

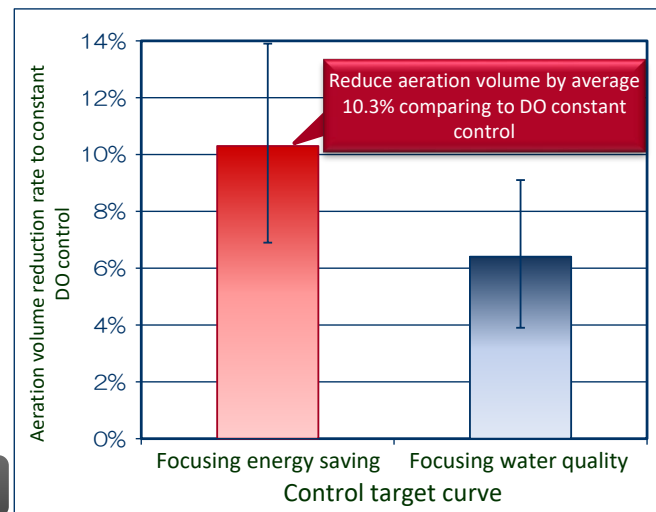
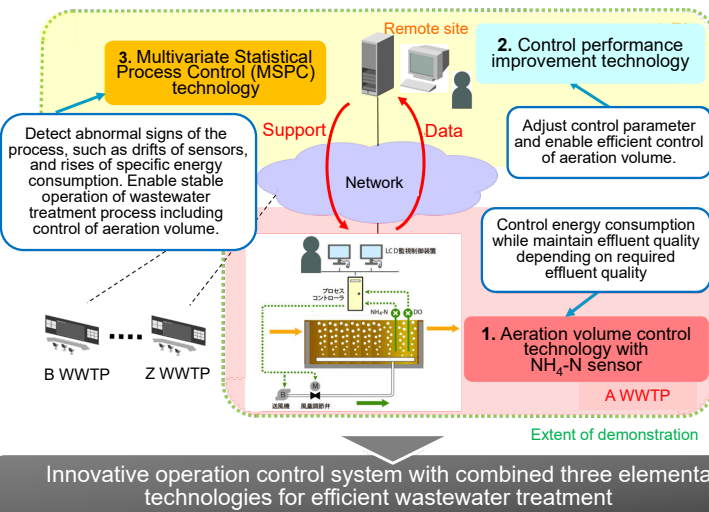
Demonstration on Efficient Sewage Treatment Control Using Process Control and Remote Diagnosis with ICT

Implementer: The consortium of Toshiba Corporation, JS, Fukuoka Prefecture and Center for Sewage Management of Fukuoka

Energy saving and stable quality of treated wastewater achieved by the combination of aeration control and remote diagnosis

Technology Overview

- NH₄-N/DO control technology**: automatically control target value of DO concentration based on NH₄-N concentration.
→ Reduce aeration volume, stabilize effluent quality (NH₄-N)
- Control performance improvement technology**: automatically diagnose and optimizes control parameter values based on the above operational performance.
→ Stabilize NH₄-N/DO control function and reduce operation costs
- Multivariate Statistical Process Control (MSPC) technology**: detects troubles in early stages and estimates their causes in the process using measuring data collected at running facilities
→ Stabilize NH₄-N/DO control function and reduce operation costs, improve O&M performance by early-stage trouble detection.



Achievements

- Reduction rate of aeration volume: **10.3%** compared to constant control of DO * Equivalent to **33%** reduction rate against constant control of aeration volume.
- NH₄-N concentration of treated water: **1.0 mg/L or less** except for holidays
- Cost recovery: **within 3 years**
*Based on a feasibility study assuming treatment capacity with 50,000m³/day, and conventional technology is constant aeration control.
- Control performance improvement technology: Stable followability to a target DO value
- MSPC Technology: Anomaly detection by test scenario, etc.