

# Disaster Investigation and Utilization of Results by the River Department

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*Keyword: disaster investigation*

## 1. Introduction

The River Department of NILIM conducts disaster investigations upon request for technical support from river administrators, and gives advice on emergency measures, restoration methods considering the cause of disaster, subsequent river channel design, and infrastructure design. This year, we dispatched personnel to the river areas listed in the table below where large-scale flooding or heavy rains caused damage to river management infrastructure.

## 2. New findings obtained from this year's investigations and countermeasures

In the Arakawa River of the Arakawa River System that flows through Metropolitan Tokyo and Saitama Prefecture, the cumulative rainfall reached a 10-year-high in early April during as a result of an hourly rainfall of approx. 25 mm/hr. As a result, slope slides occurred along river levees soon after completion and caused damage, including the outflow of sediment to the municipal road, buildings, etc. Also, in the Shonai River of the Shonai River System in Aichi Prefecture, a concentrated rainfall of approx. 89 mm/hr caused slope slides along the levee soon after completion and sediment outflowed to the municipal road.

The on-site investigation found that the main causes of

damage were localized infiltration of rainwater into a steep slope where the topsoil was different from the levee body in terms of construction time and material, and a particularly weak slope since the river levee had recently been constructed.

In response to the findings above, we organized matters to consider in "design," "construction planning," "construction" and "after completion" into a method for preventing recurrence. This included considerations of a gentle slope, water drainage to avoid a concentration of rainwater and management of cover soil by compacting it similar to the levee body. This method was disseminated to the river administrators of the MLIT.

## 3. Utilization of investigation results

Investigation results and findings are organized as a report promptly after an investigation and are shared with river administrators of the MLIT via a database of damage information. In addition, findings are accumulated in the same database and used as a basis for updating technical criteria and guidelines, and are consequently utilized for preventing the recurrence of disaster, upgrading design, management, etc.

Table: Main Rivers in 2013 Disaster Investigations

Date of disaster	Date of investigation	Number of damaged locations	Municipalities	River system / River name	Damage form
Apr. 7	Apr. 8	3	Adachi-ku, Tokyo Kawaguchi-shi, Saitama Toda-shi, Saitama	Arakawa River System / Arakawa River	Slope slide in river levee
Jul. 8	Aug. 6	1	Yuzawa-shi, Akita	Omonogawa River System / Omono River	Cave-in of flood channel, subsidence of bed protection, etc.
Jul. 13	Jul. 31	3	Yurihonjo-shi, Akita	Koyoshi River System / Koyoshi River	Slope slide in river levee, sand boiling from foundation ground
Jul. 29	Aug. 12 Jan. 17	1	Komatsu-shi, Ishikawa	Takehashi River System / Takehashi River	Slope slide in river levee, sand boiling from foundation ground
Sep. 4	Sep. 10	1	Kanie-cho, Aichi	Shonai River System / Shonai River	Slope slide in river levee
Sep. 16	Sep. 24 Nov. 19	1	Fukuchiyama-shi, Kyoto	Yura River System / Yura River	Collapse of river levee, water leakage from foundation ground
Nov. 4	Nov. 20	1	Ichikawa-shi, Chiba	Tone River System / Edo River	Slope slide in river levee
Nov. 13		1			

\* Red cells: Damage caused by rainfall