

Research on Heat Island Measures in Sewage Systems

Whole term

2005.7 ~ 2006.3

(Purpose)

Recent years have seen the emergence of the so-called “heat island” phenomenon, in which the air temperature of an urban area rises sharply to a point that it exceeds that of the surrounding area. The heat island phenomenon has become an issue not only because it involves rising temperatures but also because it is thought to be a cause of heat stroke and brief localized downpours and may have an impact on the ecology.

Against this backdrop, follow-up measures to the “Outline of the policy framework to reduce urban heat island effects” (compiled by the Ministry of the Environment in 2004) are scheduled for March 2006. Given this development, it has become necessary to also bring together related measures in the sewage field.

This study compiled information on such topics as “survey research on the heat island phenomenon”, “current conditions surrounding the heat island phenomenon”, and “possibilities for heat island countermeasures in sewage systems”, using existing literature and other sources as references. This endeavor centered on experiments involving sprinkling of the water-retention type pavement with reclaimed water that were conducted in the Shiodome district of Tokyo.

(Results)

Compiled information is shown in **Figure—1**.

Chapter 1 is an overview, while Chapter 2 compiles existing study and research results on the causes of the heat island phenomenon and assumed impacts on urban living, climate, and ecology. Chapter 3 brings together the basic philosophies of heat island countermeasures, local government programs, the status of countermeasures in each field, and the status of countermeasures in the sewage field. Chapter 4 examines the effects of heat island countermeasures when reclaimed water is sprinkled on water-retention type pavement. Chapter 5 looks at possibilities for ground surface coating measures based on the study results of Chapter 4. And Chapter 6 examines future issues.

1. Outline
2. Study research on the heat island phenomenon
 - 2.1 Temperature changes in urban areas and their impacts
 - 2.2 Causes of the heat island phenomenon
3. Current status of heat island countermeasures
 - 3.1 Basic philosophies of heat island countermeasures
 - 3.2 Heat island programs of local governments
 - 3.3 Status of countermeasures in each field
 - 3.4 Status of countermeasures in the sewage field
4. Effect of sprinkling reclaimed water on water-retention type pavement
 - 4.1 Background
 - 4.2 Purpose
 - 4.3 Study details
 - 4.4 Study method
 - 4.5 Study results
5. Possibilities for ground surface coating measures
6. Future issues

Figure—1 Report content

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key words

Heat island measures, Sprinkling, Water-retention type pavement, Reclaimed water