

A guide to the discharge and treatment of wastewater during a disaster

HARADA Ichiro, Head

YAMASHITA Hiromasa, Senior researcher

HAMADA Tomoyuki, Researcher

Wastewater and Sludge Management Division, Water Quality Control Department

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1. Introduction

The Great East Japan Earthquake of March 11, 2011 damaged sewerage treatment plants at 120 locations, and the tsunami inflicted disastrous damage so severe it caused the failure of all functions at many sewerage treatment plants and pumping stations along the coastlines of the stricken prefectures. Basic concepts for emergency measures and staged emergency restoration concerning sewerage system functions which must be ensured during a disaster have been presented in the Report by the Sewerage Treatment System Earthquake / Tsunami Countermeasure Technology Study Committee established in response to the Great East Japan Earthquake (hereafter “Committee report”), and local governments where the earthquake caused damage have been carrying out staged emergency restoration based on this report.

On the other hand, more large earthquakes are predicted, so there is a growing need to prepare for disasters that will cause the loss of sewerage discharge and treatment functions.

2. Investigation on damaged local governments

MLIT and NILIM are taking advantage of knowledge gained responding to the Great East Japan Earthquake by surveying the impacts on treatment functions of sewerage treatment plants and on the waters receiving discharged treated wastewater, at the emergency restoration stage and are studying methods of appropriately managing sewerage during disasters, in order to clarify concrete measures to ensure sewerage system functions during disasters. And they have also surveyed and analyzed cases of emergency measures and emergency restoration of sewerage systems operated by local governments in the disaster region.

3. Publication of “A Guide to the Discharge and Treatment of Wastewater during a Disaster (Draft)”.

Based on knowledge gained from the results of these studies, and considering the results of investigations by the Committee to Study Appropriate Management of Sewerage Treatment at the Restoration Stage following a Disaster, we have prepared “A Guide to the Discharge and Treatment of Wastewater during a Disaster (Draft)” and announced it. This guide is to show the idea of securing the wastewater discharge and treatment function required at the time of disaster by the “Emergency measures” pursuant to the site situation and improving those functions through gradual “Staged emergency restoration works.”

“Emergency measures” are to grasp overall damage status of the facilities immediately after the disaster and summarize those items which is restricting the implementation of emergency measures and then swiftly discharge the wastewater from living space of disaster stricken people so as to prevent waterborne disease from prevailing. This Guide explains the key points of the Committee report such as necessary investigations, actions and publicity activities at the time of disaster. In addition, this guide explains cases of measures under this disaster.

“Staged emergency restoration works” are to select and implement temporary treatment to keep sanitary environment in the city and conserve the water quality in receiving water body in the course of proceeding on the full recovery of the treatment function when it is expected to take time until completing the full recovery. Based on the Committee report, we have summarized countermeasure method and effect from the case of the “Staged emergency restoration works” in this disaster in this guide.

Research Trends and Results

In addition, this guide explains the concept on the design and maintenance of each treatment method and disinfection method.

We anticipate that this guide will be applied to prepare sewage works by administrator for future disasters and to respond to disasters.



Photo Example of emergency restoration works (Temporary sedimentation tank constructed by rough digging)