

# The Study of New energy technology Introduction and Assessment to sewerage works

Whole term

2005.6 ~ 2007.3

**(Purpose)**

To respond to global warming issue and energy problem has been more important to sewerage work. New energy technology, such as solar photovoltaic power generation, wind force power generation, micro hydro power generation, digestion gas power generation, fuel cell power generation and power storage facility, has been attempted to introduce to sewerage work to solve these problems. The purpose of this study is to make up technical data which promote introduction of new energy technology to sewerage work. The technical data includes the countermeasure of the problems in regard to Plan, Design and Maintenance based on our past research about electric energy saving in sewerage work.

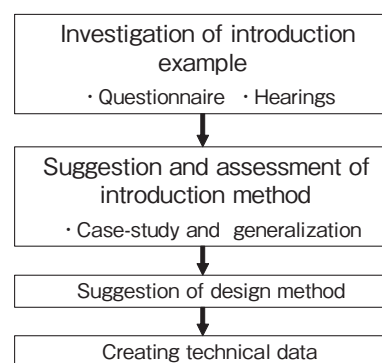
**(Outline)**

1. The flow of this study

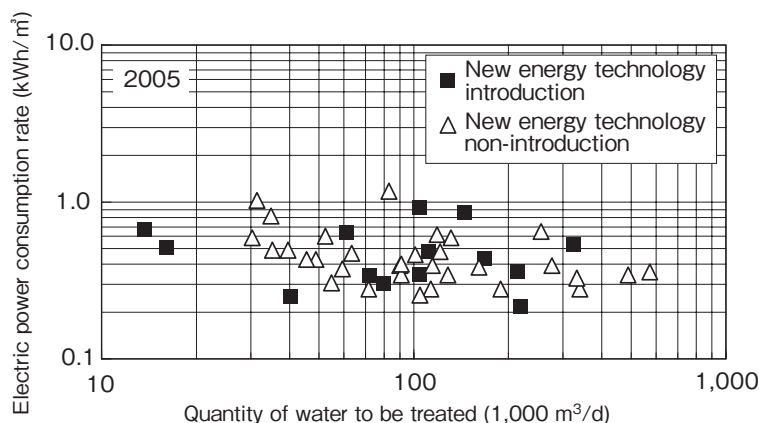
The flow of this study is shown in **Figure— 1**.

(1) The investigation of introduction example

We investigated circumstances of new energy technologies in sewerage work facilities by questionnaire and hearings. The result example of questionnaire is shown in **Figure— 2**. It indicates that the introduction of new energy technology exist broadly, not depending on quantity of water to be treated and any plant has possibility of introduction. In addition, electric power consumption rate has lower limit around 0.2 – 0.3 kWh/m<sup>3</sup>.



**Figure— 1** The flow of this study



**Figure— 2** Electric power consumption rate

(2) Suggestion and assessment of introduction procedure

Based on introduction example, we suggest introduction procedure of new energy technology. Our suggested procedure will assessed by case-study.

(3) Presentation of design method

Based on introduction example, we will gather design method of each new energy technology, and useful information.

(4) Creation of technical data

We create technical data put together design method and information noted above.

(5) Intended technologies

Intended technologies carried out by this study are following six technologies. These technologies are chosen with taking into consideration to compatibility with sewerage treatment facilities and introductory

track records.

- ① Solar photovoltaic power generation
- ② Wind force power generation
- ③ Digestion gas power generation
- ④ Micro hydro power generation
- ⑤ Fuel cell power generation
- ⑥ Power storage facility

(Study schedule)

- We gather result of questionnaires and hearings and we check of effect and investigation of choice procedure.
- We investigate and suggest the best choice method of new energy technology, and check the method by case-study.
- By gathering design methods and maintenance method manufactures have, we make up standard design method.

Co-researcher : Japan Institute of Wastewater Engineering Technology,  
Hitachi, Ltd., Toshiba Corporation, Fuji electric system Co.Ltd.,  
Mitsubishi Electric Corporation, Meidensha Corporation

Researchers : Masayuki Matsuura, Takashi Kirihara, Hiroichi Mizukawa, Yusuke Moriya

key words

Solar photovoltaic power generation, Wind force power generation, Digestion gas power generation,  
Micro hydro power generation, Fuel cell power generation, Power storage facility