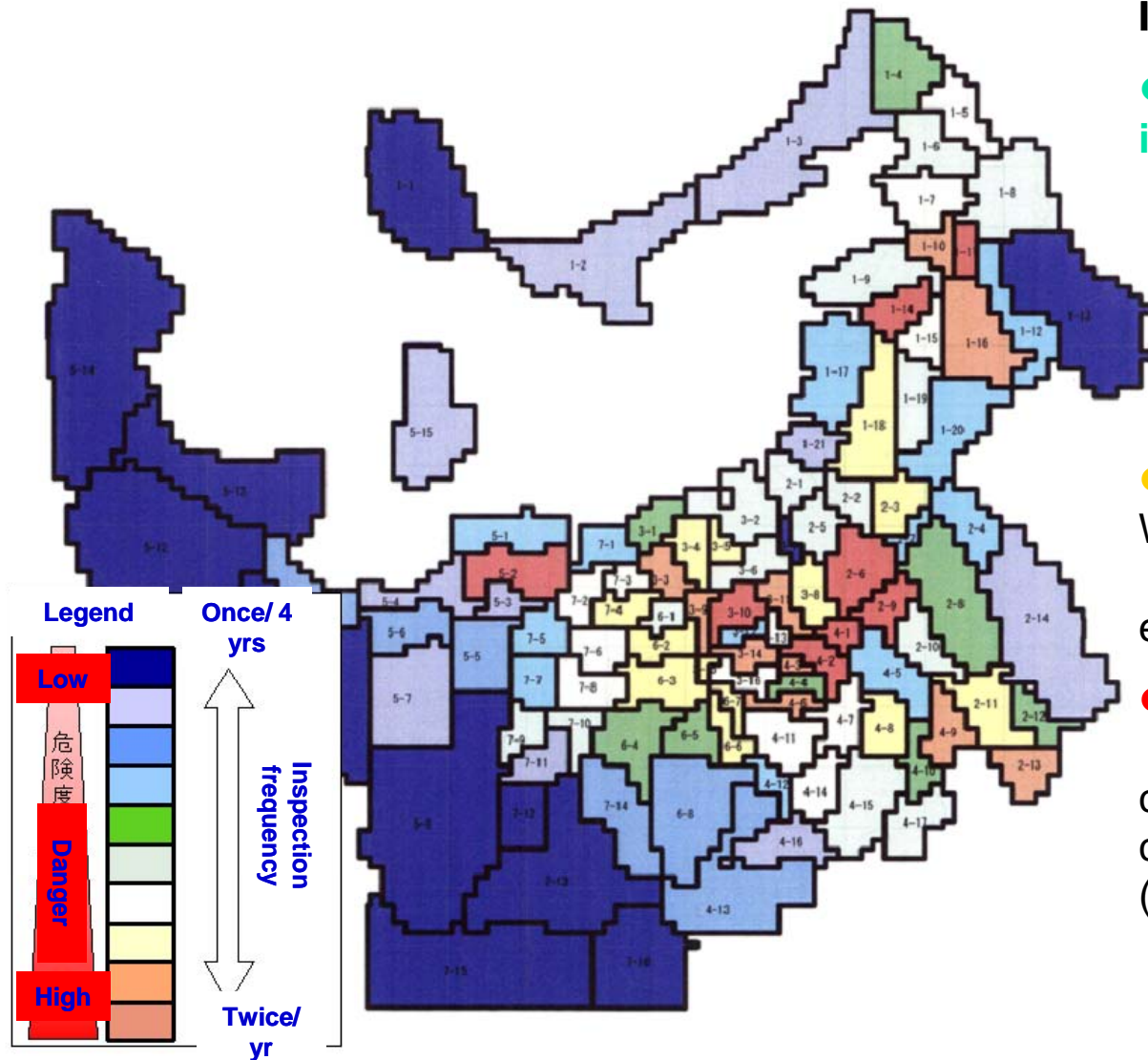
New pipe
(Ductile cast iron)

Corrosion prevention
(Polyethylene sleeve)



Leakage prevention inspections

Leakage inspection zones : 1,638 (Approx. 1.7 km / zone)



Inspection method

●House-by-house listening inspection:

Mainly focusing on water supply pipes (2,594km)

Depending on danger level (1 – 4) , one inspection is done annually

●Measuring Inspections

Water supply pipes below 300mm
259 km of pipes are inspected in each 4 years

●“Hotspot” Leakage Inspections

Pipes which cross roads & rail crossings that have possibility to cause major incidents/accidents (inspect annually)

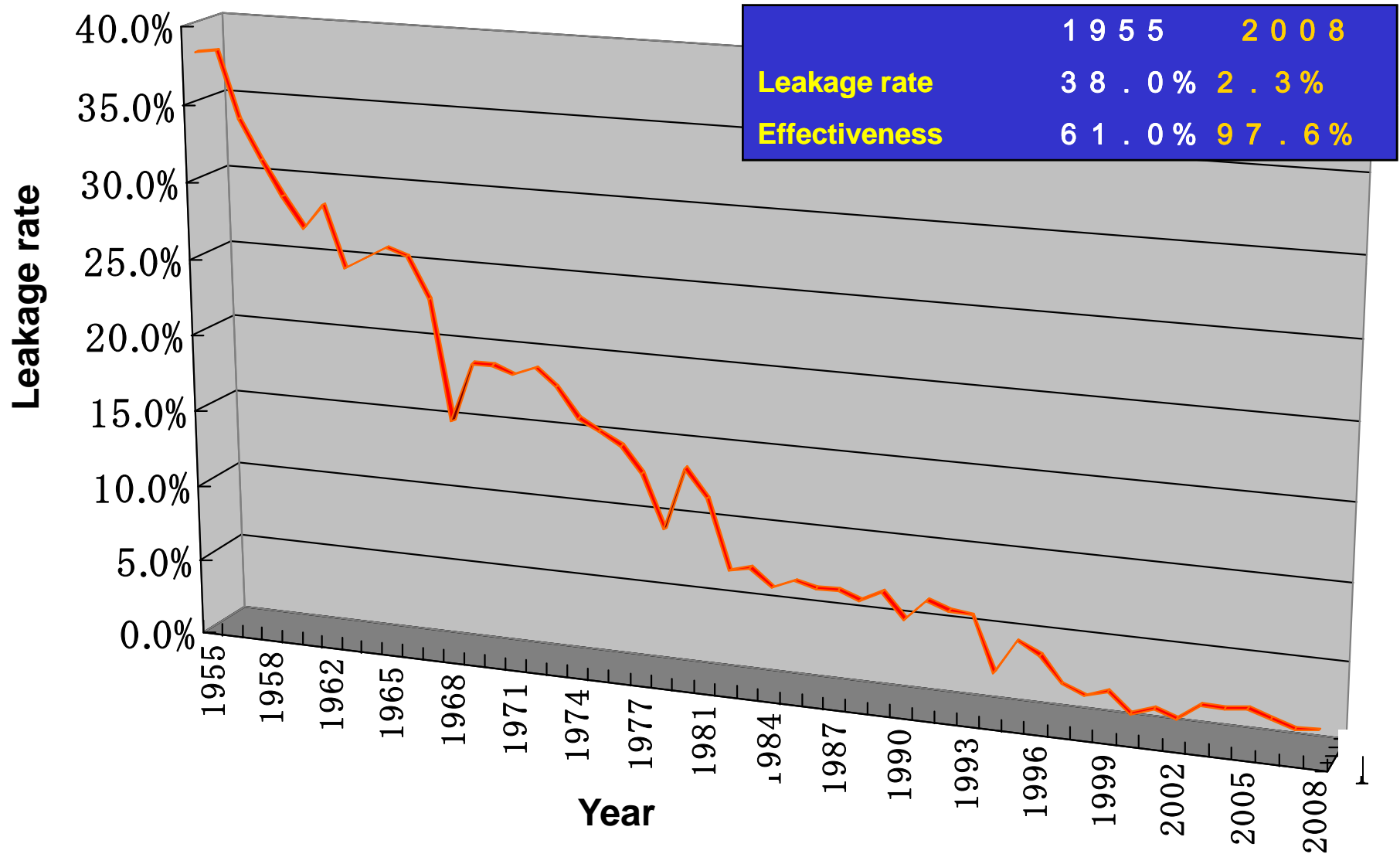
House-by-house listening inspection



Listening rod
("Sound bar")

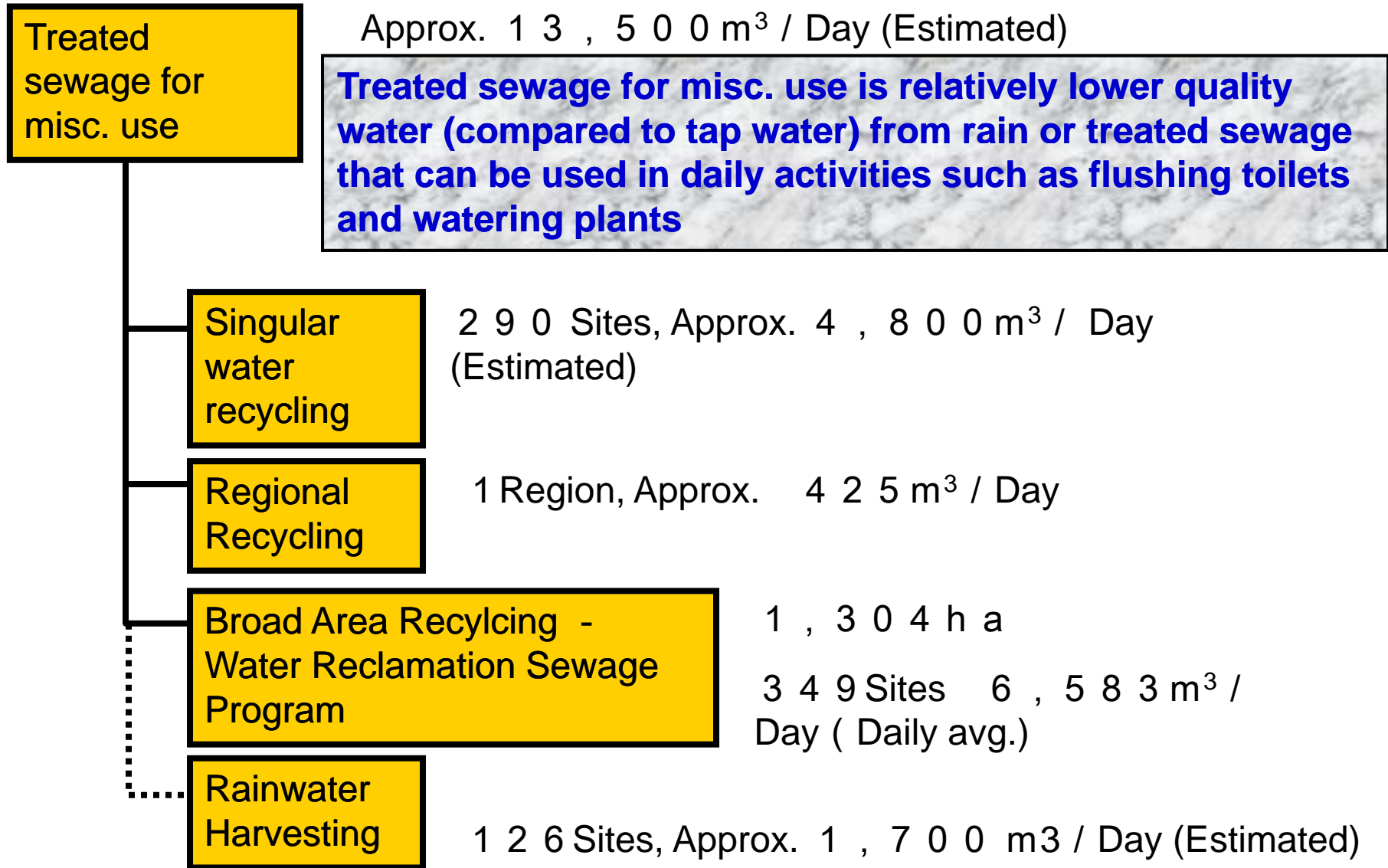


Changes in leakage rate

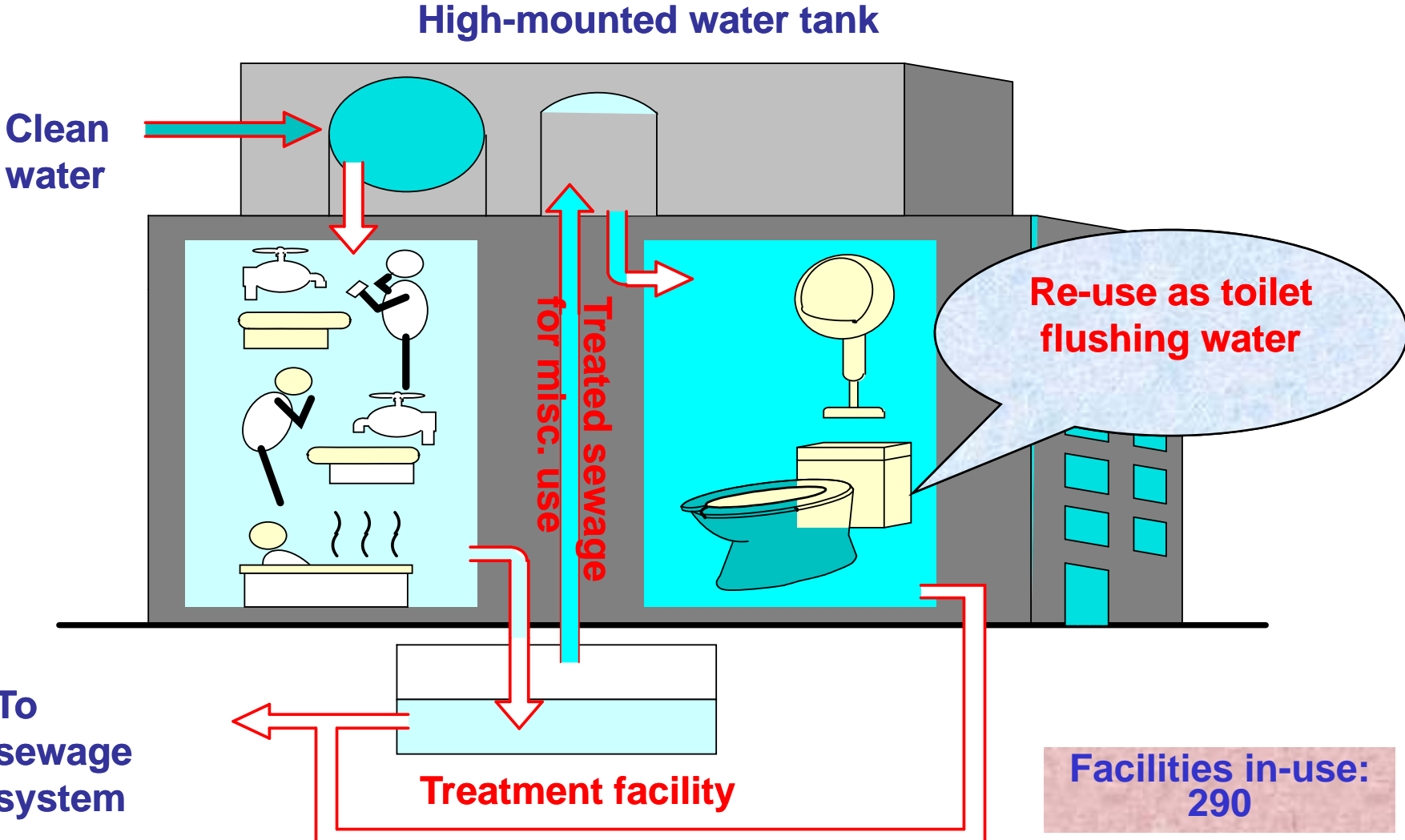


Treated sewage for misc. use :

Current conditions and overview



Singular Water Recycling Diagram



Broad Area Water Recycling Area Map

Sewage Program for Utilization of Reclaimed Water



Rainwater harvesting

Fukuoka Dome





Water Conservation Policies

Treasuring limited water resources

- Raising water conservation awareness

June 1: **Water Conservation Day** (Established only by Fukuoka City

June 1-7: **Waterworks Week** (National Week)

August 1: **Water Day** (National day)

August 1-7: **Water Week** (National week)

Water conservation logo



Since 1979

Treasure our water

“Let’s Treasure Our Water” Campaign
June 1 – August 31



Waterworks Festival 2009

Calling for the Importance of Water Conservation: Street Campaign



Primary School Curriculum Materials (3 – 4 Grades)

④ 水のあるくらしを守るために

① 水が足りなくなった福岡市

福岡市では、夏の間は、水不足が心配されています。

福岡市では、夏の間は、水不足が心配されています。

③ 使った水の量の変化とふえてきたわけ

使った水の量は、だんだん増えてきているのよ。

使った水の量は、だんだん増えてきているのよ。

使った水の量は、だんだん増えてきているのよ。

水とわたしたち

‘Water and Us’

その一滴が...
水を大切に!

平成21年度版
福岡市

② わたしたちが使う水の量

日にどれくらいの水を使っているかな。

家の中で使う量

1人家ぞくの家では一日あたり804ℓの水が使われています。(1ℓは1000cc)

用途	水量 (ℓ)
ひるシャワー	243
お風呂	177
洗面	100
トイレ	211
その他	73

② わたしたちが使う水の量

市の中の様子では

先の大塚と上の写真から、福岡市の人口がふえていること、ビルや家がふえていることがわかるね。だから、使う水の量もふえてきたんだ。

家の中の様子では

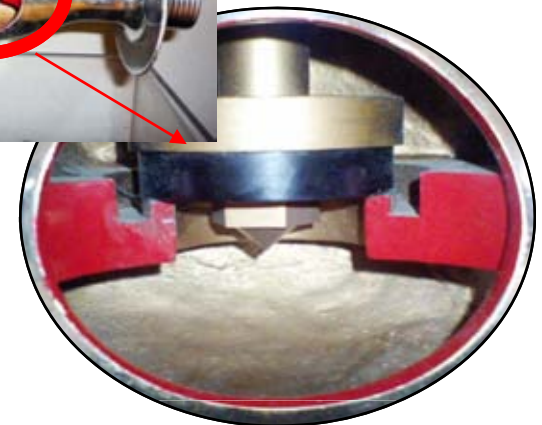
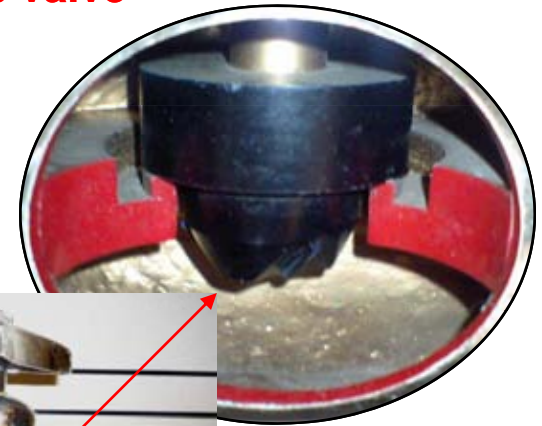
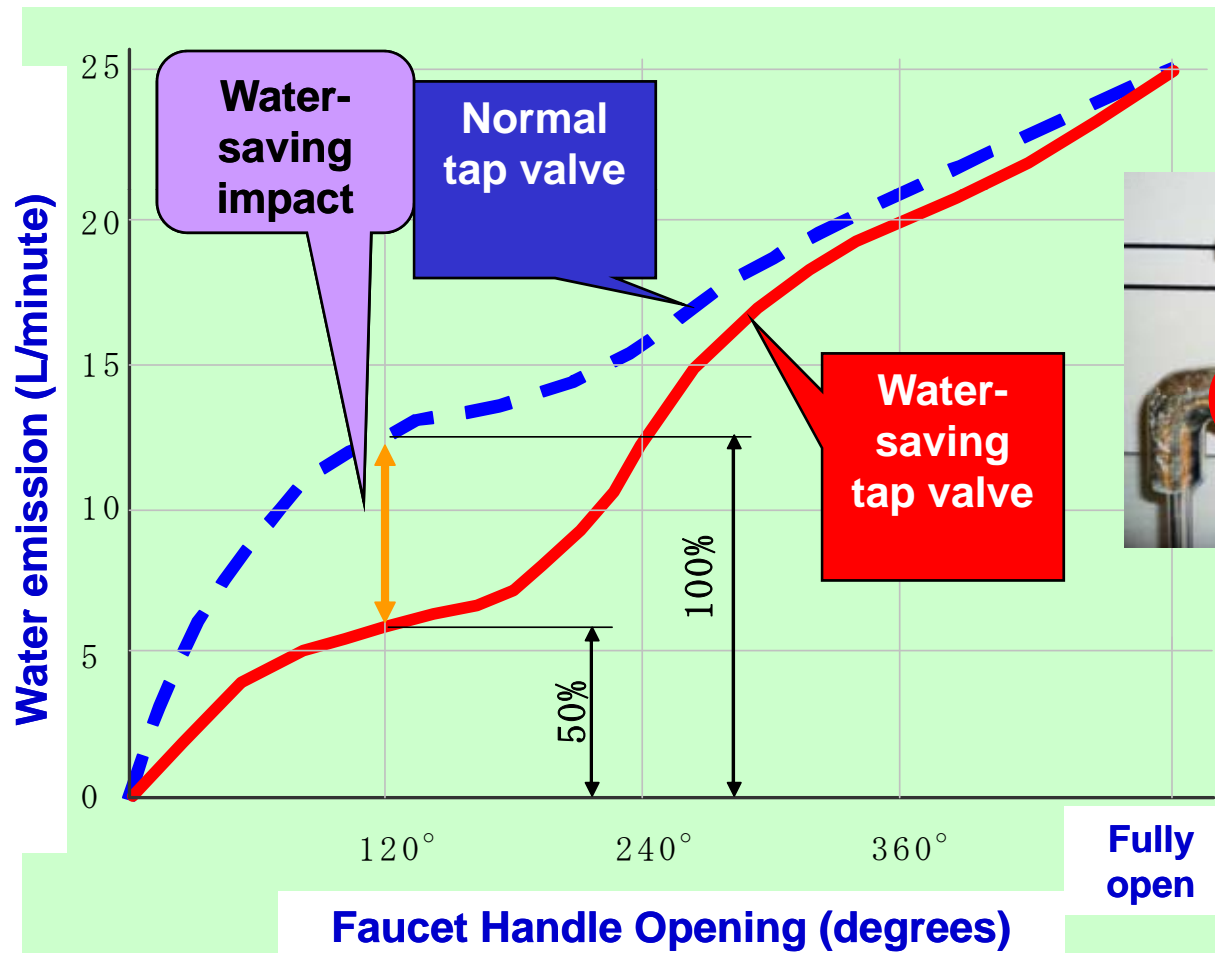
家の中でも、水をたくさん使っているのよ。

家の中でも、水をたくさん使っているのよ。

Promoting Diffusion of Water Conservation Equipment

Diffusion of the water-saving tap valve

Water-saving tap valve



Normal tap valve

Water-saving equipment

Water-saving toilet



Other water conservation equipment

Tools for water conservation



Once a pre-set amount of water flows through, the flow is stopped automatically

Water stoppage tool



Easy for pumping used bathwater

Mini-pump



Once bath water reaches the programmed limit, a buzzer rings

Bath buzzer

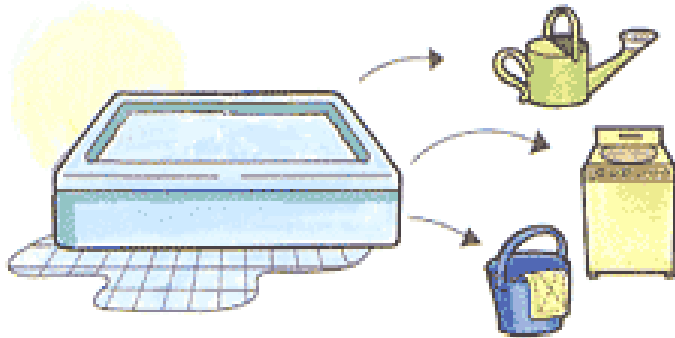


When washing cars or watering plants, one can stop water flow with one's hand

Hand-held valve

Examples of Great Water Conservation Techniques

Bath water



Dish washing



Laundry



Car wash



Rain harvesting

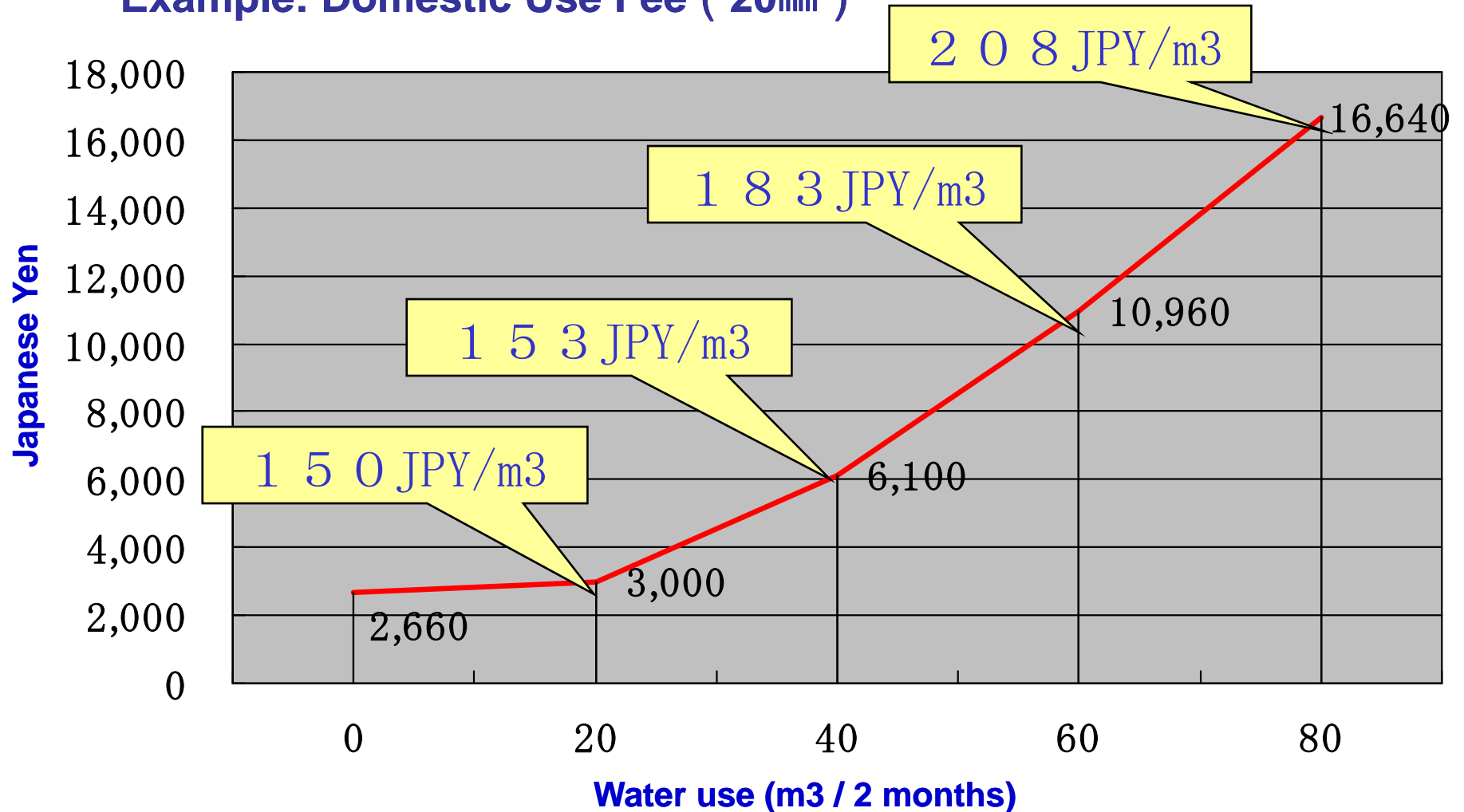


Brushing teeth



Water conservation fee structure (progressive)

Example: Domestic Use Fee (20mm)

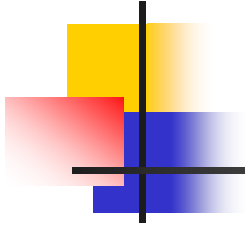


Simple water leakage monitoring



Dial status	Water leakage presence	
	Yes	No
Revolving	○	
Not revolving		○

Water Conservation Logo



Treasure our water