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Prolonged Changes in Sediment Discharge after Large Sediment Yield Events

YAMASHIRO, Kenta[1*] ; OKAMURA, Seiji[1] ; HIDA, Yoshihisa[1] ; HORIE, Katsuya[1] ; MATSUMOTO, Naoki[2] ; NIWA, Satoshi[2] ; UCHIDA, Taro[2] ; KANBARA, Junichi[2]

[1]IDEA Consultants, [2]National Institute for Land and Infrastructure Management

Much large-scale landslide disaster has happened in Japan up to now.

They are caused by a natural phenomenon of an earthquake and a torrential rain.

It is important to consider the period of several years after large-scale sediment production by collapse such as deep-seated landslide, in terms of management of basin-sediment discharge and making arrangements to deal with the emergency for large-scale sediment disaster.

There are studies for grasping actual condition of sediment discharge after large-scale sediment production in these days.

However, it is not clear that how sediment discharge after large-scale sediment production changes with age, and that what has an effect on the sediment discharge.

In this study, we researched about nine different basins where large-scale sediment disaster such as deep-seated landslide occurred, organized information about actual condition of sediment discharge after large-scale sediment production, and analyzed that what effects on sediment discharge.

In this study, we adopted two estimation method of the sediment production described to below.

(1) We estimated landslide area by interpretation of aerial photograph taken before and after large-scale sediment disaster, and applied Guzzetti formula for each landslide area. In doing so, we could estimate sediment discharge volume from landslide area.

(2) We regarded the average of the difference of aerial laser profiler at two shooting date and time as the landslide depth, and estimated sediment discharge volume by multiplying landslide area by one.

We estimated sediment yield by setting up the value that we added microscope sand such as wash load to sediment storage in dam.

We could estimate sediment discharge volume from landslide area

We estimated sediment discharge volume with age, and analyzed a change of sediment yield after large-scale sediment production. Thorough the analysis of change of sediment production and sediment yield with age in different basins, we could compared and analyzed the effects (such as an earthquake, a torrential rain and the amount of precipitation) on sediment discharge after large-scale sediment production.

Keywords: sediment discharge, landslide, landslide dam