

# Sediment-related Disasters that Occurred in 2014 and Technical Support by Experts

WATARI Masaaki, Director,  
 NAGAI Yoshiki, Research Coordinator for Sediment Disaster Prevention  
 Sabo Department  
 KANBARA Jun-ichi, Head  
 UCHIDA Taro (Doctor (Agr.)), Senior Researcher  
 MATSUMOTO Naoki, Researcher  
 TANAKA Yasutaka, Researcher  
 NIWA Satoshi, Guest Research Engineer  
 Sabo Planning Division  
 KUNITOMO Masaru, Head,  
 MATSUSHITA Kazuki, Senior Researcher  
 KAMIYAMA Joko, Researcher  
 EKAWA Masafumi, Guest Research Engineer  
 Sabo Risk-Management Division

*Key words: Sediment-related disasters, technical support*

## 1. Necessity for technical support in case of sediment-related disaster

Collapse and debris flow change the topography of surrounding areas and cause a concern, even after occurrence, about extensional collapse and damage increase due mainly to erosion /deposition in the flow channel. In addition, since sediment-related disasters often involve human damage, emergency measures and search operation are urgently required. When performing such emergency measures, etc., it is required to ensure safety and technical judgment about the risk of secondary disaster is also required. In Japan, a total of about 1,000 cases of sediment-related disasters occur every year, but the number of occurrence is greatly different according to regions or over years (See the Figure). Therefore, there is also a difference of experience among local governments etc. and technical support is often required from the National Institute for Land and Infrastructure Management (NILIM).

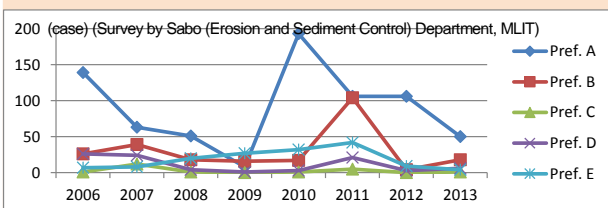


Figure: Difference in number of sediment-related disasters according to regions or over years

## 2. Sediment-related disasters that occurred in 2014 and technical support

There are various contents for technical support, including development of crisis management system, advice for consideration of emergency measure construction method, and guidance for disaster investigation. Moreover, the time requiring support, i.e. duration from the occurrence of a disaster to emergency restoration, may become long. Therefore, NILIM provides support to local governments and Regional Development Bureaus in cooperation with the Public Works Research Institute (PWRI).



Photo: Explaining points of attention in safety management to police and fire fighting team

In 2014, for the disasters that occurred in Yokosuka City (Kanagawa Pref.), Nagiso Town (Nagano Pref.), Iwakuni City (Yamaguchi Pref.), Hiroshima City, and Ontake Mountain (Nagano Pref. and Gifu Pref.), NILIM and PWRI dispatched a total of 202 employees to provide technical support on the site.

Of these, in the sediment-related disaster that occurred in Hiroshima City on August 20, a heavy rain with rainfall of over 200 mm during 3 hours in a limited area caused debris flow and landslide simultaneously in different places from predawn to dawn and much concentrated damage to the residential area developed on a gentle slope at the foot of the mountain.

Immediately after the disaster, operation of searching missing persons by the Self-Defense Forces, fire department, and police was conducted and emergency measures including sediment carrying and sandbag installation by local residents, etc. NILIM also gave advice and investigated the site according to changes in the weather and progress in the emergency measures in order to prevent secondary disasters etc. including direction of the disaster investigation using TEC-FORCE, advice on the crisis management system of Hiroshima City, and advice on safety management about the search activities by the organs concerned (See the Photo).

## 3. Future activities

NILIM is considering disaster prevention and mitigation through solving the issues found from disaster response while using the findings from studies at ordinary

times for consulting activities on the disaster site.

[Reference]

1) Matsushita and Fujimura: "August 2014 Hiroshima Sediment-related Disaster Investigation Report, Civil Engineering Journal, Vol. 156, No.11, pp. 4-7, 2014