Disaster investigation such as TEC-FORCE of the river sector and Utilization of the result

TORII Kenichi (Ph.D. Eng.), Research Coordinator for Integrated Water Disaster Management, River Department
Hattori Atsushi (Ph.D. Eng.) , Head
FUKISHIMA Masaki (Ph.D. Eng.), Senior researcher
FUKUHARA Naoki, Researcher
NAKAJIMA Hiromasa, Researcher
River Division, River Department

(key word) *TEC-FORCE, Disaster investigation*

1. Introduction

The river department of the NILIM conducted the field investigation when the technical support was requested by the river administrator, and advised on restoration methods and design of river channels afterwards based on emergency policy and cause of the disaster.

It may dispatch Technical Emergency Control Force (Hereafter, TEC-FORCE), when emergency support and advanced techniques are needed especially. This year, it dispatched staff' to the rivers (see table) where the river management facilities had been damaged by large-scale floods.

Table Main damaged river in 2012

Date	Cities, Towns, and villages	Water System River Name(Administrator)	Type of Disaster (Numbers)
3-Jul	Hita city Oita pref.	Yabe river, Yabe river water system (State, pref.)	Dike collations
		Arita river, Chikugo river system (Pref.)	Over flood
	Nakatsu city Oita pref.	Yamakuni river, Yamakuni river system (State, Pref.)	Over flood
	Kurume city Fukuoka pref.	Kose river, Chikugo river system (State, pref.)	Over flood
12-Jul	Kumamoto city, Kumamoto pref.	Shirakawa, Shirakawa river water system (State, pref.)	Over flood
	Aso city, Kumamoto pref.	Kuro river, Shirakawa river water system (State, pref.)	Over flood
	Kikuchi city, Kumamoto pref.	Goshi river, Kikuchi river water system (State)	Over flood
	Oguni Town, Aso county, Kumamoto pref.	Jotachikawa, Chikugo river water system (State)	Over flood
14-Jul	Yanagawa city, Fukuoka pref.	Yabe river, Yabe river water system (State, pref.)	Dike collations
	Hita city, Oita pref.	Kagetsu river, Chikugo river water system (State, pref.)	Over flood
	Kurume city, Fukuoka pref.	Kose river, Chikugo river water system (State)	Over flood
	Ukiha city, Fukuoka pref.	Kumakami river, Chikugo river water system (State)	Over flood
	Nakatsu city, Oita pref.	Yamakuni river, Yamakuni river water system (State)	Over flood
22-Jul	Tosa city, kochi pref.	Driving channel, Hage river mouth (State)	Rubber dike damage
14-Aug	Uji city, Kyoto pref.	Midajiro river, Yodo river water system (Pref.)	Water way wall damage(40ha flood)
	Uji city, Kyoto pref.	Shizu river of Uji river branch Yodo river water system(Pref.)	Land-slide
18-Aug	Uji city, Kyoto pref.	Midajiro river, Yodo river water system (Pref.)	First aid restoration again stricken

※Red：Dike collations

2. Activity as TEC-FORCE

In Kyushu on July, 2012, a big disaster killing 31 lives occurred, caused by the heavy rain hitting the Oita and Fukuoka prefecture on July 3, and heavy rain hitting the Kyushu northern area from 11th to 17th in July.

There damage occurred on river management facilities like dike break etc on the Kagetsu river on July 3, Shirakawa on July 12th, Yabe river, Kagetsu river and Yamakuni river, etc. on July 14.

And, the downpour in the Kyoto southern area in August caused flood damage, breaking the waterway sidewall of Midajiro river in Ujigawa water system managed by Kyoto Prefecture

For the both downpour disasters, the TEC-FORCE was requested by the river administrator to dispatch, and the joint survey team was quickly organized together by the MLIT Water and Disaster Management Bureau after the disasters. It discussed and advised about staff dispatch, local area investigation, emergency treatment and further restoration.

3. Utilization of investigation

The investigation at the time of disaster is useful not only to quickly and properly restore after the disasters, but to analyze the cause of damage, to utilize for revision of technological standards, to steadily reflect on design and management by accumulating and sharing findings, and is useful to improve design and evaluation methods of facilities and to rationalize them 2).

The NILIM shows restoration method examples, check points, and care points when designing facilities to the river administrator by making the investigation data of TEC-FORCE and analysis result into a data base

Especially, if there are a lot of similar disaster examples, and if advanced examination is necessary due to disaster complexity, it conducts the emphatic investigation and analysis, and utilize them as basic data to update technology standards for river debris-slide protection and guidance. And, from this year, it set up the "River structure management research task force"3), and is working on technological consultation and follow regarding check and deterioration of river structure, on technological examination concerning deterioration prediction influencing various river structures, and on the technological opportunity research concerning mid/long-term management of the river structures.

【reference literature】

1) Disaster dispatch news, such as Kyushu northern area downpours, Construction technology data, in July, 2012, Vol.54, NO.9 P4-9,2012
2) The version of river debris-slide protection technology standard investigation Version 10 disaster investigation http://www.mlit.go.jp/river/shishin_guideline/gijutsu/gijutsukijunn/chousa/index.html
3) River structure management research task force homepage http://www.nilim.go.jp/lab/fag/index.html