



History and Current Situation of Wastewater Treatment and Legal Framework of Johkasou in Japan

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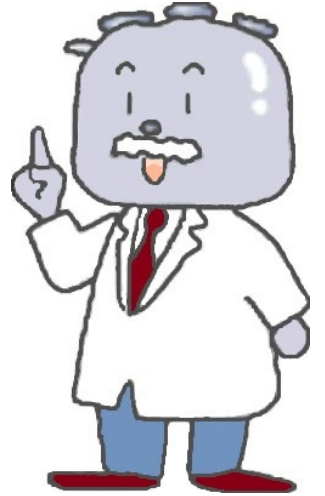
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Environmental Regeneration and Material Cycles Bureau
Ministry of the Environment
Government of JAPAN

<https://www.env.go.jp/recycle/jokaso/en/>

1. History and Current Situation of Wastewater Treatment in Japan
2. General Information of Johkasou
3. Legal Framework of Johkasou in Japan



Water pollution in Japan during rapid economic growth



Sumida River (Tokyo)
in the 1970s



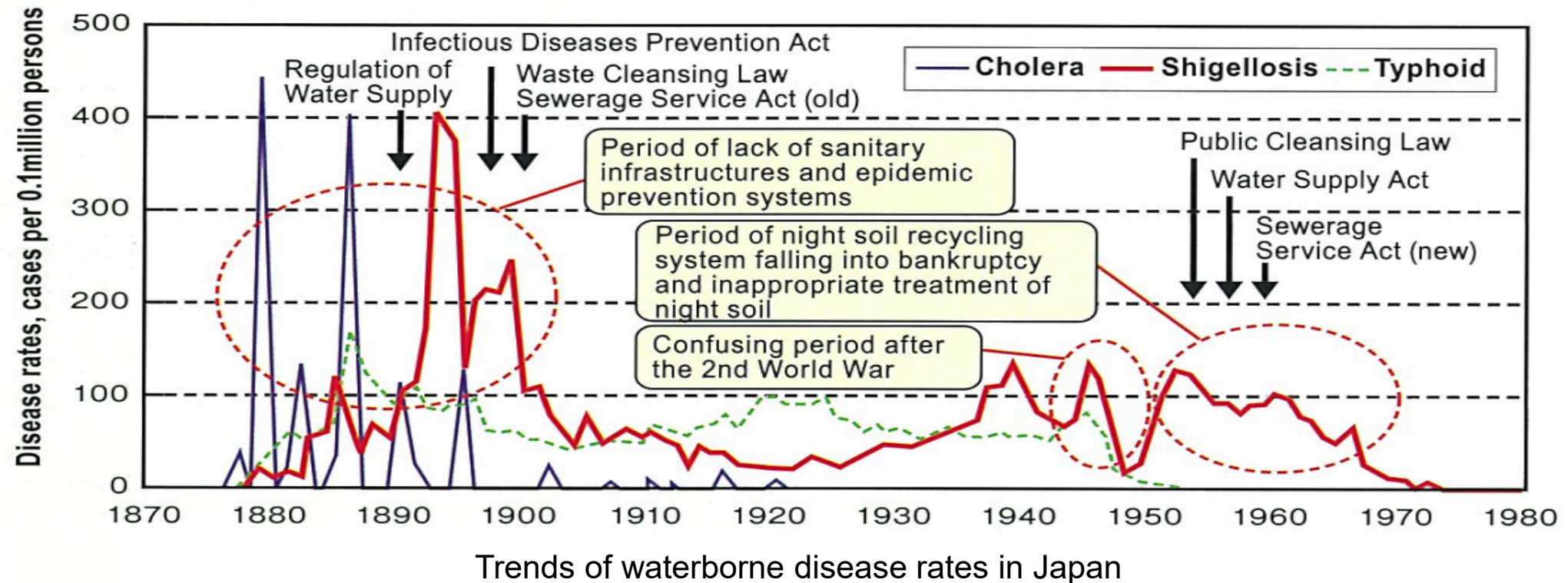
Dohkai Bay (Kitakyushu)
in the 1960s



Chofu Weir, Tama River(Tokyo)
in the 1970s

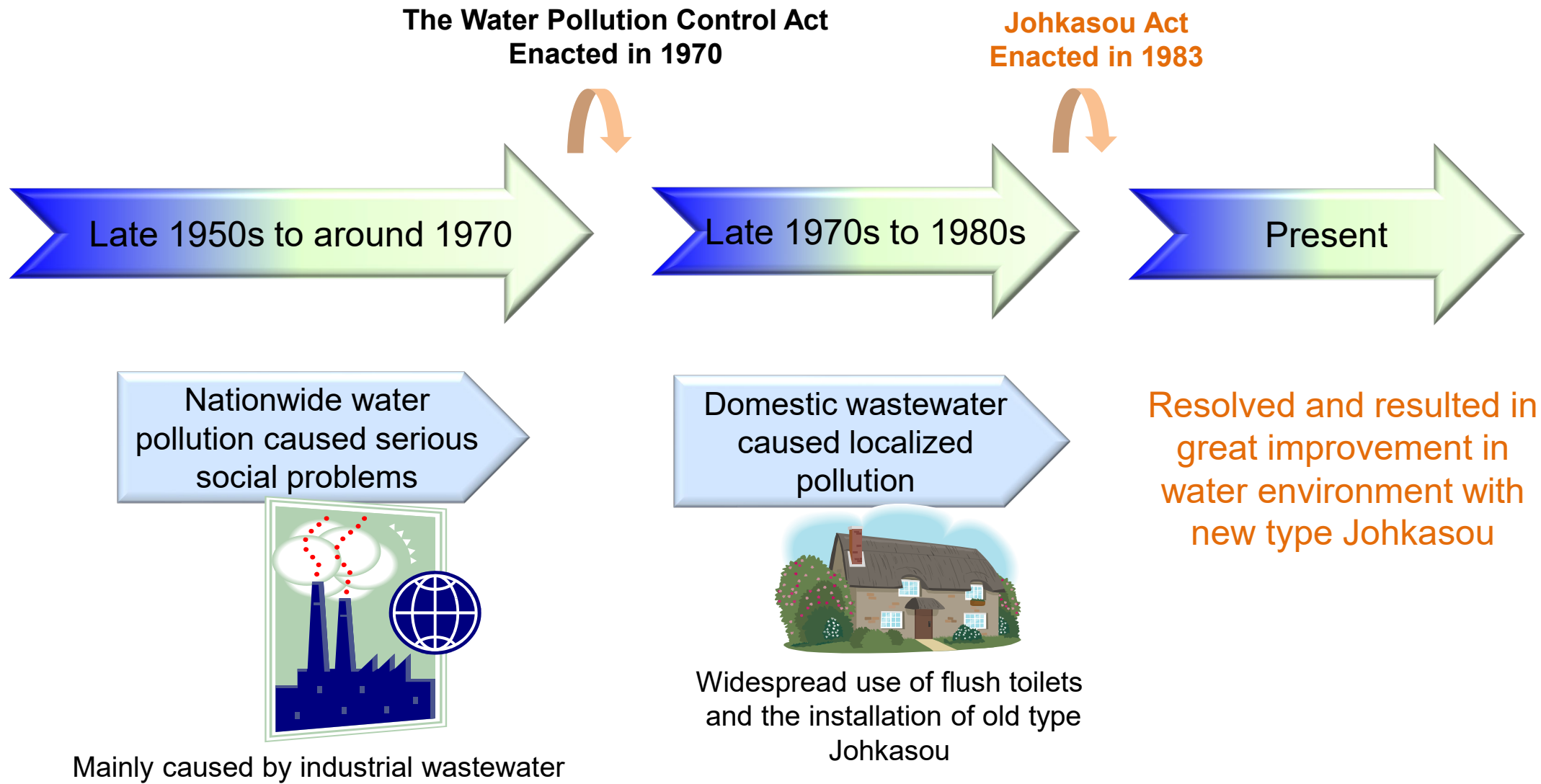
History of wastewater treatment and infectious diseases

- Up to the 1950s, night soil had been used as agricultural fertilizer and regarded as resource.
- From the late the 1950s, night soil turned from “fertilizer” to “waste” due to the spread of chemical fertilizer and urbanization. The lack of night soil treatment facilities and hygienic treatment resulted in a serious social problem.
- Spread of infectious diseases had continued until the rapid economic growth period of the 1970s.

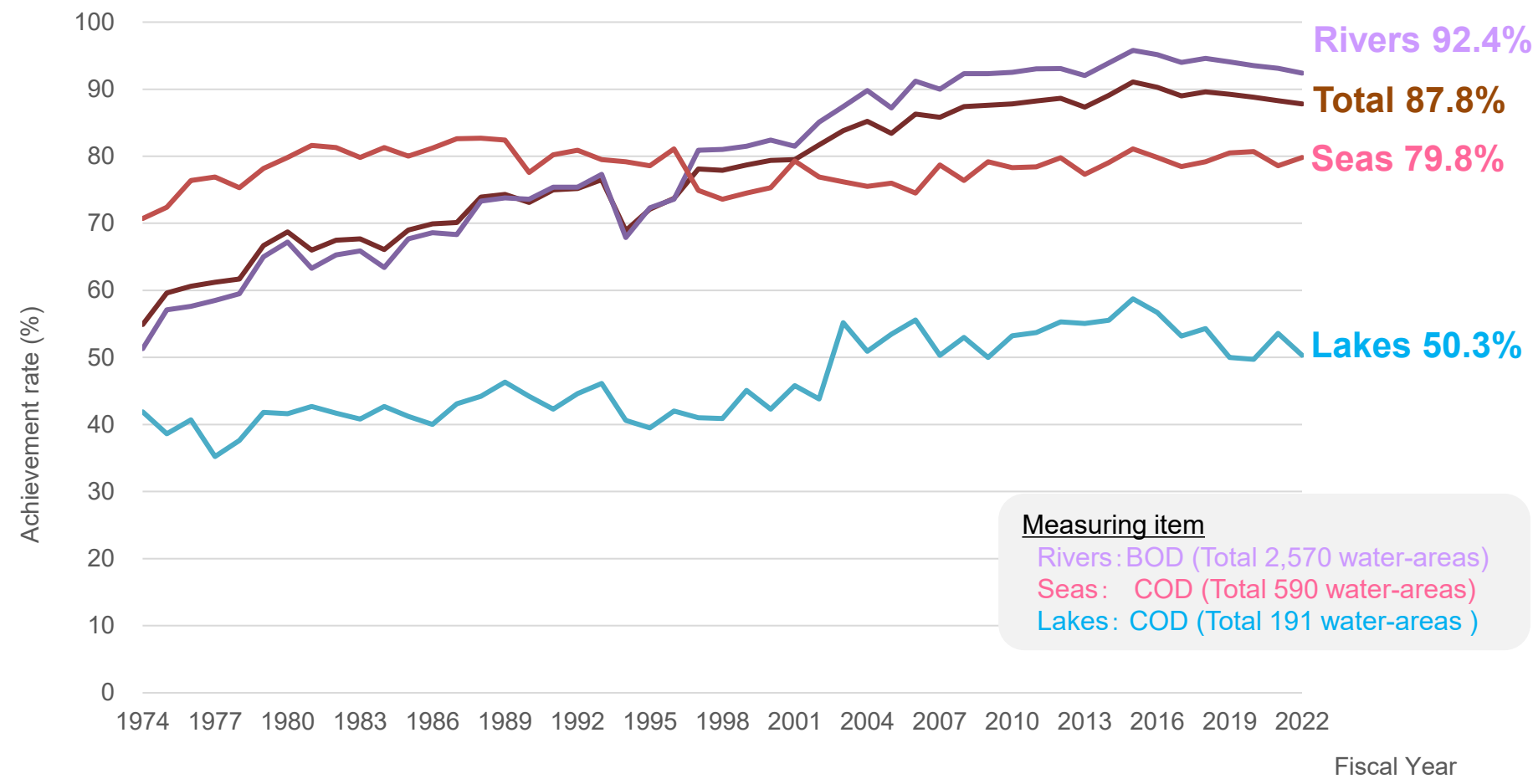


Reference: Yuzo Inoue, History and technology of night soil treatment in Japan, J. of Monthly Johkasou

Domestic wastewater treatment issues in Japan

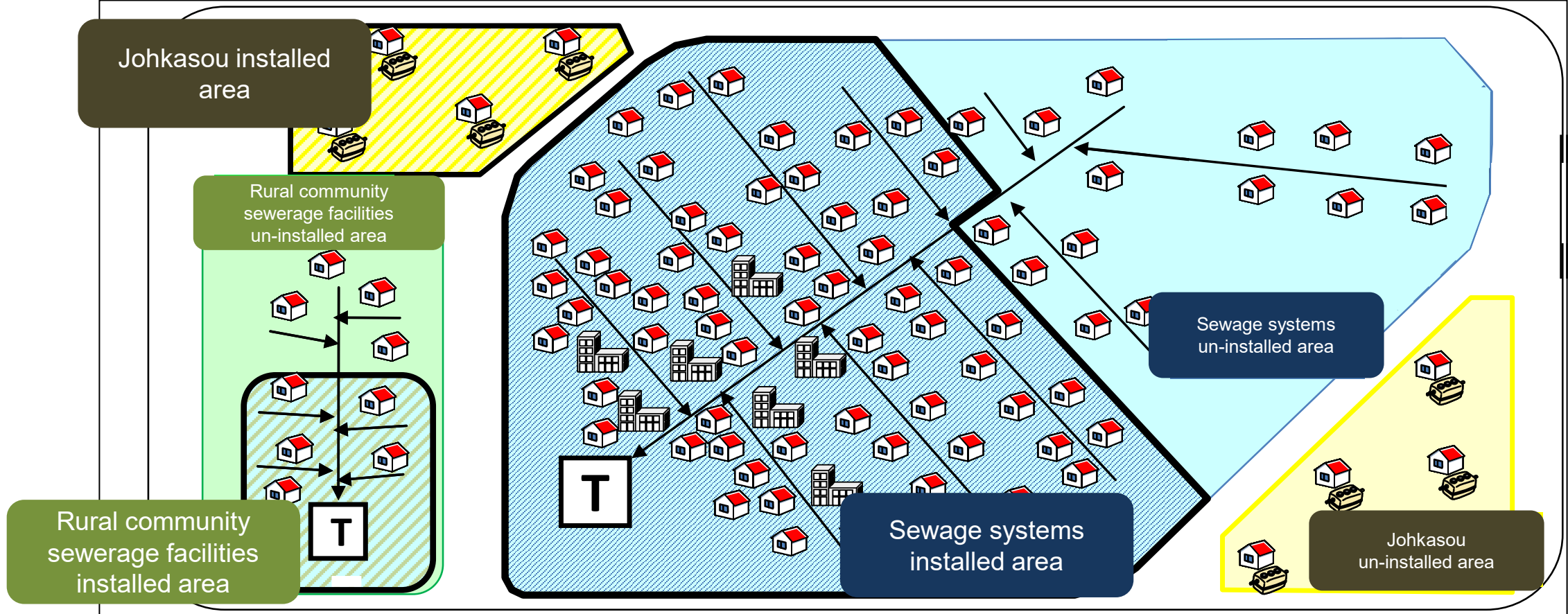


Achievement of water quality related to Effluent Standards



Public waters water quality measurement results (2022)

Domestic Wastewater Treatment Systems in Japan



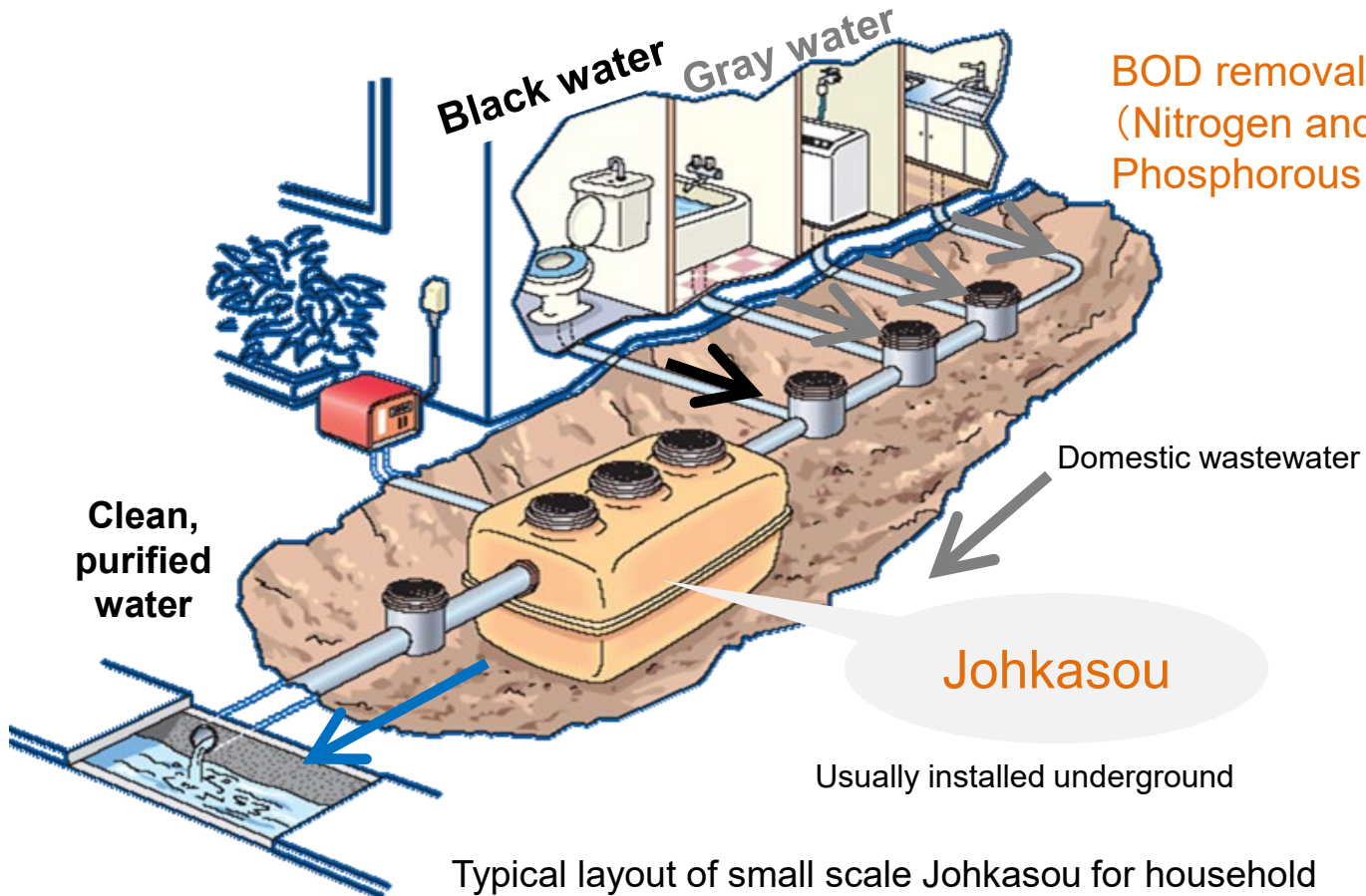
- **Sewage Systems** : managed by the Ministry of Land, Infrastructure, Transport and Tourism
- **Rural community sewerage facilities**: managed by the Ministry of Agriculture, Forestry and Fisheries
- **Johkasou**: managed by the Ministry of the Environment

Current situation of population served for treating domestic wastewater

Type of treatment facility		Population served (x 1,000 people)	
		End of FY2022	End of FY2021
Sewage systems		101,280 (81.0%)	101,181 (80.6%)
Rural community sewerage facilities including Facilities for fishing villages, Facilities for forestry villages, Simple wastewater facilities		3,018 (2.4%)	3,103 (2.4%)
Johkasou		11,784 (9.4%)	11,758 (9.4%)
	Municipal Johkasou Installation Program	825	831
	Johkasou Installation and Maintenance Program	6,229	6,203
	Other Johkasous	4,730	4,725
Community plants, etc.		160 (0.1%)	171 (0.1%)
Total population served		116,242	116,213
Percentage of population served		92.9%	92.6%
Total population		125,065	125,540
Total population not served		8,823	9,327
Population without domestic wastewater treatment		7.1%	7.4%

General Information of Johkasou

- “Johkasou” is categorized as **decentralized wastewater treatment system** for domestic wastewater discharged by household, building and so-on.
- Johkasou have a combined purification structure capable of treating both **night soil (black water)** and **miscellaneous wastewater (gray water)**.
- Johkasou attains high and stable performance as same as that of sewage treatment plant and it has been installed totally more than 4 million units in Japan.

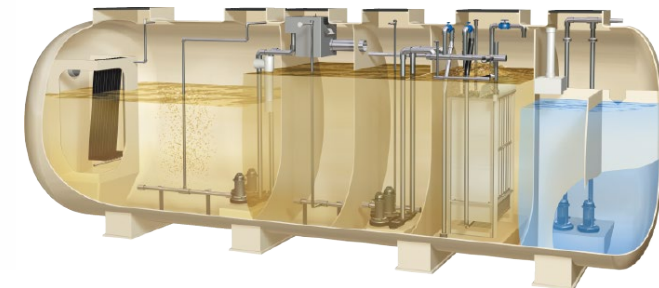


Small size
(5 to 50 PE, $\leq$
10m³/day)



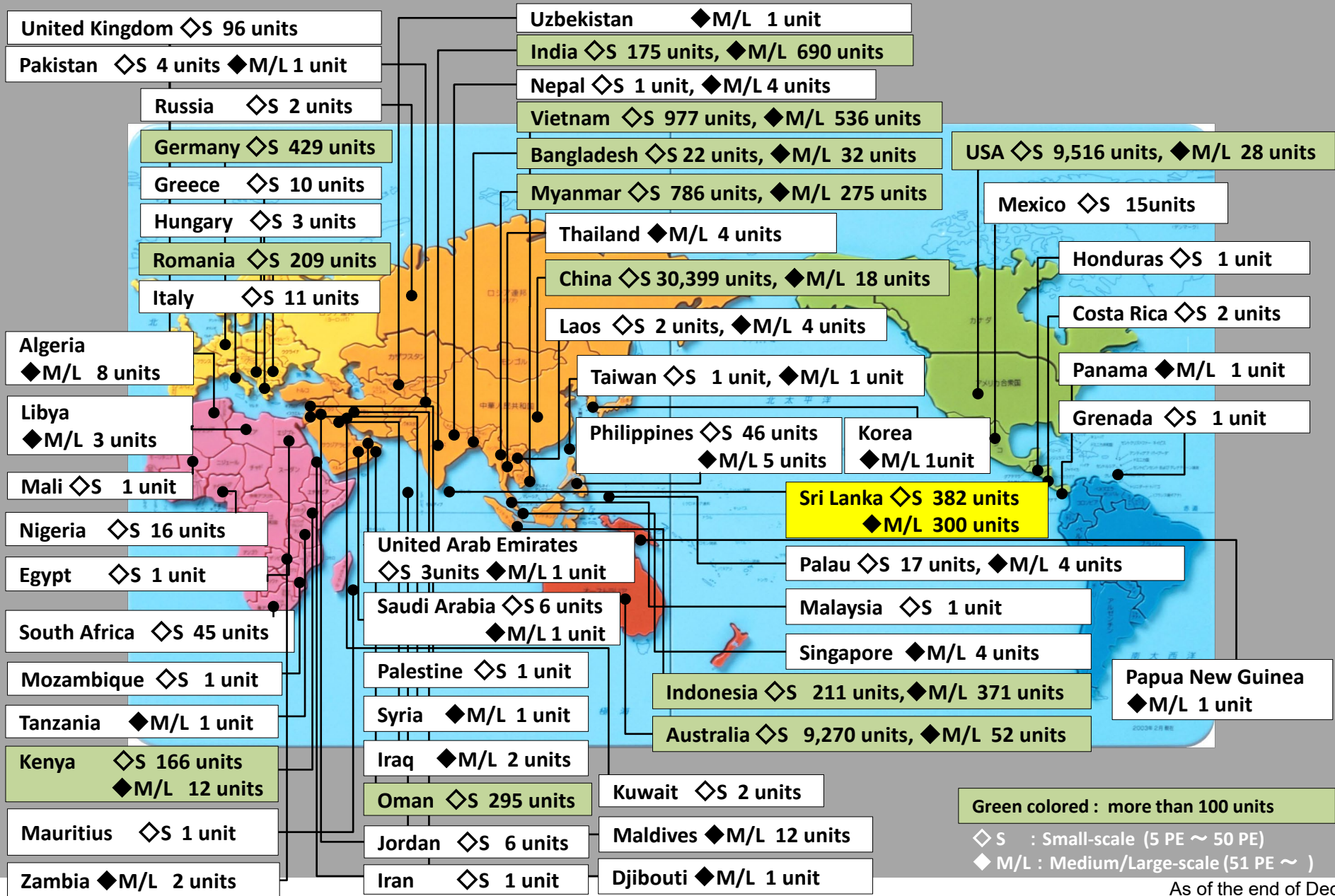
Box shape

Medium and
large size
(51 PE or over, >
10m³/day)



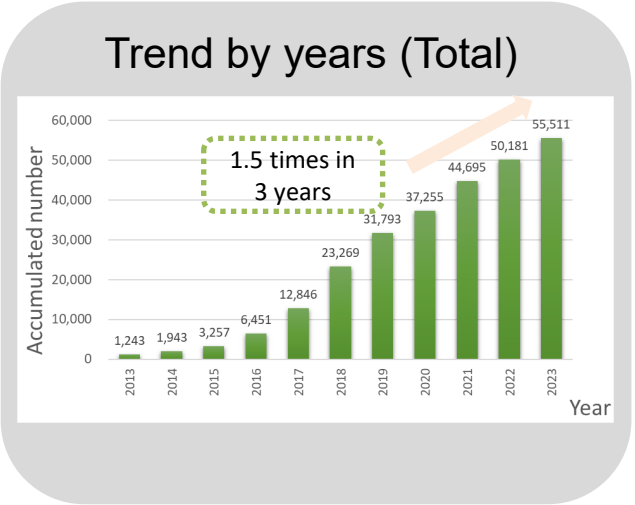
Cylindrical shape

Installation Records of Japanese Johkasou Overseas

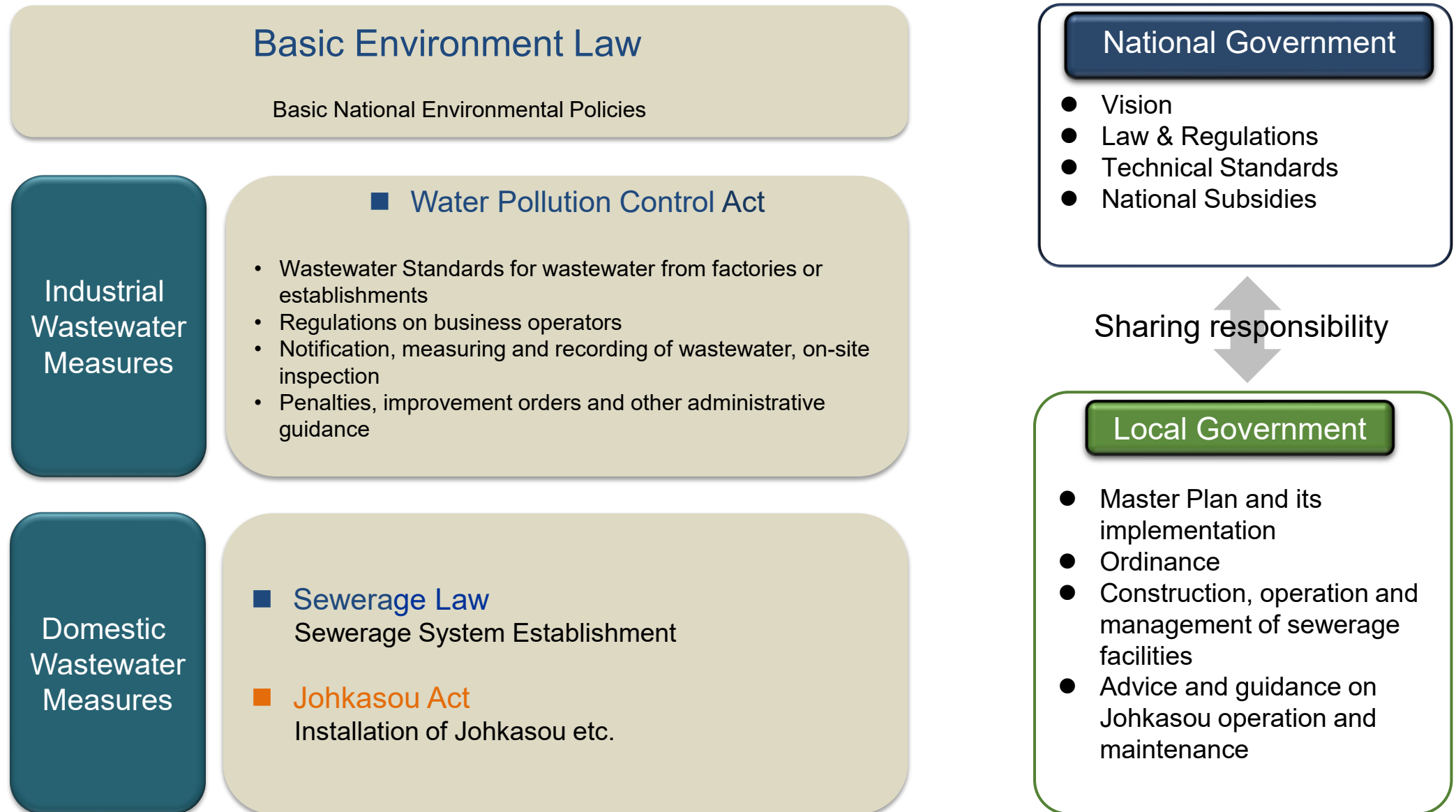


Johkasou contributes toward achieving the SDG 6 targets

◇ Small	53,134 units
◆ Medium/Large	2,377 units
TOTAL	55,511 units
	55 countries



Overall concept of water environment improvement and related legal framework



Johkasou Act

■ Purpose

- Strengthen **regulations** of manufacturing, installation, operation, maintenance and desludging of Johkasou.
- Provides **qualifications** for Johkasou installation workers and operators
- Provides **registration systems** for Johkasou installation vendors and maintenance vendors
- Provide **licensing systems** for desludging vendors



Promotion of domestic wastewater treatment by Johkasou for conservation of water quality in public water area, preservation of the living environment and improvement of public health

■ Definition

- Johkasou is the decentralized wastewater treatment facility that can treat both **black water** and **gray water** from household, building and so on and discharge effluent comply with effluent standards.
- Johkasou should be installed when installing a flush toilet under the Building Standard Law, unless the wastewater is discharged to sewerage systems.

■ Related Laws

Johkasou Act

Enacted in 1983



**Enforcement
Ordinance**

Define the scale of Johkasou which need
Johkasou Operators etc.



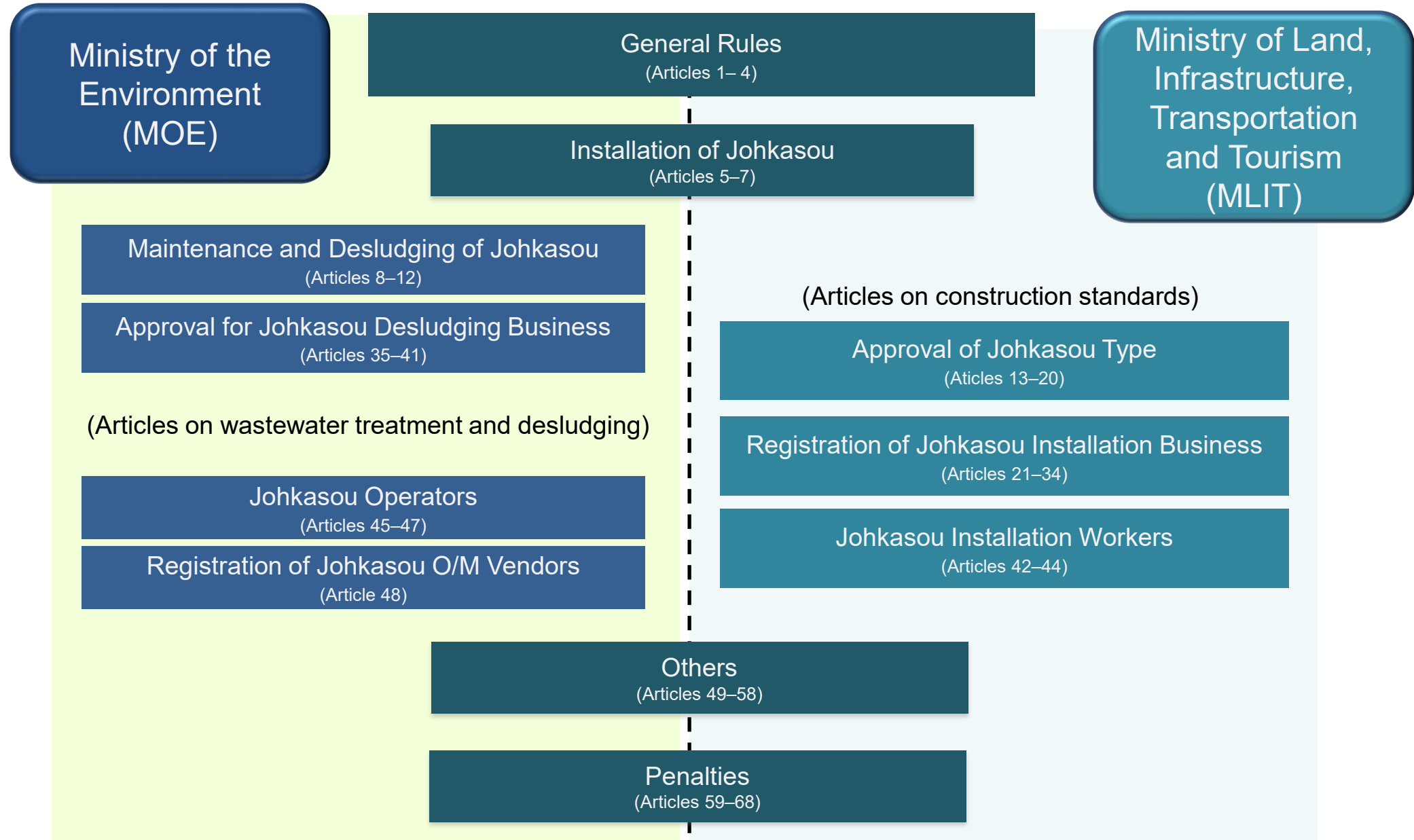
**Enforcement
Regulations**

Define the period of inspection, desludging
or the technical standard of desludging etc.

History of Johkasou Act

1960 to around 1980	Widespread use of flush toilets and the installation of old type Johkasou (treating black water only)
1983	Johkasou Act enacted (enforced in 1985)
2000	New installation of old type (Tandoku-shori) Johkasou was prohibited
2005	Stricter water quality management systems introduced
2019	• Strengthening the authority of prefectural governors for conversion from old type to the current type (Gappei) Johkasou • Clarification for proceeding Johkasou installation as a public works • Others

Outline of Articles and its jurisdiction in Johkasou Act



Inspection and Maintenance of Johkasou



Legal inspection by Article 7

Purpose

Confirm if 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, who is licensed by the prefectural governor.



Desludging

Purpose

Recover normal treatment performance normally

Contents

- Removing sludge
- Cleaning the Johkasou
- Confirming if there are faults or defects inside the Johkasou

Frequency

Once a year

Responsible organization

Johkasou desludging vendor, who 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

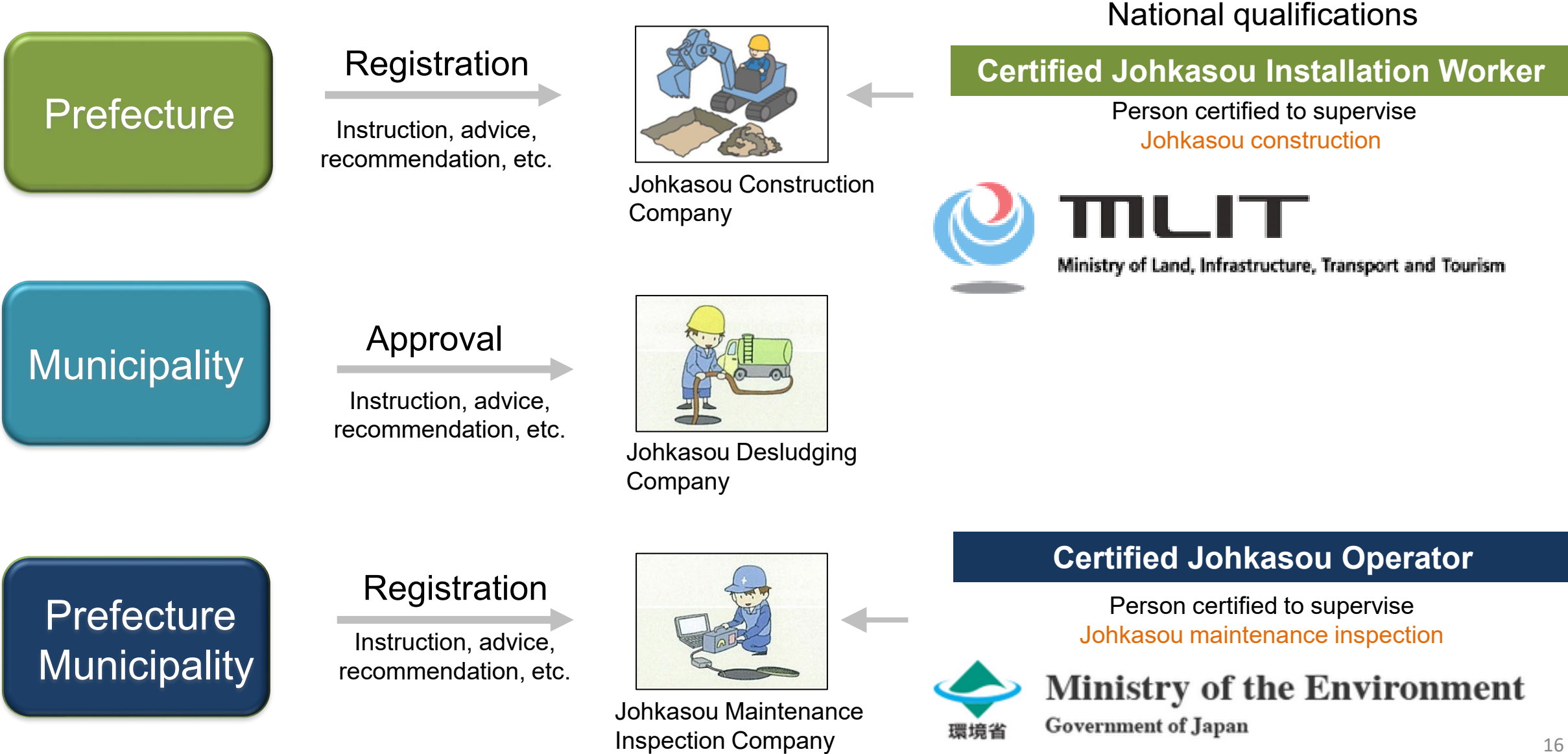
Once a year

Responsible organization

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



Registration process and qualifications system



Training courses for Johkasou Technicians

- Johkasou Technicians should acquire extensive knowledge not only on wastewater treatment and Johkasou, but also on water environment conservation and public health.
- Curriculums for Johkasou Operator and Johkasou Installation Worker are as below.

Johkasou Operator

by Article 45

- | | |
|--|--------|
| ● Basic of Johkasou | 8 hrs |
| ● Laws and regulations related with Johkasou | 4 hrs |
| ● Structure and function of Johkasou | 22 hrs |
| ● Introduction of installation of Johkasou | 4 hrs |
| ● Operation and maintenance of Johkasou | 30 hrs |
| ● Water quality management of Johkasou | 10 hrs |
| ● Introduction of desludging of Johkasou | 2 hrs |



Total 80 hours (13 days)
Test 2 hours

Johkasou Installation Worker

by Article 42

- | | |
|--|--------|
| ● Basic of Johkasou | 8 hrs |
| ● Laws and regulations related with Johkasou | 3 hrs |
| ● Structure and function of Johkasou | 15 hrs |
| ● Management of Johkasou installation | 8 hrs |
| ● Introduction of O&M and desludging of Johkasou | 3 hrs |



Total 37 hours (5 days)
Test 2 hours



Thank you for your kind attention

Check Japan's Johkasou System on Youtube 

<https://www.youtube.com/watch?v=r4xOKGbYWes>

