



## **Evaluation of sand dam storage by using SWAT model and reservoir routing method for drought preparedness**

IL Moon Chung, Jeongwoo Lee, and Min Gyu Kim

Korea Institute of Civil Engineering and Building Technology, Hydro Science and Engineering Research, Goyang, Korea, Republic Of (imchung@kict.re.kr)

A sand dam is a structure for installing a dam or a beam on the impervious bedrock of a valley or a river, filling a secured space with water-permeable material such as sand, and storing the water in the porous space. It is a type of underground dam whose surface is partially exposed to the ground. It is widely used in Kenya and Ethiopia, mainly dry areas of Africa. The sand dam is effective to prevent evaporation loss and to increase the amount of water by increasing groundwater recharge. It has a low vulnerability to pollution compared to exposed water resources and has a great effect of improving water quality through natural purification through sand layer. Sand dams are classified into stone dams, reinforced concrete dams, earth dams, and geo-membrane dams depending on the material. In this study, we conducted a feasibility study to evaluate the effect of sand dam. The SWAT model (Arnold and Fohrer, 2005) was used to estimate the runoff of the ungauged watershed in conjunction with the reservoir routing method. As a result of analyzing the increase and decrease of the storage volume and the downstream flow rate at the time of withdrawal, it was quantitatively confirmed that the sand dam had the effect of increasing the downstream flow rate during the normal period and the facility capable of coping with the water supply through the drought.

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