

Support Survey on the Guideline Development for Introducing Sewage Innovative Technologies (Water Treatment and Sewage Heat Utilization Technologies)

Year of Research

2013

Establishment of energy and resource recycling

(Purpose)

The Ministry of Land, Infrastructure, Transport and Tourism is conducting “Breakthrough by Dynamic Approach in Sewage High Technology Project”(B-DASH Project) to accelerate development of new technologies and practical realization of them, and aims to realize sharp reductions in the emission of greenhouse effect gases, costs of construction and maintenance in sewage works by using new technologies, as well as expanding use of the new technologies in domestic and international.

This survey intended to support developing guidelines related to water treatment and sewage heat utilization technologies ,whose empirical research has been conducted from fiscal year 2012, by collecting information and creating basic materials necessary for developing guidelines.

(Results)

(1) Collection and organization of the information necessary for developing guidelines

As information necessary for developing guidelines, we collected basic information of the features and performance concerning conventional technology as well as information of phosphorus technology and sewage heat utilization. Collected information of conventional technologies were, as nitrogen removal technology, i) Modified bardenpho process, ii) Carrier-added bardenpho process with chemical addition, iii) Denitrification process, iv) Two -step feed multi-stage denitrification process, as phosphorus removal technologies, i) MAP method, ii) HAP method , iii) Ash alkaline extraction method, and iv) Partial reduction fusion method. As sewage heat utilization technology information, i) Two technologies from inside pipe installation type, ii) Five technologies from outside pipe installation type, were collected. To evaluate the differences between the conventional technology and innovative technology, information concerning purpose of introduction and effect of introduction, plant scale, planning, design and maintenance method ,scope of application, introduction case example were researched. In addition, the most up-to-date information about energy consumption rate, utilities cost, green house gas emission factor, etc. ,were collected and those information were organized .

(2)Verification of appropriateness for the case study on the introduction effect of water treatment, sewage heat utilization technology

To evaluate properly the technical evaluation items such as construction cost ,maintenance cost, as well as reduction rate of greenhouse gas emissions about sewage innovative technology, wide variety of data and the calculation process related to technical evaluation items which were obtained from empirical research were collected and those appropriateness were verified.

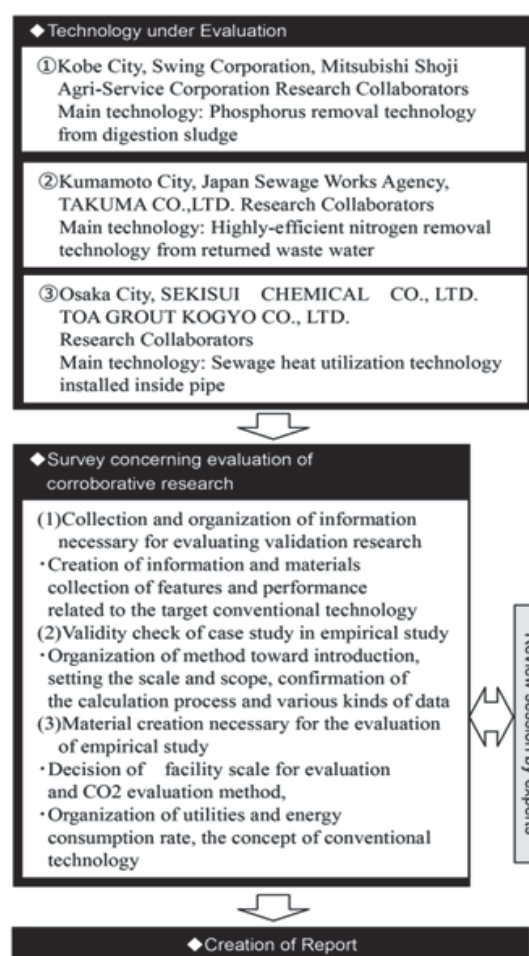


Figure 1 Flow Chart of This Study

(3)Creating a basic materials toward guideline development

Based on the guideline for introduction innovative sewage technology table of content which is assumed National Institute for Land and Infrastructure Management (such as overview of sewage innovative technology, introduction procedure, benefits by introduction, etc.), things what should be described in the guideline was clarified and a describing manual was created for guideline .

(Summary)

This survey made a contribution to develop guidelines toward sewage innovative technology introduction by collecting information and creating basic materials.

※ Policy support project from National Institute for Land and Infrastructure Management
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Key words

Research on Breakthrough by Dynamic Approach in Sewage High Technology, MAP
Anamox Process (Anaerobic ammonium oxidation process), Sewage heat