

## Research and Technology Development Division



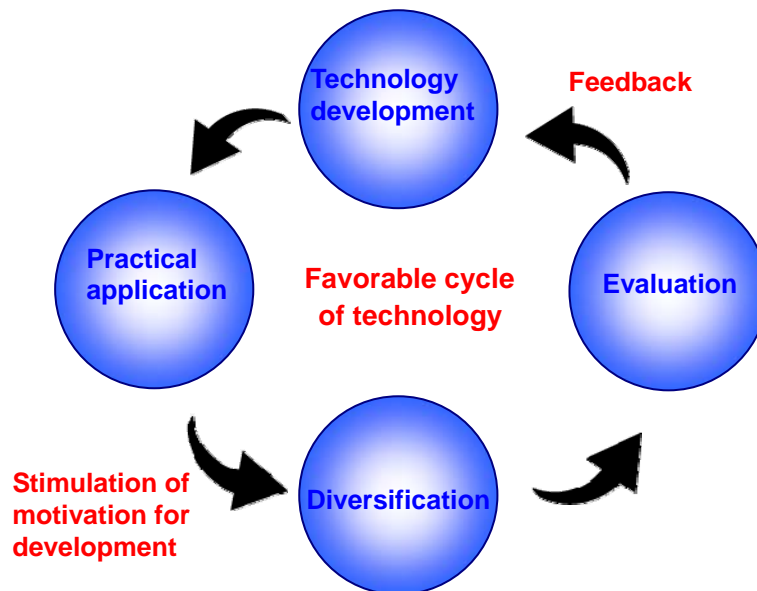
Japan Sewage Works Agency

## 1. Roles

There is an increasing demand for sewerage construction as the core of water recirculation for actualizing comfortable living environment. Since the sewage technology continues development year after year, effective introduction of newly developed technology in planning, designing, constructing, and maintaining sewerage facilities reduces the investment and maintenance costs and create comfortable water environment

In this regard, the Research and Technology Development Division of Japan Sewage Works Agency conducts the development of new technologies relating to wastewater system as the core of the "favorable cycle of sewerage technology" , implements the test study and survey to enhance the practical application of thus developed technology, and makes efforts to diversify the study effects. The Division carries out the tasks under the three core policies: "Development of technology responding to the requests of project-implementation sectors" , "Development of advanced technology" , and "Collection and supply of technology information"

The range of test study covers the whole fields of sewage technology: sewage collection system; waste water treatment; sludge treatment; reuse and effective use; maintenance; conservation of surrounding environment; design and construction.



## 2. Organization



## 3. Activities

### 3.1 Basic Objectives of research

The Research and Technology Development Division carries out the research focusing on the following three basic objectives of research.

- (1) Wastewater Reuse and Utilization Systems (Wastewater Treatment Technologies)
- (2) Resource Recovery and Energy Saving Sludge Treatment Systems for Global Warming Prevention (Resource Recycle Technologies)
- (3) Reconstruction Technology Development for Sustainable Sewerage Systems (Function Improvement Technologies)

The subjects of research include the ones adopted by Japan Sewage Works Agency and the ones assigned by national organizations or local public bodies.

### 3.2 Research budget

The research budget of the Research and Technology Division of Japan Sewage Works Agency consists of an operation aid of national government and local public bodies, a revenue of assigned works, and an assignment fee of national organizations or local public bodies.

### 3.3 Development of new technology

Major subjects of technology development include: advanced treatment technology; technology of effective use of sludge resource; small scale sewage technology; cost reduction technology; technology for improving safety of treated water and technology for modification and reconstruction. For these subjects, the technology development is conducted mainly using actual wastewater.

In addition to developing new technology, various kinds of surveys necessary to carry out the sewerage projects are implemented

### 3.4 Evaluation of technology

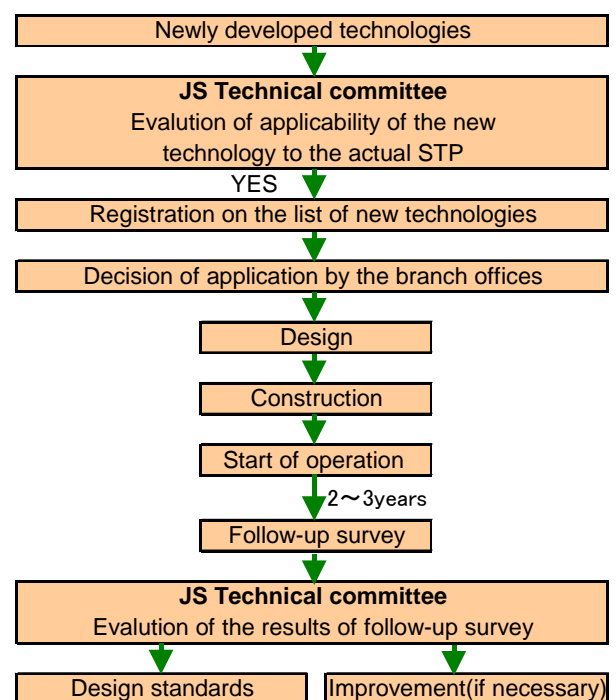
On introduction of a developed new technology to actual sewage works, it is necessary to apply adequate evaluation of the technology by a third party organization. To carry out that kind of evaluation on new technology and to review the important technological items, the Japan Sewage Works Agency organized the Technology Evaluation Committee as an advisory organization to the JSWA President in FY 1974. The Committee is consisted mainly of persons of learning and experience, and has Special Subcommittees in respective fields.

### 3.5 Joint research

In cooperation with private enterprises, universities and official research institutes, joint research system was implemented in FY 1984 aiming at the adequate response to the technical tasks which was diversified year by year and the high efficiency of technical development.

### 3.6 System for encouraging introduction of new technology

To encourage the introduction of new technologies developed by the Research and Technology Development Division, the New Technology Introduction Enhancement System was introduced in FY 1997. The System is operated under a close cooperation between the Research and Technology Development Division, Head Office, Regional Office and Design Centers. Owing to the System, even a new technology which has no field experience and which has been judged as in the practical application stage is smoothly introduced to an assignment project in accordance with the following flow scheme.

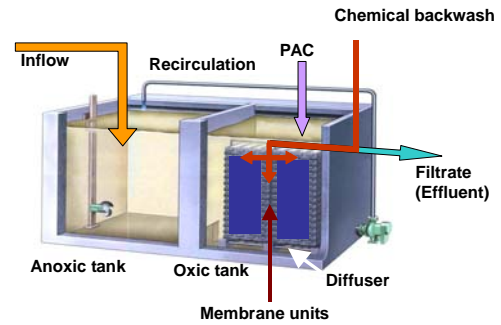


#### 4. Major developed technologies derived from the research results

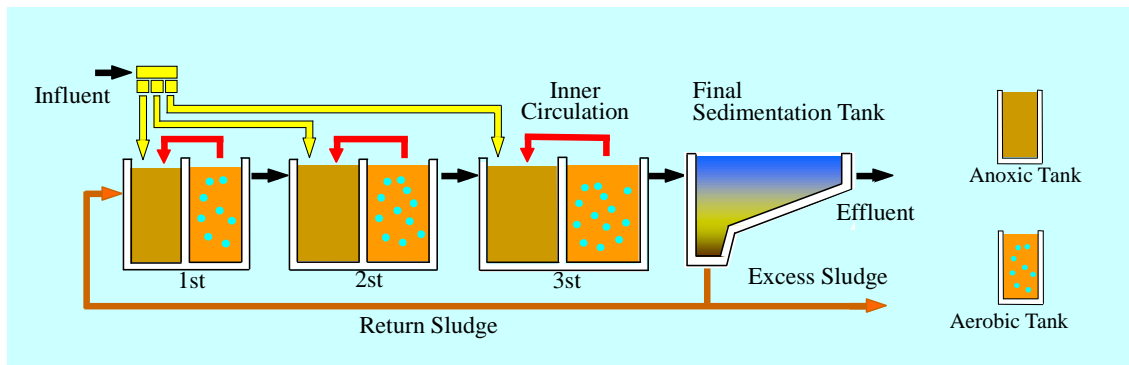
- Small scale sewage pipe facility
- Carbonizing furnace system
- Step-feed multistage denitrification-nitrification process
- High efficiency granulation and thickening modification method (BEST System)
- A modified circulation method with enhanced nitrification using immobilized nitridier.(Pegasus)
- Prefabricated treatment facility (POD)
- Membrane bioreactor (MBR)



Carbonizing furnace system



Membrane bioreactor (MBR)



Step-feed multistage denitrification-nitrification process

#### 5. Facilities



Concrete corrosion acceleration device



Experimental Field in Mooka city