

JS Announces its Fifth Midterm Management Plan 2017-21:

Overcome Challenges and Make a Leap into the Future as your Solution Partner

Japan Sewage Works Agency (JS) had carried out its business for five years starting in FY 2012 based on its "Fourth Midterm Management Plan". At the beginning of FY 2017, JS issues "**Fifth Midterm Management Plan 2017-21**" (**The Fifth Plan**) as **top strategic priorities for the next five years** (refer to the appendix).

In the Fifth Management Plan, JS shows its "Basic Principles" according to the report submitted in December 2016 by JS Advisory Board, which is the top decision-making body of JS. The Fifth Plan defines "Management Plan", "Project Promotion Plan", and "Running Organization Plan" for the next five years.

The Fifth Plan has the following characteristics:

1. Feature a new "*Fundamental Principle*" that has changed for the first time in a quarter-century.
2. Announce two goals for a project promotion: Provide all-around supports to municipalities as *The Solution Partner*. Facilitate sewage works as *The National Center*.
3. Provide two midterm visions: *Improvement of productivity/efficiency*, and *new equal partnerships*
4. Have the particular eight management policies for the next five years.
5. Show two implementation plans of *Project promotion* and *Running organization*. Some items have a specific implementation timeline.
6. Treat *Retrofit* and *Inundation countermeasures* as *core operations*. Include numerical or performance goals to maintain safety and security operations.
7. Set outcome goals for some operations as JS' first attempt.

All JS will deal with challenges to achieve the goals in the Fifth Plan.

The Fifth Midterm Management Plan 2017-21

Japan Sewage Works Agency

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Introduction

Today, almost 80% of Japanese became accessible to public sewerage service. Though some local variations still exist, we, Japan Sewage Works Agency (JS), are very proud of this achievement accomplished by the efforts of people working for sewage works for a half century.

Sewage works are shifting its gear from hardware to software. Municipalities, as implementers of sewage works, are facing many difficult challenges. They are required to retrofit aging facilities in a systematic manner, protect peoples and their communities from frequent major earthquakes and localized storm waters, and reuse wastewater such as sewage sludge to establish recycling society. On the other hand, they have to secure funds for human resource development and business management.

Wastewater service that supports peoples' lives and the economy is our lifeline with essential functions. To maintain the service properly for the future, all the people involved in sewage works including JS need to see what happens now and share a sense of crisis.

JS is the only one nationwide organization that supports municipalities in the field of sewage works. In 2015, Japan Sewage Works Agency Act was amended and more precisely defined the role and position of JS, which is a unique public organization. JS is expected to break through the harsh conditions surrounding water business while adapting to new needs. JS has a mission that maximizes its

accumulated technical power and experience to support municipalities, which are sewage works implementers.

By the above conditions, JS has developed “The Fifth Midterm Management Plan 2017-21” (The Fifth Plan) that define its future management policies and planning.

The Fifth Plan contains new “Basic Principles” and the “Planning for Business/Project Promotion/Running Organization” for the next five years according to the report submitted in December 2016 by JS Advisory Board, which is the top decision-making body of JS.

From now on, all JS members will deal with challenges. Your understanding and cooperation are always appreciated.

1. Harsh conditions surrounding sewage works and JS

- ❁ Wastewater business is shifting gears from new constructions to asset management including retrofit and O&M. Municipalities need custom-made solutions for their various problems depending on economic/social changes. The national government and many municipalities face their financial issues and the most municipalities have weaknesses in their project implementation capabilities.
- ❁ JS also has financial problems: it had a current-account deficit for three years from FY 2012 that required strict management reforms. Though it turned a deficit into a surplus in FY 2015, the management reform is still on the way.
- ❁ JS needs to implement the Fifth Plan while sharing a sense of crisis with municipalities to support them continuously even when local/social conditions change.

2. Basic principle: A long-term universal value

The Fifth Plan provides **a new fundamental principle**. JS should create a universal value along with social changes, and a milestone for all JS staff to carry out business activity toward the same direction. A new fundamental principle is:

*Japan Sewage Works Agency (JS),
as your solution partner in the
wastewater business, promotes forming
the core foundation of technology,
human resources, and information.
We contribute to a creation of a healthy
water environment, safe community,
and sustainable society.*

3. Management policy for next five years

- ✿ The Fifth Plan includes **two goals for a project promotion**: JS provides all-around support for municipalities as their **Solution Partner** and facilitate sewage works as **a National Center**
- ✿ The Fifth Plan has two **midterm visions**:
 1. Review the entire operations to **improve their productivity/efficiency**
 2. **Build new equal partnerships of municipalities, JS, related organizations, and private businesses**
- ✿ The Fifth Plan has the specific **eight management policies for the next five years**.
 1. Promote **management that maximizes JS's advantages including experiences and human resources**.
 2. **Try to solve problems with municipalities** who implement sewage works and **totally support their operations, especially design and construction** which are our area of specialty.
 3. **Facilitate development of the whole wastewater business** such as R&D, human resource development, international contribution, and information accumulation/analysis.
 4. Actively offer information and **enhance collaboration with wastewater-related organizations, private businesses**, etc. through opportunities of regular meetings or information sharing.
 5. **Utilize ICT** that enables efficiency and quality improvement of operations.

6. Review/improve **organization/working method for efficient/effective operations**. **Stabilize sustainable management** to continue to play a **required role in wastewater business**.
7. Make a **diverse new/mid-carrier employment** to **inherit technology** and **keep proper management**.
8. Provide the right training program at the right time and encourage a flexible way of working considering work-life balance to improve job performance of each employee.

4. Project Promotion Plan

1. All-around Support as a Solution Partner

(1) Enhancement of Core Businesses

① Retrofit

- ✿ Retrofit municipal WWTPs that JS had constructed and needs to be renewed. Propose a deliberate retrofit planning to municipalities, which have shortages of skilled engineers.
- ✿ To optimize retrofit planning, provide all-around supports: accumulate/analysis operations management data develop a stock management plan including whole facilities, etc.
- ✿ Try to improve productivity using ICT. Play an active role in the improvement of the management efficiency including spreading out and cooperation for small to medium sized municipalities.

② Inundation Countermeasures

- ✿ To protect people's lives/properties and city functions from localized storm water, support urgent countermeasures for inundation according to the future social needs.
- ✿ Organize and classify knowledge from JS' past operation including the development of flood countermeasures planning or the constructions of pumping stations for efficient project implementation.

- Support operation of software/hardware integration: the combination of facilities improvement and hazard map creation (facilities' improvement should be focused on high-risk areas using inundation simulation, etc.)

③ Earthquake/Tsunami Countermeasures

- Support making wastewater facilities earthquake/tsunami-resistant in high-risk areas.
- The support should contain a crisis management such as earthquake/tsunami damage simulation based on their diagnosis.
- Conclude disaster agreement for integrated operations including software/hardware and emergency/normal.

④ Recovery/Reconstruction Support

- Quickly and surely, implement recovery/reconstruction from two powerful earthquakes of Tohoku and Kumamoto.

To achieve the above four goals, JS sets up the budget planning as follows.

	Operation expense (Billion Yen)	The approximate number of facilities
Retrofit, earthquake/Tsunami countermeasures	395	560
Inundation countermeasures	95	40
Recovery/Reconstruction support	90	50
New construction and expansion except inundation countermeasures	150	100
Sub total	730	750
Execution design, etc.	53	-
Total	783	-

(2) New Challenges

① O&M for WWTP

- Verify the ongoing O&M operation in Iwata City and define the role of JS.

- ✿ Study the establishment of PDCA cycle that accumulate and analyze operation management data and use it for planning/design/construction.
- ✿ Study the support of operation management.
- ✿ Review the operation that totally manages the adoption of advanced technologies and its initial operation.

② Sewer Construction

- ✿ Verify the ongoing sewer construction project in Kuwana City in Mie Prefecture and define JS' role.
- ✿ Study and propose the collaboration and role sharing with wastewater-related organizations, private companies, and JS.
- ✿ Study and suggest the sophistication/efficiency of construction management using ICT
- ✿ Review the JS' involvement in the asset management planning for sewer

③ Resource and Energy Recovery

- ✿ Propose and support the phase of planning/design/order/construction with an excellent economic performance, and O&M as required.
- ✿ Introduce resource and energy recovery when facilities are retrofitted for the wide-area or scrap-and-build operation.
- ✿ Encourage Resource and Energy Recovery by adopting biomass-using new technologies such as electric power generation, hydrogen generation, etc.

④ New Support Proposal

- ✿ Carry out new agency operations that are defined by the legal change of Japan Sewage Works Agency Act in 2015, which is for the specified sewerage construction works. Support for continuous business management of municipalities with weak organization systems.
- ✿ Propose support policy in the field requiring advanced technology or new knowledge, such as inundation countermeasures or energy reuse.

⑤ Support for PPP/PFI Adoption

- ✿ Recognize the adoption of PPP (public-private partnership)/PFI (private finance initiative) is a powerful option to optimize wastewater management.
- ✿ Actively support municipalities for their wastewater management with various options including PPP/PFI.

- ✿ Establish a business model to facilitate PPP/PFI actively considering profitability.

⑥ Support for Policy Formation

- ✿ Share issues with municipalities to propose optimized solutions.
- ✿ Reflect the outcome solutions to new project planning
- ✿ Establish a new business model to support municipalities for their project implementation including retrofit, using JS' various operation menu.

2. Function as a Sewerage National Center

① Development/Practical Application/Promotion of Leading Edge ICT Technology

- ✿ Develop and promote technologies using ICT such as IoT, AI, which improve and optimize productivity.
- ✿ Encourage practical application of BIM technology for sewage works.

② Development/Adoption/Improvement of New Technologies

- ✿ To facilitate the development of wastewater-related technology and propose a practical solution for each municipality, promote the development/adoption of next generation technology based on "Sewerage Vision 2100" of Ministry of Land, Infrastructure, Transportation, and Tourism (MLIT) of Japan.
- ✿ Deal with R&D of resource and energy recovery technology such as hydrogen generation looking the coming low-carbon society.
- ✿ Enhance the development of energy-saving/low-carbon technologies including wastewater treatment technology using biofilm to manage the increasing needs of cost reduction.
- ✿ To adapt to the future inflow fluctuation, promote R&D of technology that contributes the functional maintain/improvement of WWTP by using existing facilities.
- ✿ Implement basic researches with a long-term perspective.
- ✿ Encourage the use of various project delivery systems: For example, DB(Design, Build) that is still innovative in the field of wastewater, comprehensive evaluation with VE(Value Engineering), DBO(Design, Build, Operate), etc.
- ✿ Review DB to promote new technologies with no actual performance.

- ✿ Adopt various project delivery systems such as DBO that support the first O&M.
- ✿ Encourage utilization of JS Innovation Program
- ✿ Carry out a post-project survey to evaluate/improve new technologies after introduction.

③ Support for Human resource Development of Municipalities Staff or Engineers of Private Companies

- ✿ Make various training programs such as localized training as normal operations.
- ✿ Improve training facilities for increasing female trainees.
- ✿ Carry out Wastewater Technology Verification/Qualification to boost the technical power for the entire level of engineering.
- ✿ Enhance a beginner training.
- ✿ Conduct a training program for engineers of private companies that contribute the quality improvement of JS contract projects.
- ✿ Promote Japanese wastewater system/technology through international training.

④ International Contribution and Support for Global Water Business

- ✿ Support global wastewater business for developing countries with training in Japan or dispatch of experts through JICA operation.
- ✿ Help management of Vietnam Sewage Center (VSC) with software support including legislation. VSC, or Vietnamese JS, will start its full-scale operation in 2017.
- ✿ Carry out various research of JICA, etc. and activity for National Mirror Committee of ISO.
- ✿ Support Japanese companies for their global water business along with technologies developed by JS.
- ✿ Enhance information publishing on the internet

⑤ Development of Technology Standard

- ✿ Make accumulated technical expertise and knowledge explicit as JS' legacy.
- ✿ Standardize and publish important technologies that contribute to the development of wastewater business.

⑥ Accumulation and Analysis of Technology Information

- ✿ Analyze expertise that JS has accumulated through design and construction of wastewater facilities and develop wastewater archives.

Implementer's Perspective

Accountability

To facilitate the understanding and cooperation of stakeholders including municipalities, JS shall achieve accountability for its roles, status, and scope of operations.

Choice and Focus

Many municipalities deal with various challenges while they have physical and financial limitations. Their issues are the improvement of accessibility in the wastewater service, inundation countermeasures, retrofitting, earthquake/tsunami countermeasures, nutrients removal in wastewater treatment, and resource/energy recovery, etc. Efficient project implementation is always required. JS proceeds its support according to urgency/importance of operations in terms of choice and focus.

Equal partnerships

JS establishes a framework for the equal partnerships with municipalities, related organizations, and private companies.

Interactive information

JS understands requirements/needs to us and collects/analyzes various data that is wastewater-related and nationwide. Besides, JS proposes problem solutions and provides useful information widely.

5. Running Organization Plan

(1) Establishment of Stable Management Basis

① Establishment of a New Organization

- ✿ Obtain human resources for required department to accomplish the Fifth Plan.
- ✿ Review the roles/issues of each department and the shape of our organization by the end of FY 2018.

② Business Innovation/Cost Reduction Using ICT

- ✿ Use ICT step-by-step for quality/productivity improvement and operation efficiency.
- ✿ Promote facility investment including system development required for improvement of productivity. Promote cost reduction with no sanctuary.

③ Securing stable income

- ✿ Establish/verify the management fee of contract construction project
- ✿ Review/verify the process for policy making operation

④ Enhancement of Governance/Risk Management

- ✿ Get across the internal control system
- ✿ Prevent risks including illegal activities/major accident and reduce their influence
- ✿ Boost the reliability of financial statements

(2) Creating a Good and Healthy Work Environment

① Human Resource Management

- ✿ Strength planning skills and expertise
- ✿ Cultivate human resources who can be proud of JS
- ✿ Carry out effective staff training program and bring up young professionals

② Improvement of Working Environment

- ✿ Carry out a stable and deliberate recruitment to secure required human resources for a direct department and inherit technology
- ✿ Continue an external recruitment as an organization for professional human resources registration
- ✿ Utilize skilled professionals with rich experiences
- ✿ Encourage efficient construction management
- ✿ Review/attempt a new human resources management system for employees of female, senior, and having child/nursing care responsibilities.
- ✿ Achieve a productivity improvement with work-life balance of each employee.