

Research Trends and Results

Demonstration Study of Breakthrough by Dynamic Approach in Sewage High Technology Project (B-DASH Project)

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1. Introduction

For global warming and tight resources / energy demand and supply, conversion to a sound material-cycle society and formulation of low carbon society is desired. Sewerage is necessary social capital for people's life such as life environment improvement and water quality control in public water body, and these potential applications such as energy use of biosolids and wastewater heat and recycle of phosphorous resource use are needed.

Though new technologies have been developed in accord with those societal demands and government needs, many sewerage works administrators are in a careful manner to adopt them because there are few actual implementation results. Therefore Ministry of Land, Infrastructure, Transport and Tourism (MLIT) Sewerage and Wastewater Management Department has started Breakthrough by Dynamic Approach in Sewage High Technology Project (B-DASH Project) since 2011, and The National Institute for Land and Infrastructure Management (NILIM) Sewerage Research Department has been an implementing agency for the demonstration study. The purpose are achieving cost reduction and creation of renewable energy in sewerage work through the demonstration and widespread use of excellent innovative technology and supporting overseas operations of water business by Japanese companies.

2. Outline of B-DASH Project

The outline of B-DASH Project is as follows,

i) MLIT adopt innovative technology through the public competition according to the expert's judgment.

ii) Research organization assigned by NILIM contract install a full-scale plant in a sewage treatment plant to demonstrate cost reduction and greenhouse gas emissions reduction effect.

iii) NILIM establish guideline for installation of those technology based on the demonstration results.

Experts' evaluation and advice were utilized through the study progress, results integration and guideline establishment.

Two research projects, a technology system of water treatment, biogas recovery and generation and a technology system of biogas recovery and refinement, are adopted in 2011. The demonstration study has continued in 2012 to demonstrate the effects and establish the guideline. Outline of the demonstration plant is shown in

Fig 1 and 2.

Five research projects, biosolids fuel technology, raw sewage heat recycle technology, removal technology of nitrogen and removal and/or recycle technology of phosphorous that come from sludge treatment process have been implemented.

3. Future Development

NILIM will continue to play a leading role for the demonstration studies, to establish a guideline for sewerage works administrators to consider installation of innovative technology based on the study results and to enhance implementation of those technologies widely.

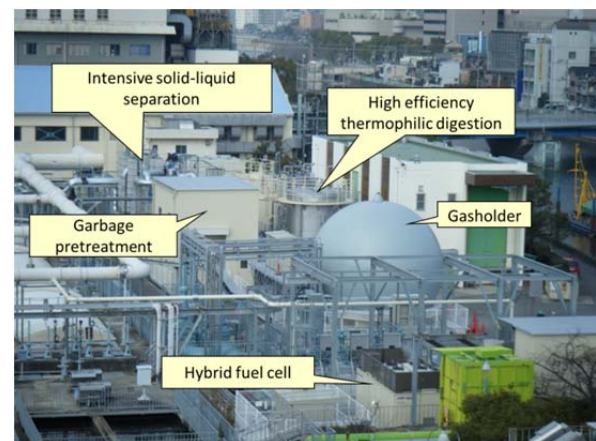


Fig. 1. Demonstration plant (Demonstration study for an energy management system using intensive solid-liquid separation technology)

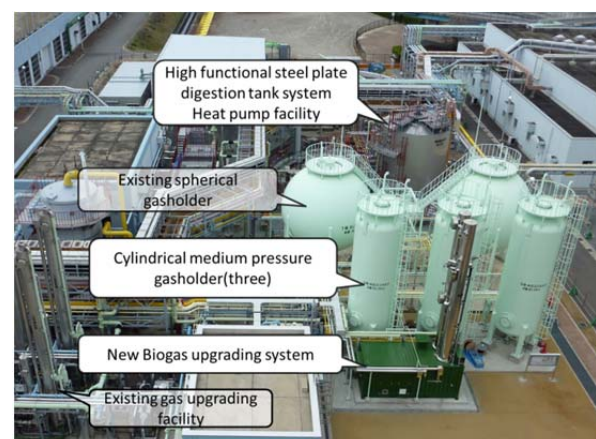


Fig. 2. Demonstration plant (Kobe, Higashinada innovative biogas production system)