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Meidensha Corporation

Guidelines developed on AI technology based on Meidensha-involved B-DASH Project to support sewage treatment operations

The National Institute for Land and Infrastructure Management (NILIM) has established guidelines for the use of AI technology in sewage treatment operations. These guidelines are based on a government-commissioned research project conducted by Meidensha Corporation and three other partners.

Meidensha has been participating in the Breakthrough by Dynamic Approach in Sewage High Technology (B-DASH) Project[*1] since fiscal 2021. This project involves collaboration with Hiroshima City, Hiroshima Prefecture; Funabashi City, Chiba Prefecture; and NJS Co., Ltd., based in Minato-ku, Tokyo, and led by President Masaaki Murakami. Their demonstration project is titled “Advanced Technical Assistance for Sewage Treatment Plant Operations Using AI[*2].”

The guidelines are available for viewing on the NILIM website from July 25.

To address the decline in on-site techniques to be caused by an anticipated decrease in skilled engineers, the AI technology is designed to pass on expertise to future generations. It does so by visualizing the basis for skilled engineers’ judgments, while ensuring stable water quality in the treated water and efficiency in operational management. The technology also tackles cost issues related to management and maintenance.

AI analyzes data such as operation records, water analyses, and images of ongoing sewage treatment processes. It then provides real-time operational judgments similar to those of skilled engineers, while continuously accumulating data to enable more optimal operations.

The introduction of this technology is expected to facilitate the transfer of operational know-how, maintaining high-quality treated water, reducing electricity and chemical use, and facilitating the development of young engineers.

Meidensha remains committed to developing innovative sewage treatment technology as a company dedicated to supporting social infrastructure.

Estimation of treatment situation
Causes and responses
Water quality prediction
Operation guidance display

AI technology for providing operational guidance to sewage treatment plants
Detection
AI image processing
Classification
AI response judgement
Prediction
AI prediction of water quality
Estimation
AI operation
Input
Operational data
Images
Daily reports
Water quality analysis
Operational records
Output
Operational guidance
AI output results

- Estimation of treatment situations
- Prediction of water quality
- Suggested responses
- Operational variables calculated

*1: The B-DASH Project began in fiscal 2011 to promote the development and application of new technologies for addressing various challenges in sewage operations. As a government-led initiative, real-scale facilities are established to verify these technologies,

and the results are documented to create guidelines for disseminating innovative solutions nationwide.

*2: Please refer to the press release dated May 28, 2021, for additional information.
https://www.meidensha.com/news/news_03/news_03_01/1245180_10981.html