



Online **ADB Sanitation Dialogue 2021**

ACCELERATING INCLUSIVE SANITATION

12–22 April 2021

Webinar 2: Coordination, Cooperation, and Collaboration for CWIS

INTEGRATED APPROACH FOR SANITATION DEVELOPMENT IN JAPAN

13 April 2021

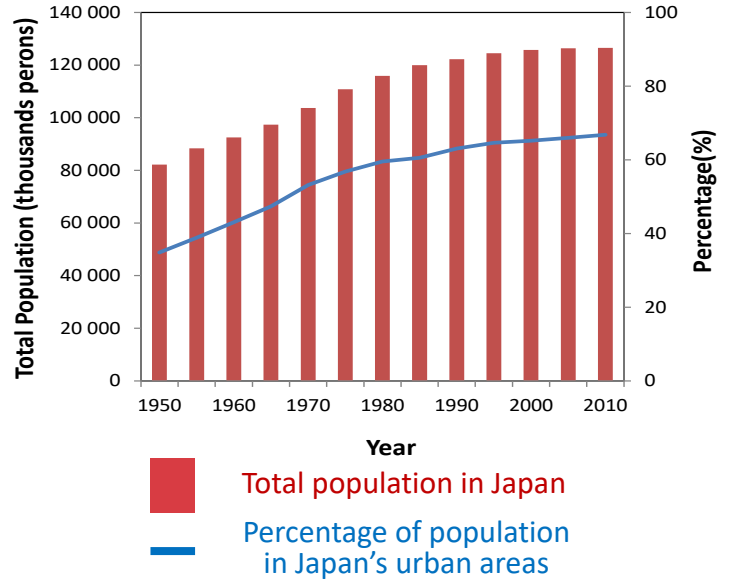
PIERRE FLAMAND | Manager - International affairs



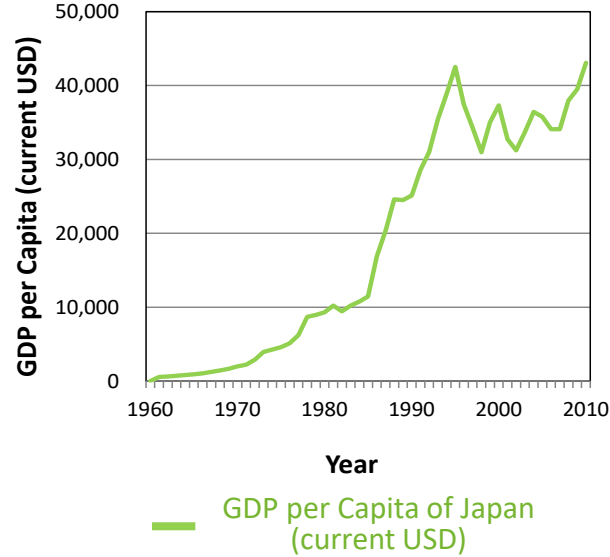
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The issues: severe water pollution (1960s-70s)

Population Increase & Urbanization

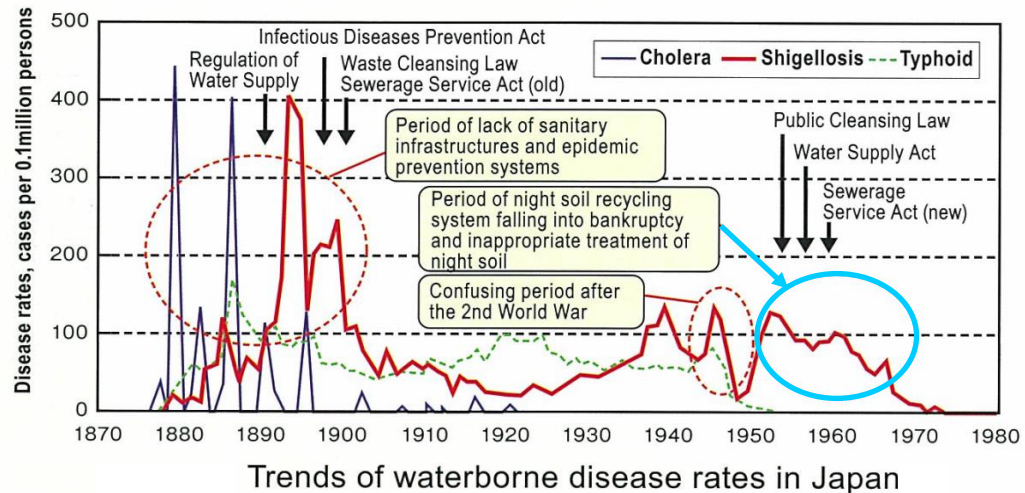


Economic Growth



Rivers in Tokyo in the 1970s

Water Pollution in Kitakyushu City in the 1960s

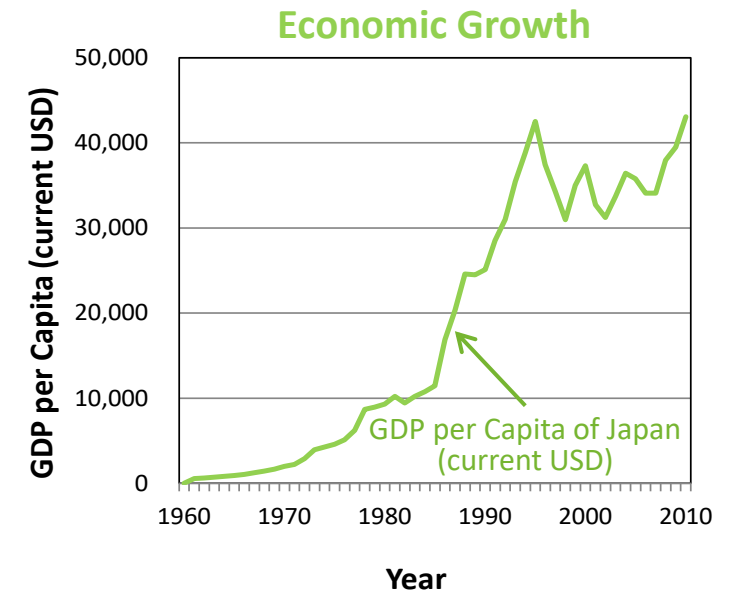
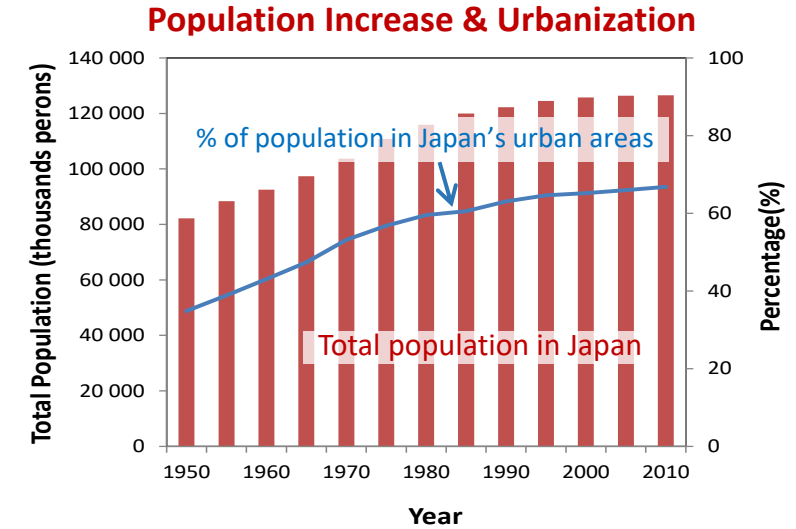
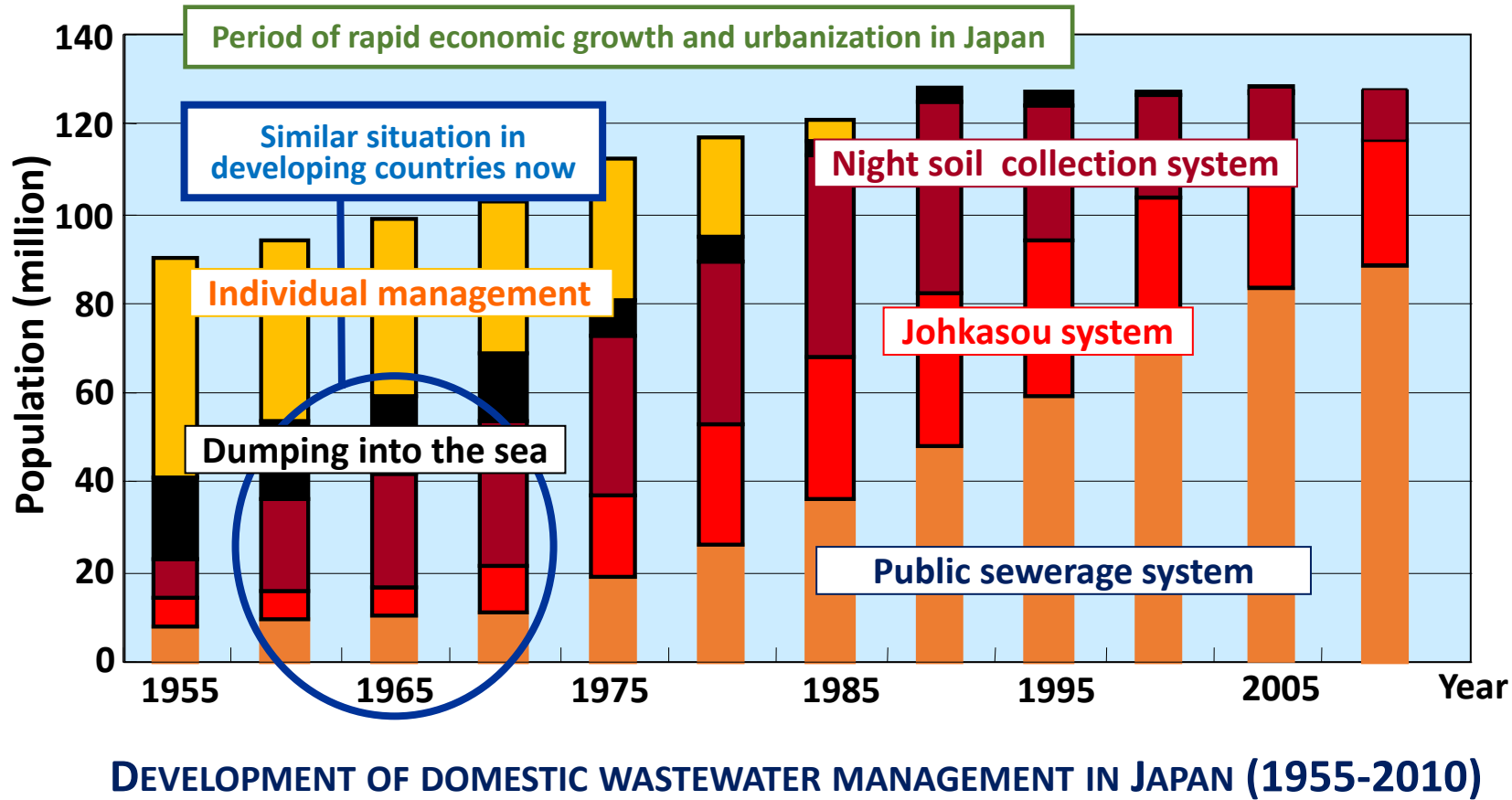


Trends of waterborne disease rates in Japan



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The issues: low coverage of wastewater treatment systems at the early stage of economic growth and urbanization



The enabling environment: legal arrangements

TO OVERCOME WATER POLLUTION ISSUES



REFORM AND EXPANSION OF THE LEGISLATIVE ARSENAL

to drastically increase wastewater treatment coverage & improve the water environment

Pollution Session at Diet (1970)

- ❑ Discussed intensively on pollution issues and developed the framework of environment/sanitation policies

Major achievements of the Pollution Session:

- Water Pollution Control Act
- Sewerage Act (amendment)
- Waste Disposal and Public Cleansing Act



Pollution Diet in 1970

Other major law (1985)

- Johkasou Act (for model approval, manufacturing, installation, O&M, and technician certification)

The enabling environment: legal arrangements

Operation, maintenance and inspection system for Johkasou (on-site sanitation)



Johkasou Inspector



Johkasou Operator



Johkasou Desludging Technician



Johkasou Inspector

Legal inspection by Article 7

Purpose
Confirm if the construction/ installation and treatment performance are good.

Contents

- visual inspection
- water quality inspection
- document inspection

Timing of implementation
Three to eight months after starting operation

Responsible organization
Specified inspection agency, which is a public service corporation of the prefecture.

Operation/Maintenance

Purpose
Maintain a normal treatment performance

Contents

- sludge accumulation
- water quality
- mechanical apparatus
- replenish disinfectant

Frequency
Over three times a year, depending on the size and the treatment process

Responsible organization
Johkasou maintenance vendor, which is licensed by the prefectural governor.

Desludging

Purpose
Recover normal treatment performance by removing sludge regularly

Contents

- removing sludge
- cleansing the johkasou
- confirming if there are faults or defects inside the johkasou

Frequency
Once a year

Responsible organization
Johkasou desludging vendor, which is registered by the mayor.

Legal inspection by Article 11

Purpose
Confirm if the maintenance and desludging is done appropriately, and if the treatment performance is good.

Contents

- visual inspection
- water quality inspection
- document inspection

Frequency
Once a year

Responsible organization
Specified inspection agency, which is a public service corporation of the prefecture.

Qualifications/vendors	Registrant/ number of vendors
Johkasou Operator	80,042
Johkasou Installation Worker	86,595
Johkasou Technical Supervisor	29,794
Johkasou Desludging Technician	16,021
Registered Johkasou Inspector	1,280
Specified Inspection Agency	65
Johkasou manufacturer	18
Johkasou maintenance vendor	12,435
Johkasou desludging vendor	5,291
Johkasou Installation vendor	28,356

The enabling environment: institutional arrangements

Type of system or facility	Sewerage system	Rural sewerage system	Johkasou system	Night soil treatment facility
Purpose	Maintain the water quality of natural water resources and improve the living environment by collectively treating night soil, miscellaneous domestic wastewater, industrial wastewater and rainwater.	Maintain agricultural water/wastewater clean/safe and improve the living environment by collectively treating night soil, miscellaneous domestic wastewater and rainwater.	Maintain good water quality of public water bodies and a healthy living environment and promote public health by treating night soil and miscellaneous domestic wastewater onsite.	Maintain healthy living environment and promote public health by treating collected night soil and johkasou sludge.
Responsible agency	Municipalities	Municipalities	Individuals, communities and municipalities	Municipalities
Applicable district	Mainly urban areas	Agricultural villages within specified districts where agriculture is being promoted	Districts where johkasou installations are promoted	—
Applicable population	Approx. 10,000 or more	Up to about 1,000	—	—
Applicable wastewater	Night soil (flush toilet wastewater), miscellaneous domestic wastewater, industrial wastewater and rainwater	Night soil (flush toilet wastewater), miscellaneous domestic wastewater and rainwater	Night soil (flush toilet wastewater) and miscellaneous domestic wastewater	Collected night soil and johkasou sludge
Construction period	Approx. 5 years	3~5 years	Approx. 1 week up to 1 year	2~3 years
Competent authority	Ministry of Land, Infrastructure, Transport and Tourism	Ministry of Agriculture, Forestry and Fisheries	Ministry of the Environment	Ministry of the Environment

The enabling environment: institutional arrangements

Human resource development to ensure the sustainability and compliance of sanitation systems:
Institutions for the training and national certification of technicians/engineers in sanitation

Japan Sewage Works Agency (JS)

- Established in 1972 to address the shortage of human resources for sewerage system management
- Training mainly for employees from local governments → 2,500 trainees/year
- Courses for master planning, management, detail design, construction supervision, O&M, and PPP/global activities
- Certification courses according to Article 22 of Sewerage Act
- Residential facilities at training center in Toda City, Saitama Prefecture to accommodate trainees



Japan Education Center of Environmental Sanitation (JECES)

- Established in 1966 to address the shortage of human resources for Johkasou system management
- Conducts the training courses and national examinations of various Johkasou technicians → more than 3,000 trainees/year
- Certification courses for Johkasou operators, Johkasou installation workers, Johkasou technical supervisors, Johkasou inspectors, and special seminars for Johkasou technicians



Japan Environmental Sanitation Center (JESC)

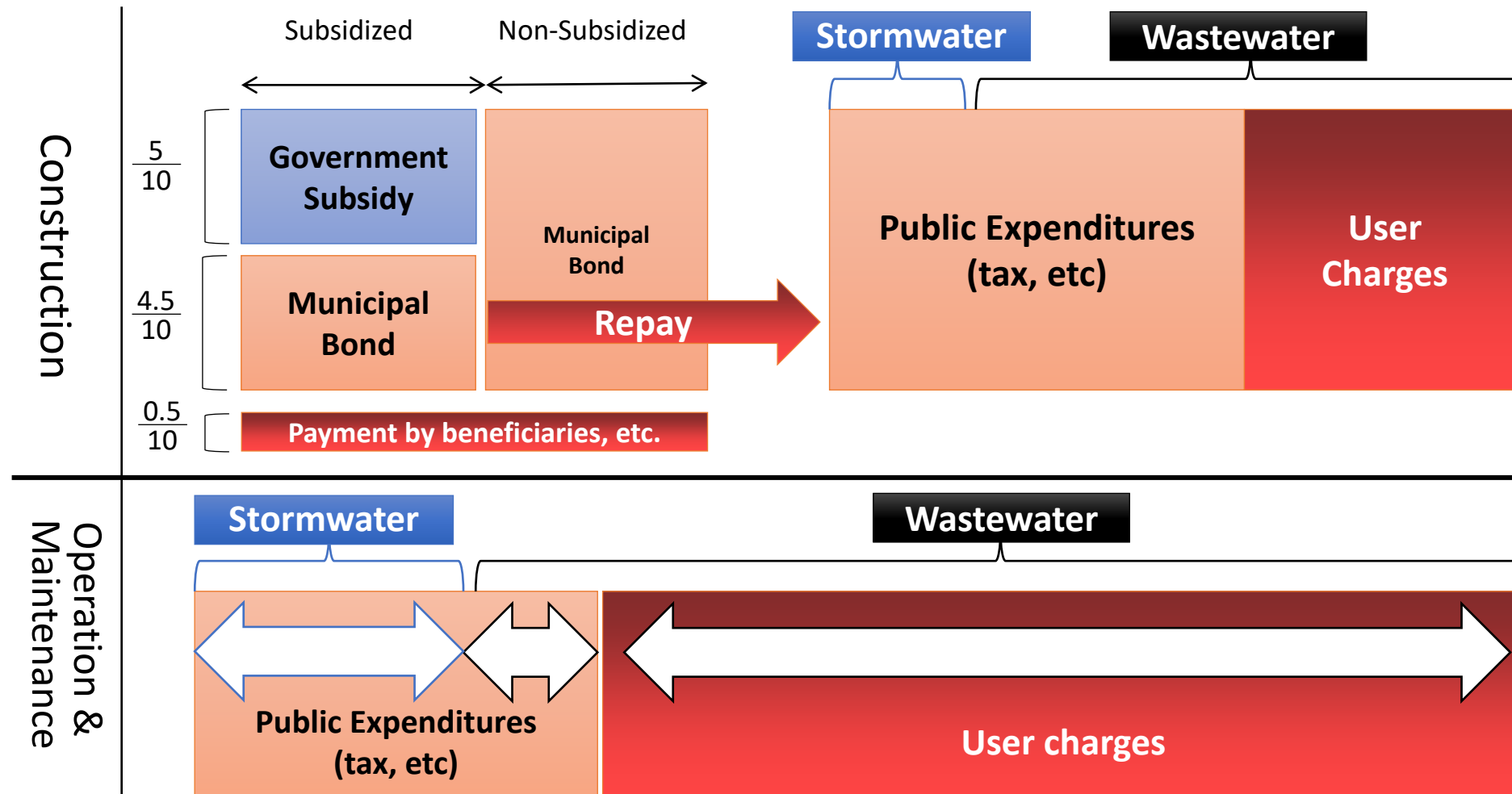
- Established in 1954
- Provides since 1966 the training courses and national examinations for desludging and night soil/sludge treatment plant operators (mainly for local governments)
- Has trained more than 120,000 professionals



The enabling environment: financing arrangements

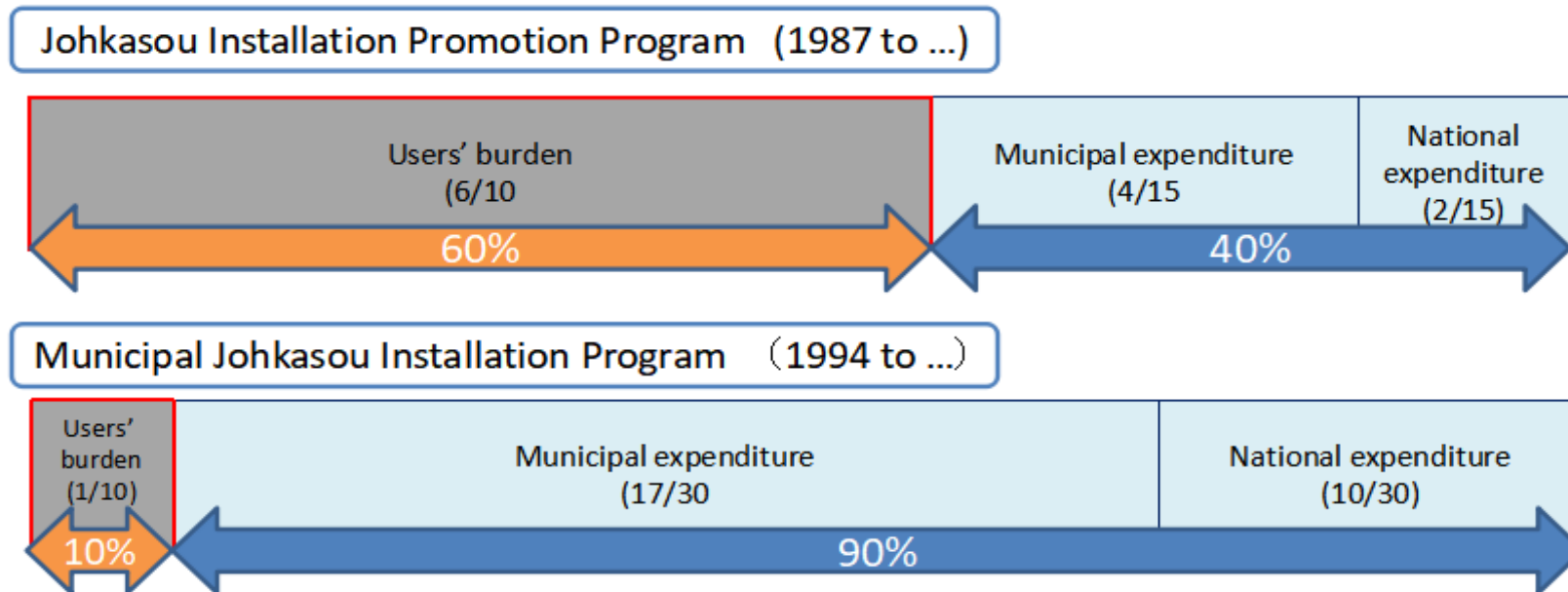
Sewerage project principle: “Stormwater at public burden and wastewater at private burden”

→ Sewerage construction and O&M through national expenditures, local expenditures and user charges



The enabling environment: financing arrangements

Johkasou system financing principles: Construction cost paid partially by owners, O&M including desludging paid by users, **fecal sludge treatment paid by municipalities (general account)**

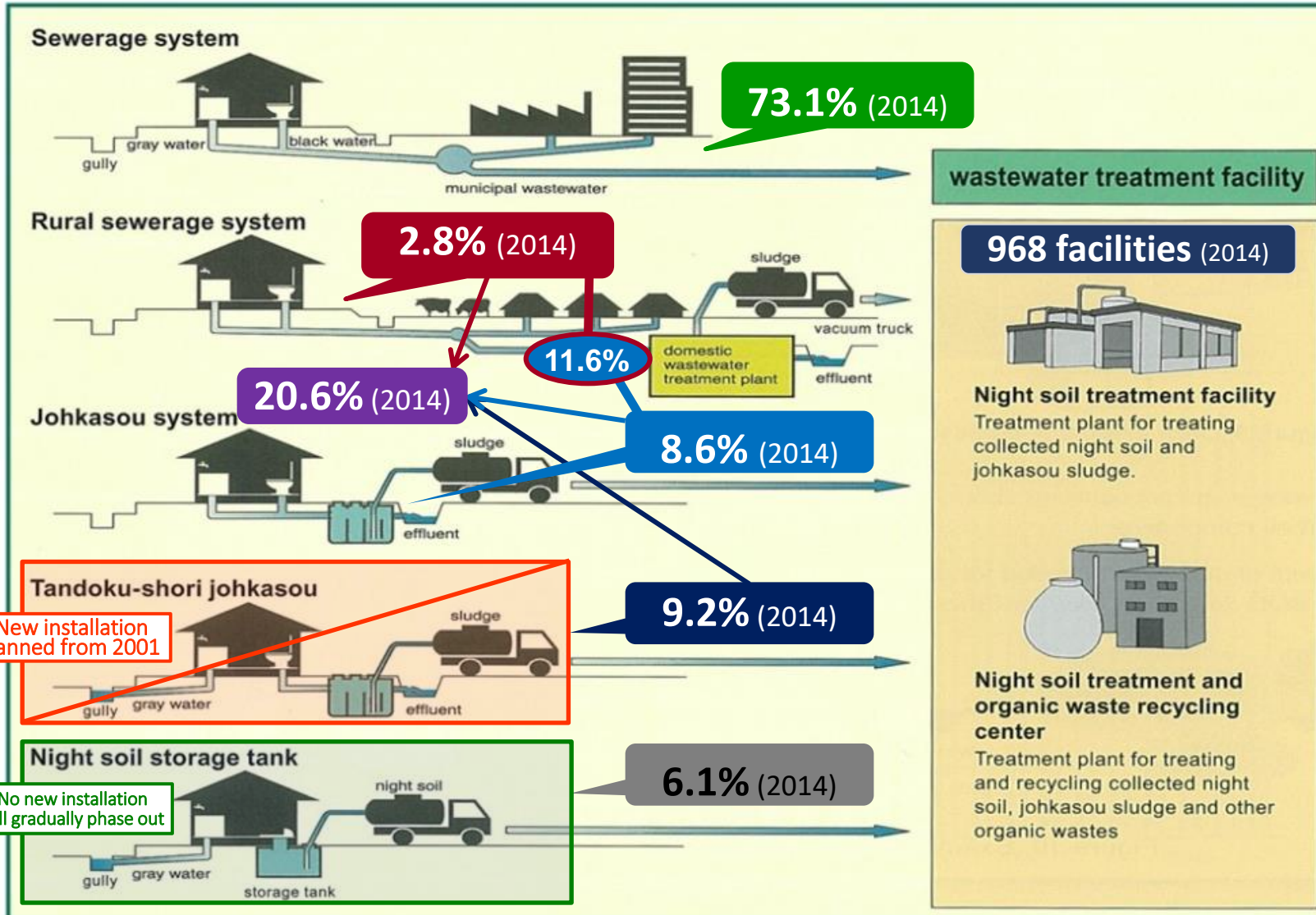


Subsidized rate

40 % (Private johkasou installation)

90 % (Municipal johkasou installation)

Integrated approach: a mix of on-site and off-site sanitation systems



MAJOR SYSTEMS FOR WASTEWATER MANAGEMENT IN JAPAN

Total population: 128,181,493 (FY 2014)

- Flush toilet users: 120,371,872 (93.9%)
- Non-flush toilet users: 7,809,621 (6.1%)

Source: Ministry of the Environment, Japan

- Public sewerage system: 93,684,668 (73.1%)
- Johkasou system*: 26,385,618 (20.6%)

* Including rural sewerage systems

- Community plants: 301,586 (0.2%)
- Night soil collection system: 7,726,901 (6.1%)

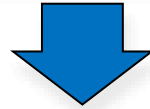
Total Wastewater-treated Population Rate = 89.5%
(including Community Plants: 0.2%)

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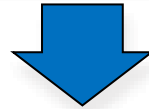
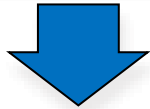
Integrated approach: a mix of on-site and off-site sanitation systems

Domestic wastewater treatment plans

Waste Disposal and Public Cleansing Law



Municipal waste management plan



Municipal waste management
basic plan

Long-term plan (10–15 years)

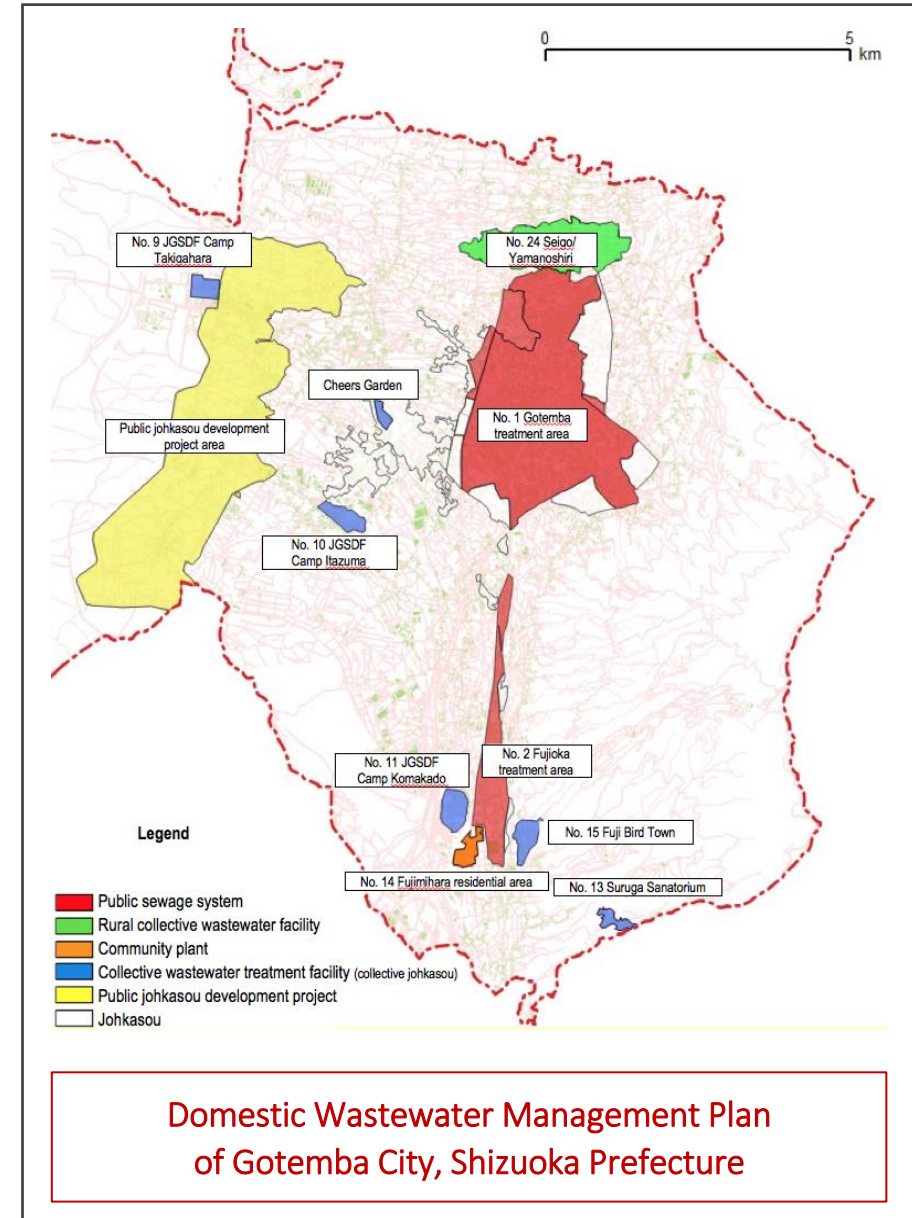
- Basic plan for solid waste disposal
- Basic plan for domestic wastewater treatment



Municipal waste management
action plan

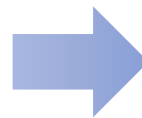
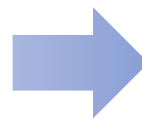
Annual plan (every fiscal year)

- Action plan for solid waste disposal
- Action plan for domestic wastewater treatment



Integrated approach for sanitation development in Japan

Improvement of water quality of Kitakyushu City



Key elements for CWIS

- **Promote an integrated approach with different sanitation solutions**
→ in Japan, combination of on-site and off-site systems for global coverage
- **Develop legal and regulatory framework with clear mandates**
→ in Japan, national policies and laws by central government; wastewater management planning and implementation by local governments
- **Establish a financing environment that promotes sanitation development**
→ in Japan, establishment of the basic principles for cost sharing between private and public, and between central and local governments; creation of subsidy systems for off-site and on-site sanitation system expansion
- **Create an O&M framework, including the training and certification of the professionals involved in this business, for the sustainability and compliance of sanitation systems**
→ e.g., creation of the O&M system for Johkasou (on-site system in Japan)
- **Promote public relations and citizens' participation**
→ Increase awareness, understanding, and, as a result, willingness to pay of citizens as tax payers and users