

# Study of Development and Promotion of Sewerage by Means of New Development Method

Year of Research

2012

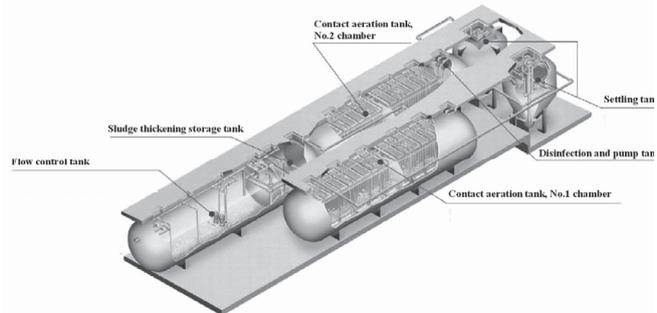
Construction of efficient sewerage

## (Purpose)

In 2006, the Ministry of Land, Infrastructure, Transport and Tourism launched “Quick Project for Sewerage Development” to deal with the problem of popularization of sewerage. In this project, new sewerage development methods which are expected to realize low-cost, quick and flexible sewerage development has been accepted for general use by evaluating those performances.

At present, the social experiments concerning “small-scaled bioreactor,” which use a marketed treatment and packaged equipment, are under way. The system enables cost reduction and shortening of work periods. It also enables facilities to move from an area where population has decreased to another area where they are needed.

This study involved preparation of a technology evaluation (draft) and a technology utilization guide (draft) for generalization of the “Factory-fabricated small-scaled bioreactor (contact oxidation).” The study also includes a survey on the new sewerage development methods and confirmation of adoption and popularization of technologies already in general use.



**Fig.-1. Factory-fabricated small-scaled bioreactor (contact oxidation type)**

## (Results)

### (1) Preparation of technology evaluation (draft) and technology utilization guide (draft)

#### 1) Technology evaluation (draft)

At present, five municipalities introduced “small-scale bioreactor” in the social experiment. The facility (contact oxidation-type treatment) of Tomamae Town, Hokkaido was selected to be evaluated among them, since its influent volume had increased to one half of its treatment capacity. Evaluation of the social experiment was conducted in terms of eight items: construction cost, maintenance cost, construction period, treatment performance, sludge properties, observation of other laws, effects of introducing the technology for an improved living environment, and participation of residents.

#### 2) Technology utilization guide (draft)

Technical standards and essential points for practical application of the “Factory-fabricated small-scaled bioreactor (contact oxidation type)” were summarized and technology utilization guide (draft) was prepared.

### (2) Study of the new development approach

A questionnaire survey on approaches and ideas related to the new development methods directed at local governments and organizations concerned with sewerage was conducted. A survey of development issues (needs for new development methods) in the future was also conducted.

### (3) Confirmation of adoption of technologies already in general use, and popularization activities

A questionnaire survey on records of adoption related to the development method already in general use by the end of 2011 was conducted. **Table 1** shows the survey results on the actual adoption of the technologies. Also popularization activities of the sewerage Quick Project such as holding lectures was conducted to inform this project.

**Table-1. General use record of technologies**

Items		Use of liquefied stabilized soil as refill material	Reuse of dug soil as pipe foundation	Continual adoption of improved inverted siphons	Variable slope sewer construction using bent pipes	Quick piping (exposed)	Quick piping (simplified covering)	Quick piping (roadside gutters)
Time of general use		2008	2009	2009	2009	2010	2010	2011
Before general use	No. of municipalities	1	2	2	14	8	1	2
	Length (m)	1,007	1,768	596	6,568	1,304	54	196
After general use	No. of municipalities	10	10	0	35	3	2	1
	Length (m)	1,355	27,399	0	48,065	436	1,947	92

**(Conclusion)**

The evaluation results of “Factory-fabricated small-scaled bioreactors (contact oxidation type) were reported to the “Quick Project for prompt Sewerage Development Promotion Committee” and this technology was accepted for general use. The social experiments have been conducted in four municipalities, verification and evaluation will be conducted after waiting for increase in inflow amounts. Generalization of the new technology is expected to expand the range of choice for sewerage development methods. Note that the efforts must be taken continuously for popularization activities of already generalized technologies.

※ Policy support of the Sewerage and Wastewater Management Department, Water and Disaster Management Bureau, MLIT  
 Inquiries ; Shigeharu Inoue, Yasumasa Sakabe, Hiroshi Kawamura; 1st Research Department [03-5228-6597]

**Key words** Quick Projects for Sewerage Development, innovative sewerage development methods, social experiment, general use