

# Organizing/Systemizing of Streamlining/Optimizing Procedure By Operations Management

(Research of FY 2017-2021)

## 1. Purpose

For the optimization of wastewater or sludge treatment, there are nonstructural measures such as creative operations management. This study aims to establish the operations management method by organizing and systematizing the existing knowledge of the nonstructural measures.

## 2. Outcomes of this year

This year, a bibliographic survey was carried out to collect and organize data of examples on optimization of operations management for wastewater treatment. Besides, examples of optimization were collected from Ban-nan WWTP which JS contracts its O&M operations.

(1) Papers relating optimization of operations management in WWTPs were extracted from some academic journals which relatively have practical reports. Journals were Japan Sewage Works Association, Sewage Works Presentation, and Monthly Magazine

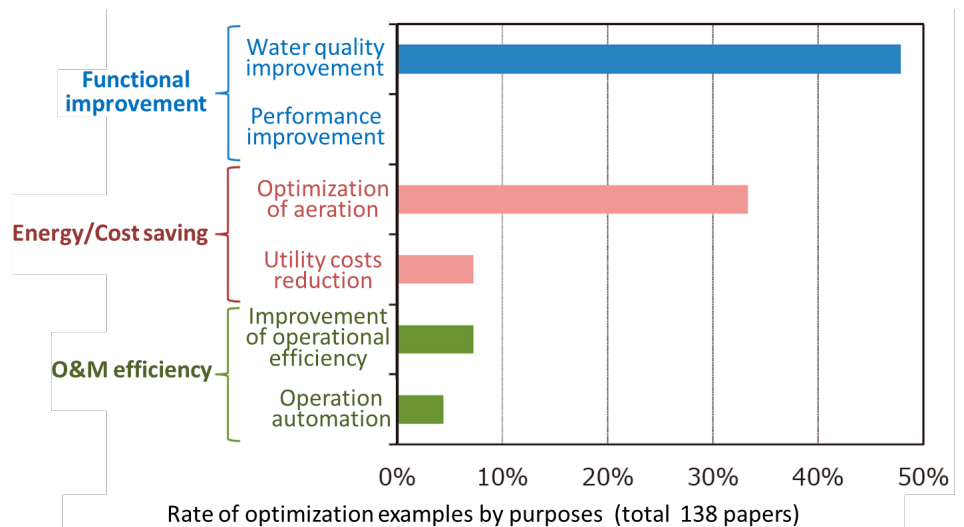


Figure 1: Aggregate results of optimization examples of wastewater treatment by purposes

of Wastewater from January 2013 to September 2018. Extracted papers were classified by objectives and methods of optimization. Figure 1 describes the aggregate results.

- Extracted 138 examples of optimization were classified into three objectives which were “functional improvement” of 48%, “energy/cost savings” of 41%, and “O&M optimization” of 12%.
- All examples classified to functional improvement aims to improve effluent water quality. Especially, nearly 80% examples out of that focus on nitrogen and phosphorus removal.
- Eighty percent and over of “energy/cost saving” examples relate to reduction of electric consumption for aeration and most of them want to reduce aeration volume.
- Though there are not many cases of “O&M efficiency,” various attempts can be verified such as minor remodel or improvement on facilities and equipment both to improve operational efficiency.

(2) Data collection was carried out from Ban-nan WWTP of Iwata city that JS has contracted its O&M since 2015. Based on the published data and hearing survey to JS Iwata office, creative operational management examples were recorded.

### 3. Future plan

Data collection will be continued including sludge treatment examples. Data is organized as optimization methods of operations management and items should be reflected in the facilities' design are advocated.

*Keywords: Operations management, Efficiency & Optimization, Nonstructural measures*