

Cooperative Research on Guidelines for Countermeasures against Damages Caused by Earthquake and Tsunami using simulation model for Sewerage Facilities in Kochi Prefecture

Year of Research

2012 • 2013

Promotion of earthquake disaster prevention

(Objectives)

Developing countermeasures against earthquake and Tsunami is urgently required for Kochi Prefecture, since 70% of the sewage treatment facilities are assumed to be damaged by Tsunami upon the occurrence of a large-scaled Nankai Trough Earthquake. The research aims to establish Guideline for Countermeasures against Earthquake and Tsunami Guideline (hereinafter referred to as “Guideline”) by which each municipality of Kochi can formulate Sewerage BCP and other guidelines.

(Results)

(1) Contents of Guideline

The Contents is shown in **Table-1**.

Table-1 Contents of Guideline

Chapter 1 General Provisions
• Objectives
• Targets (Earthquake, Tsunami, Facility)
Chapter 2 Current Status of Measures for Earthquake/Tsunami
• Current status of earthquake/Tsunami measurements and BCP for each municipality (questionnaire)
Chapter 3 Damage Estimate of Earthquake/Tsunami
• Damage estimation of sewerage facilities by each municipality
Chapter 4 Policy for Countermeasures for Earthquake/Tsunami
• National policy for earthquake/Tsunami countermeasures
• Policy of Kochi Prefecture for earthquake/Tsunami countermeasures
Chapter 5 Policy for Sewerage BCP Formulation
• Policy of sewerage BCP formulation
• Cooperation system within Kochi Prefecture
Chapter 6 Modelling of Tsunami and Damage Evaluation by Simulation
• Tsunami simulation project
• Optional settings for Tsunami simulator
Chapter 7 Points for Consideration on Forming Earthquake/Tsunami Measurements and BCP
• Program and planning vision for earthquake/Tsunami measurements
*Appendix
Agreement of Mutual Supports at the disasters by earthquake for Sewerage Facilities in Kochi Prefecture

(2) Main Points

1) Policy of the Countermeasure against Tsunami

The social influence and damage evaluation by the disaster prevention measure against the largest scale Tsunami for each facility was studied by the municipalities. The countermeasure will be employed when the advantage is confirmed. Damage reduction measures will be adopted instead when the advantage is not confirmed. (disaster prevention is to be considered for human safety).

2) Policy of the Countermeasure for the Area suffering long-term flooding

Land subsidence, damage to banks and drainage facilities by earthquake might cause inundation in the area broadly for long-periods. Measure policies for said areas, as well as water cut off and draining process were proposed.

3) Sewerage BCP Policy

Sewerage BCP designing flow, priority works in case of an emergency and acceptable down time of service was proposed to the Prefecture as reference.

4) Tsunami Simulation

A Tsunami simulator by which detail damages can be projected was proposed to understand the water flow among buildings, inundation depths, water pressure and etc. for facilities with large social influence in case of a Tsunami.

(Conclusion)

The research developed the Guideline based on the current status of the municipalities and characteristics of the subject area. Clarification of importance regarding coordination between municipalities and the Prefecture in the research is expected to develop nationwide countermeasures for earthquake and Tsunami for sewerage facilities in the future.

※ Cooperative researcher: Kochi Prefecture, Japan Institute of Wastewater Engineering and Technology
Inquiries ; Takeshi Sannoniya, Toshihide Kozuka, Nobuto Moriya, 1st Research Department,
Shinsuke Ozeki [+81-3-5228-6597]

Key words	Earthquake and Tsunami measurements, Sewerage BCP, Damage estimate of earthquake and Tsunami
-----------	---