

## A Design of Artificial Macropore for Improving Infiltration Process in Degraded Soils

SAKIKAWA, Kazuki<sup>1\*</sup> ; MORI, Yasushi<sup>1</sup> ; SUETSUGU, Atsushi<sup>1</sup>

<sup>1</sup>Okayama university

Soil is largest carbon storage body in all terrestrial medium such as vegetation and the atmosphere. However, these days, soils could not show its function as water storage layer or culture medium for plant, because of climate change or rough management. In this study, artificial macropores are introduced in soils for purposing enhancing infiltration without cultivation. Fibrous material was inserted so that it reinforced the macropore structure. Moreover, capillary force caused by fibers drag the surface water into the deeper soil prior to saturation. Capillary force caused by fabric introduced vertical transport, while micropore(matrix) enhanced horizontal flow. It makes it possible effective infiltration than empty macropores. In the experiment, an ideal design of artificial macropore was searched. The density of fibrous material was altered as 0.2 0.3 0.5 g/100cm<sup>3</sup>-soil. Artificial rainfall of 2 (weak rain) and 20 (stormy rain) mm h<sup>-1</sup> were applied on the soil column (D=5cm, H=30cm). Results showed that retention curve has gradually changed as we changed the density of fibrous material. Thus, the capillary force was effectively created according to the densities surface water was effectively collected by dense artificial macropore when weak rainfall was applied, while stormy rain was effectively drained by light artificial macropore.

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