

Trial Shutter Usage of Myo-ju Sabo Dam in Floods Events in July, 2016

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INTRODUCTION

Information for sediment runoff and water flow has been tried to collect using various sensors by continuous measurement for bed loads and suspended load, turbidity, water level and so on in mountainous torrents in Japan. Relations between bedload & wash load and water runoff have been shown by those monitoring, and it is found that there are discontinuous relationship between sediment and water runoff in mountainous region. Artificial sediment control needs to be smooth sediment runoff from sabo structure. Open type sabo dam such as slit sabo dam is an effective sabo dam for sediment control, however, it is reported that sediment rapidly increase due to losing water storage capacity in a stage of decreasing discharge in a flood. To positively control sediment runoff passing through a open-type dam, a sabo dam with a shutter can control smooth sediment runoff during floods. Mizuyama (2011) propose five kinds of classifications, which has from "Class 1" to "Class 5", which means slit sabo dam with wide slits and open-type sabo dam with movable shutters. Present study shows several attempts for sediment control with slit sabo dam with a shutter in Myo-ju sabo dam in the Jo-Gan-Ji River (See **Fig. 1**).

ATTEMPTS OF SMOOTH SEDIMENT CONTROL USING MOVABLE SHUTTER

Sensors are installed in several sections along to the Jo-Gan-Ji River to evaluate longitudinal water and sediment runoff and those changes (**Fig. 1**). At Myo-ju sabo dam in the Jo-Gan-Ji River, to control sediment runoff from open-type sabo dam positively, Tateyama sabo office has planned sabo dam with a shutter of "Class 5", that means open-type with a movable shutter (Mikami et al., 2014). Herein, in Myo-ju sabo dam, Watershed area is 115.2 km², averaged flow width is 60 m, bed slope near sabo dam is 1/30 (= 1.91 deg.), 60% diameter of cumulated sieving mass distribution of sediment near the dam is 600 mm and the mean diameter is 326 mm. Active sediment control by sabo dam with a shutter could support advanced management, and the effective usage based on monitoring system can be conducted by progress of hydro- and sediment-information system. After installation of a movable shutter, trial sediment control were conducted in flood events on 26th to 28th July, 2016, and data for flow depth and bedload are observed by pipe hydrophone, as shown in **Fig. 2**, and bedload could be control well by a shutter.

