

JICA Clean Cities Initiative International Seminar - Alliance of Local Governments  
(Development Cooperation Together with Private Companies)

# Alliance of Public Organizations in International Sewerage Projects

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# Introduction

... Basic items related to wastewater treatment in Japan ...

## Basic Environmental Law: Responsibilities of citizens and local governments

(obligation of effort to reduce environmental load and cooperation for environmental policies)

- The country and local governments are responsible for establishing a basic plan related to treatment of wastes and domestic wastewater and fulfilling the plan.
- Citizens are responsible for making efforts to reduce wastes and wastewater and cooperating for environmental policies implemented by the country and local governments in their daily lives.

### Citizens



- ✓ Development of laws, regulations, and rules (such as environmental and wastewater standards)
- ✓ Establishment and implementation of wastewater treatment plans
- ✓ Provision of wastewater treatment services (establishment, maintenance, and management of facilities)
- ✓ Provision of educational opportunities and information

- ✓ Effort to reduce wastes and environmental load
- ✓ Observation of laws, regulations, and rules
- ✓ Cooperation for wastewater treatment services
- ✓ Bearing of wastewater treatment costs

### Country and local governments



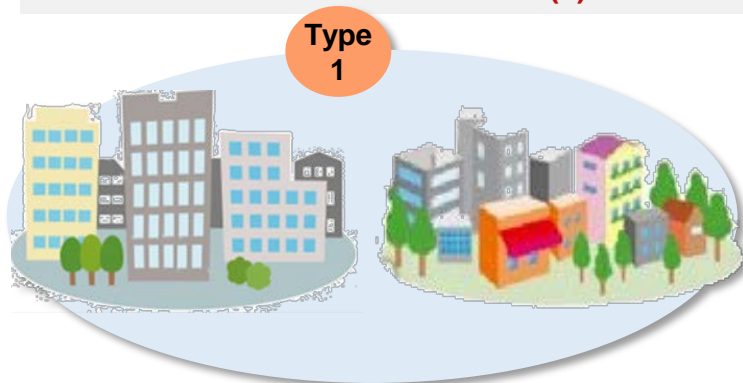
# Basic plan for wastewater treatment Prefectural initiative

- This is a basic initiative set by each local government for local management of wastewater, in which **a wastewater treatment system is selected according to its local characteristics.**

What are local characteristics? (1) **Characteristics of residential areas** (geography, landscape, weather, population, industries, land use, future development plans, conditions of existing facilities)

(2) **Current water environment** (availability of water supply sources, natural parks, and tourism resources)

(3) **Future water quality conservation plan**

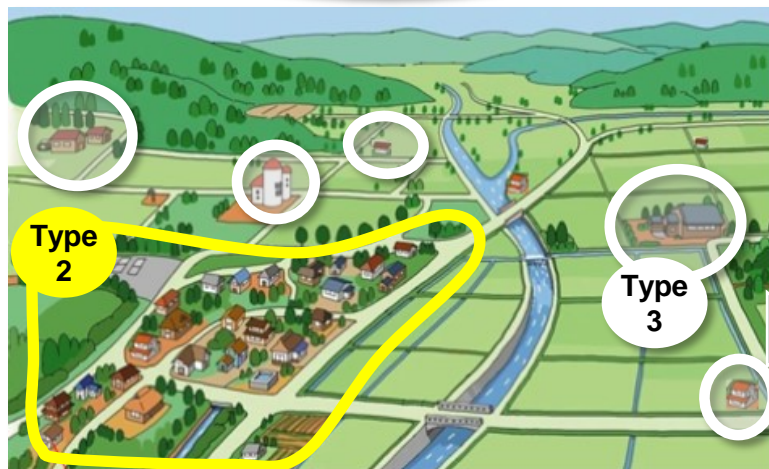


## Large-scale collective processing

[governing ministry: MLIT]

- ✓ Centers of cities and areas for which urban development is planned (areas to be urbanized)
- ✓ Areas with water supply/tourism sources

Type 1



## Small-scale collective processing

[governing ministries: MAFF, MOE]

(use population of approx. 1,000)

- ✓ Densely populated sections in agricultural and fishing areas
- ✓ Residential areas away from urban areas

Type 2



## Onsite treatment

[governing ministry: MOE]

- Scattered facilities (houses, offices, commercial facilities)

Type 3



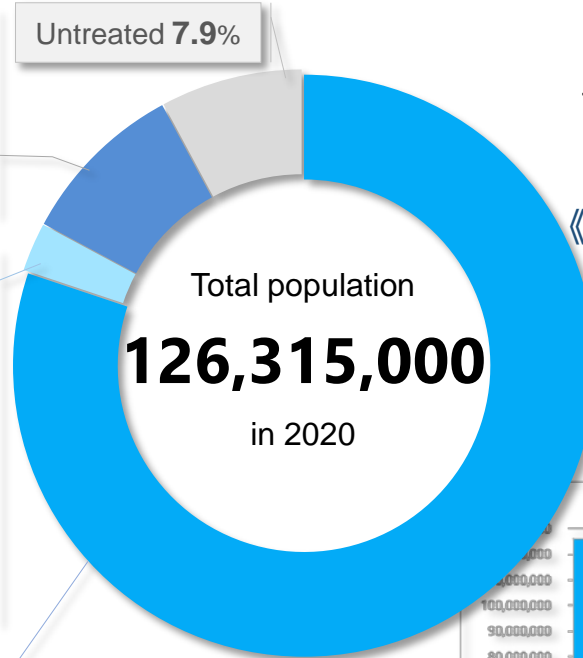
# Wastewater treatment in Japan (2020)

DATA : Percentage of population by type of domestic wastewater treatment 2020,

**Individual treatment**  
**9.3%**  
 Governing ministry: MOE

**Small-scale collective processing used for densely populated sections in agricultural and fishing areas, or residential areas independently located away from urban areas (population of approx. 1,000)**  
**2.7%**  
 Governing ministries: MAFF and MOE

**Collective processing in urban areas**  
**80.1%**  
 Governing ministry: MLIT

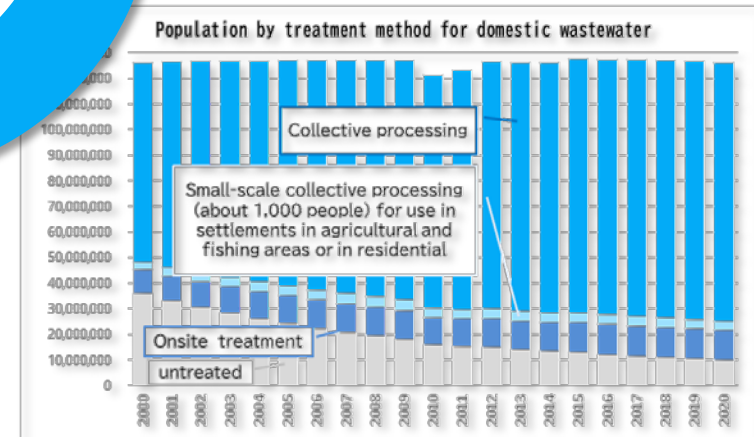


• **Population with wastewater treatment: 92.1%**

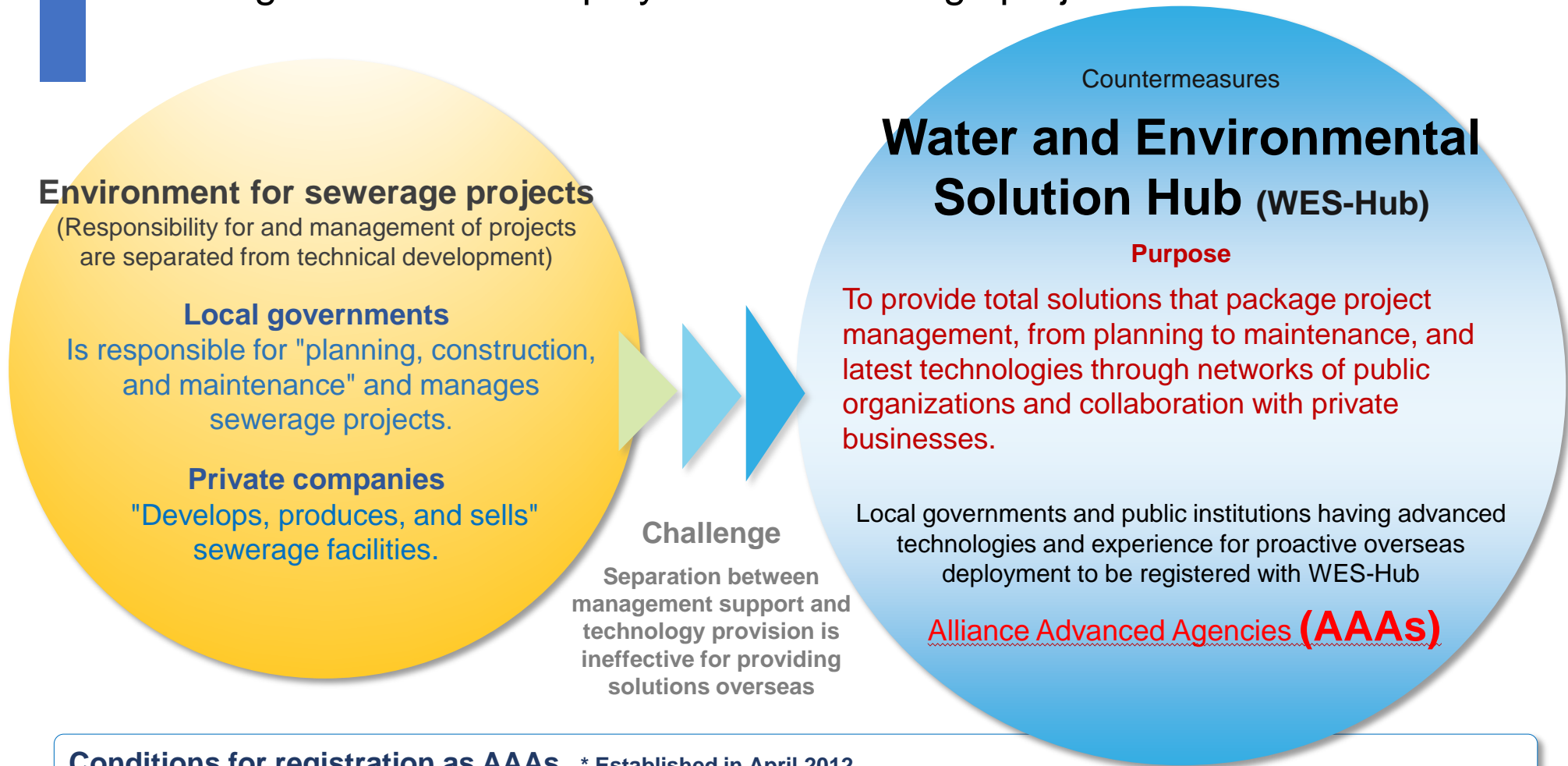
The ratio of untreated water has decreased from 31% to 7.9% in 20 years

《Large part of wastewater treatment》  
 Accounted for by collective processing in urban areas

(Population with collective processing in urban areas = 101,226,000)



• **The "sewerage sector" in this report refers to wastewater treatment projects for urban areas.**



## Conditions for registration as AAAs \* Established in April 2012

- <Technologies>** Provides facilities in operation as showrooms and is capable of outputting information of advanced treatment technologies and operation in Japan.
- <Provision of learning opportunities>** Capable of providing information of water environment infrastructure technologies and opportunities for enhancing understanding of policies and urban development.
- <Exchange>** Provides opportunities for exchange of people and ideas with research institutes and private companies related to water treatment and environmental infrastructure technologies.



# AAA members and support agencies

## AAA Conference Secretariat



- **MLIT** / Ministry of Land, Infrastructure, Transport and Tourism

## AAA Support agency

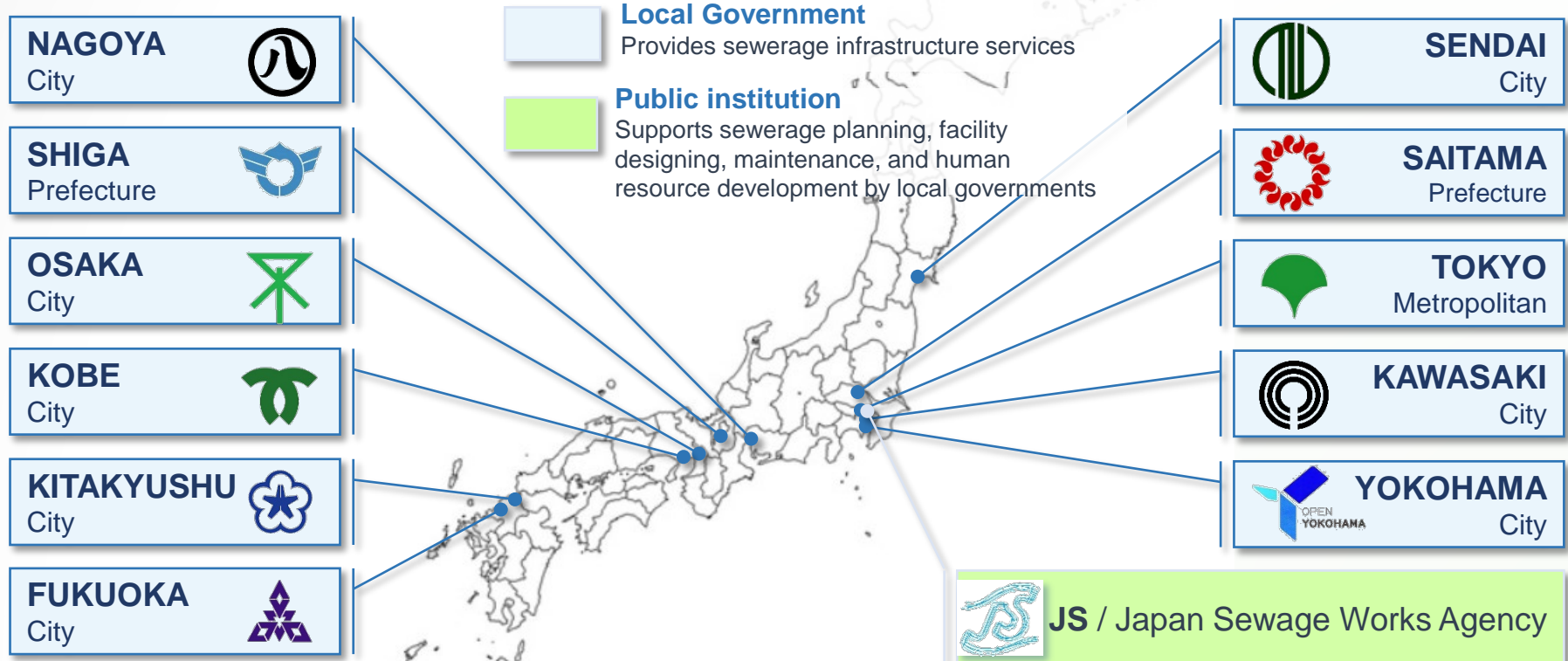


- **JSC** / Japan Sanitation Consortium

- **JICA** / Japan International Cooperation Agency

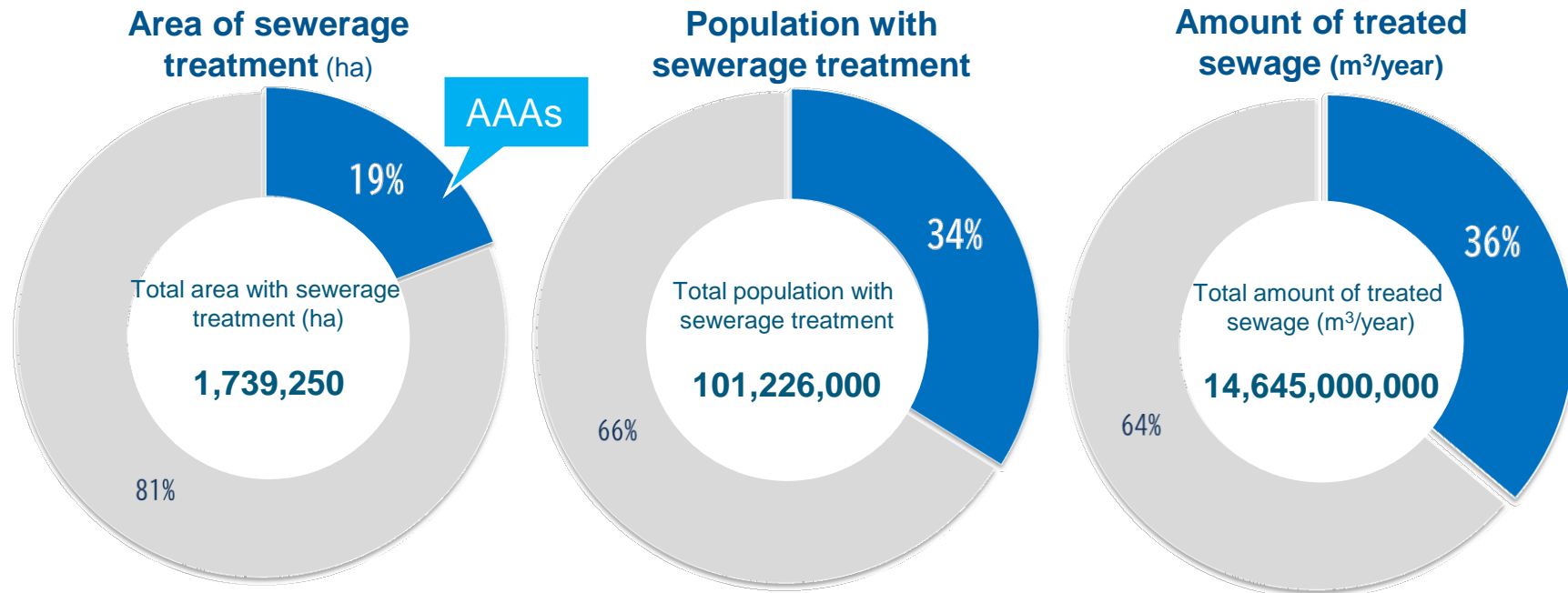


## AAA members: 11 local governments and one public institution \*As of January 2022



## Scale of sewerage projects in AAAs (local governments excluding JS)

Of sewerage facilities in Japan (**2,173** facilities in 2018), **105** facilities are operated by AAAs ⇒ **5%**



- ✓ Sewerage projects by AAAs have a significant importance and play a central role in solving challenges of "technical development" and "project management."
- ✓ Collaboration with local governments, having rich project experience and large project scale, and private companies is expected to provide effective solutions.

**Tips:** Amount of water treated in Japan as a whole = 92.5 days of flow over Niagara Falls (average flow of 110,000 m³/min)

# Activities by AAAs: Showrooms in public relations and engagement for advanced treatment technologies

## ✓ Showcasing treatment systems and technologies in permanent showrooms

- Exhibition section with explanation using models and panels (Yokohama City)

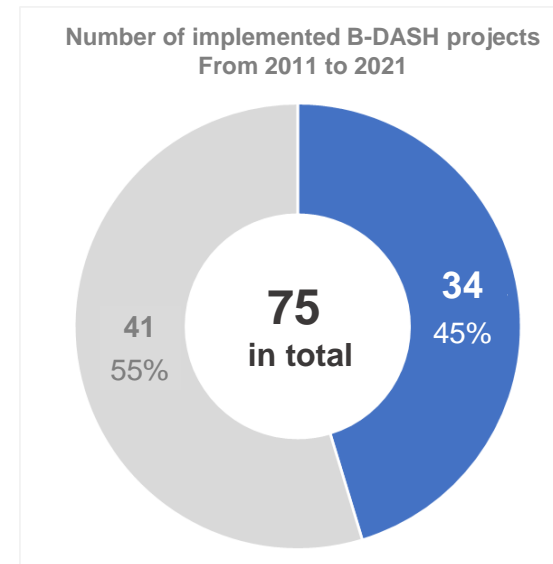


- Virtual experience of facilities that are hardly accessible in reality with tablets (Kawasaki City)



## ✓ AAAs contribute to technical development through participation in 34\* "Breakthrough by Dynamic Approach in Sewage High Technology (B-DASH) projects" of MLIT.

\* Projects in which AAAs participate account for **45%** of the total projects (from 2011 to 2021)



### ◆ What are B-DASH projects?

These are projects that **support development and wider dissemination of innovative technologies** to realize a low carbon and recycle-oriented society, lifecycle cost reduction, and measures against deterioration and flooding for sewerage facilities.

These projects also support overseas deployment of technologies.



# Advanced technologies to be deployed proactively by AAAs for enhancement of sewerage technologies

## Disaster prevention technologies

### Smart manhole covers and sensors

Real-time observation of water level, quality, etc. and information offering



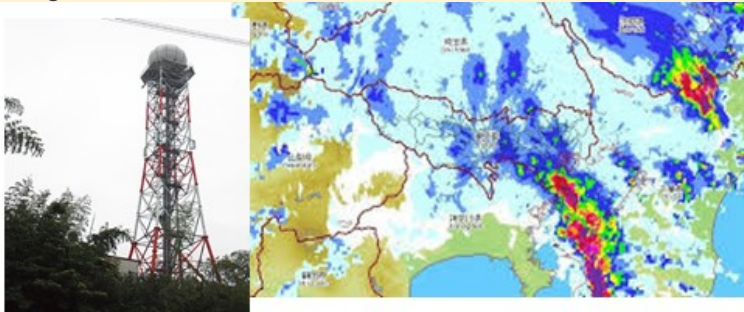
### Pressure-lifted manhole covers

Releases pressure from sewage pipe to prevent lid drifting or pipe damage



### Precipitation radars

Rain forecast for proper treatment plant operation and information offering for citizens



## Conversion of waste to fuel and effective utilization of resources

### Conversion of sewage sludge to fuel



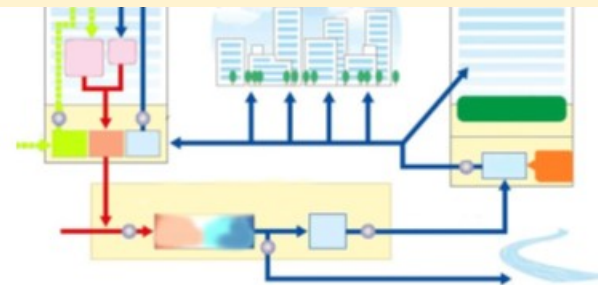
### World's first facility that converts sewage sludge to gas (uses power generation)



### Utilization of digestive gas for motor fuel and gas power generation



### Reuse of treated water for non-potable water \*Water for bathrooms, washing, etc.



# Activities by AAAs: International activities





# International activities by AAAs (representative examples)

## 1. Human resource dispatching to local organizations

- ✓ JICA overseas experts
  - ◆ Cambodia by Kitakyusyu City
  - ◆ Quảng Ninh province in Vietnam by Shiga Prefecture
  - ◆ Cambodia and Indonesia by JS



## 3. Sewerage project support



- ✓ Technical support for comprehensive project from construction to maintenance (Malaysia by Tokyo Metropolitan)
- ✓ Establishment of sewer database (Indonesia by Kawasaki City)
- ✓ Pipeline regeneration without drilling (Vietnam by Osaka City)
- ✓ Technology exchange (Russia by Osaka City)
- ✓ Management manual preparation and emergency training (Vietnam by Kitakyusyu City)
- ✓ Support for establishing sewerage laws and regulations (Vietnam by Kitakyusyu City)
- ✓ Technical guidance on measures against flooding (Myanmar by Fukuoka City)
- ✓ Preparation of basic sewerage plan (Fiji by Fukuoka City)

## 2. Human resource education for local organizations

- ✓ Web training for proper management of sewerage assets (Malaysia and other 3 countries by Sendai City)
- ✓ Development of maintenance engineers (Thailand by Saitama Prefecture)
- ✓ Techniques to solve sewerage problems and improve projects (Mexico by Nagoya City)
- ✓ Project to improve sewerage plant maintenance capabilities (Myanmar by Osaka City)
- ✓ Program for water environment improvement and sewerage project operationalization (Vietnam by Kobe City)



## 4. Others

- ✓ Management and measures against flooding for sludge treatment facilities (Vietnam by Yokohama City)
- ✓ Public announcement of measures against heavy rains for citizens (Vietnam by Kitakyusyu City)
- ✓ Demonstration experiment (Fiji by Fukuoka City)
- ✓ Sewerage-related public relations through public-private partnership (Thailand by Saitama Prefecture)
- ✓ Verification of sewerage technologies to be deployed overseas (Vietnam and Thailand by JS)
- ✓ Support for Asian sewage management partnership project (Cambodia, Indonesia, Myanmar, Philippines by JS)

# System for mutual cooperation in AAAs

## 1. AAA Meeting: Twice a year

- This meeting is intended for sharing information of AAAs' technologies and overseas activities.
- Regarding common problems, a subcommittee is established for each problem to gather opinions and develop activity tools.

## 2. Issuance and revision of "Tiger Strategy," a collection of know-how from local governments for international deployment

- To develop human resources to be in charge of future international projects, a collection of know-how has been published by summarizing insights and effective efforts accumulated by each organization during their international activities.

[First edition] March 2019 / [Revision] March 2021



### Tips

The "Tiger Strategy" means a book of secrets shared only among related parties and comes from the same title in the second volume of a Chinese strategy book, "Six Secret Teachings."

The Tiger Strategy in the Six Secret Teachings "discusses military equipment, tactical principles, and essential issues of command" and emphasizes that "a commander must observe and utilize the effects and interactions of variables such as weather, terrain, and human psychology in order to achieve success." (from Wikipedia)

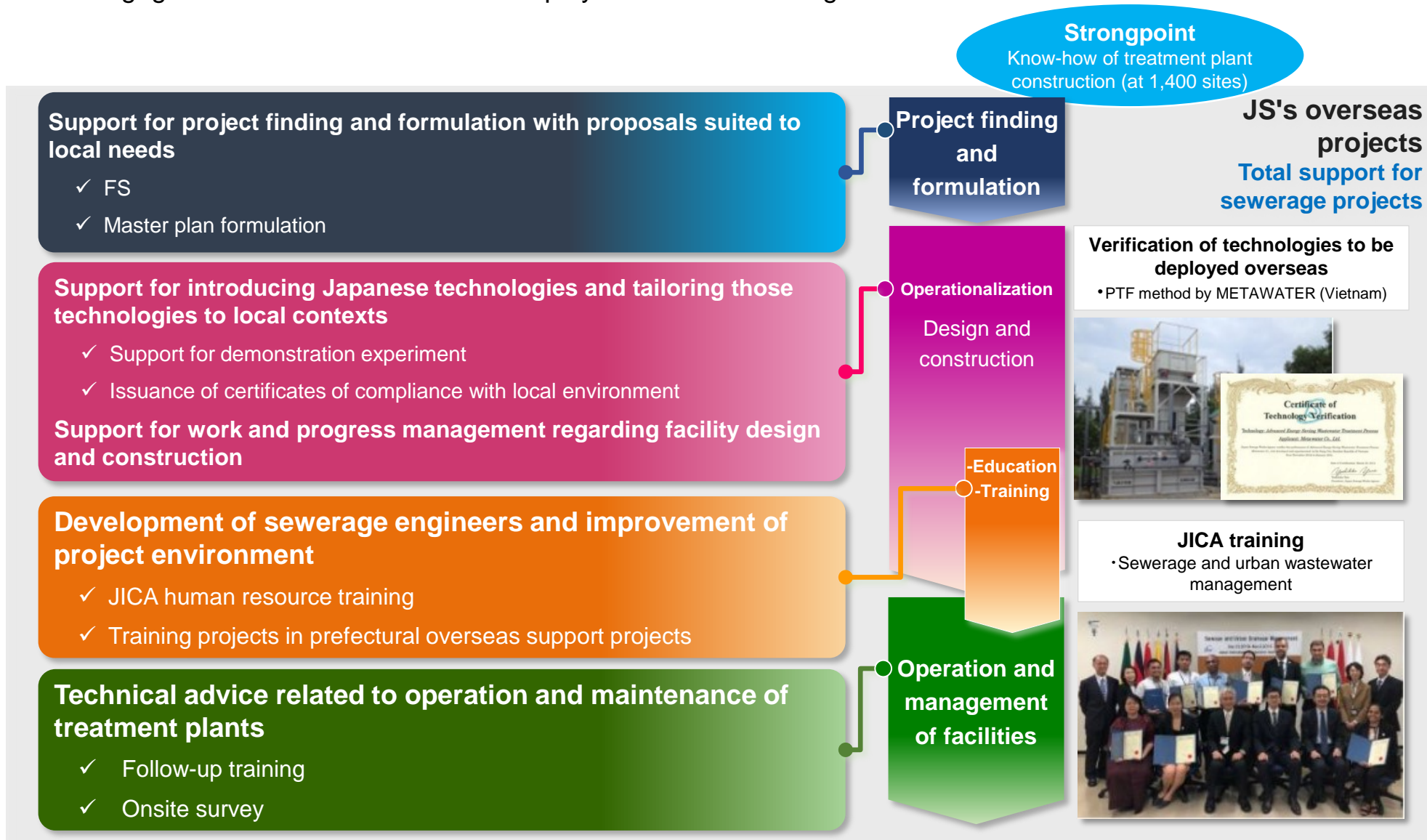
Future deployment aimed by AAA Meeting (sending information overseas)

- ✓ **Improvement of the website for sending Japan's sewerage information overseas**, which is designed to provide total solutions through public-private partnership.
  
- ◆ In addition to AAA information, the website is expected to offer wider topics of sewerage projects and technologies in Japan.
  
- ◆ Currently, relevant information has been organized, toward a planned renewal in April 2022.



# Positioning of the Japan Sewage Works Agency and its overseas support projects

JS provides total support for sewerage projects, as only one organization that supports private operators engaged in overseas infrastructure deployment in the sewerage sector after 2018 law revision.



## Last but not least, recent hottest topic in Japan regarding public relations of sewerage systems

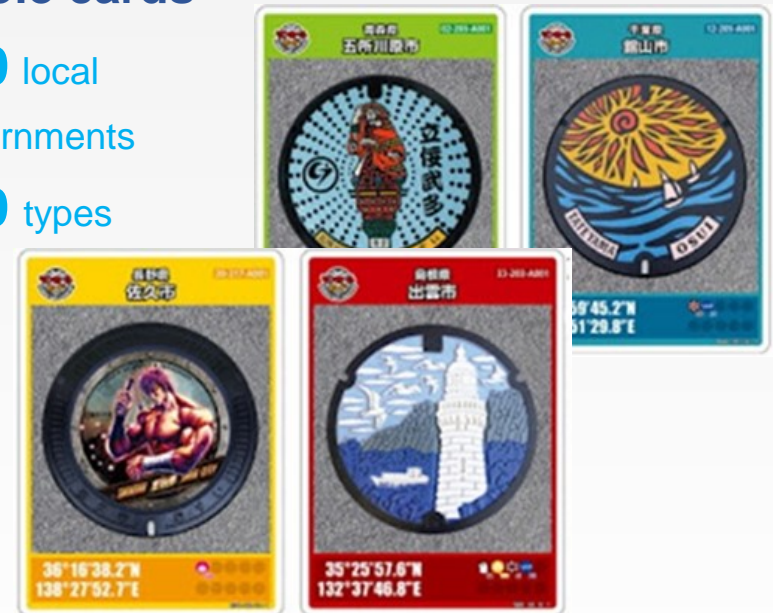
- ✓ Each local government has installed their originally designed manhole covers, which are contact points between people and sewerage, aiming to enhance public interest in projects and roles of sewerage systems.  
Some designs have been turned into cards, which are distributed for free.
- ✓ Manhole cover designs in Japan have attracted attention also from people outside Japan.  
We hope you enjoy searching "design covers" and collecting such cards.

### Design manholes



### Manhole cards

- ✓ **580** local governments
- ✓ **780** types



For inquiries about manhole cards [gkp.mc.media@gmail.com](mailto:gkp.mc.media@gmail.com)

<http://www.gk-p.jp/mhcard/>

For inquiries about today's report

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