Desalination and Water Treatment
www.deswater.com

38 (2012) 389–394
January

1944-3994/1944-3986
doi: 10/5004/dwt.2012.3594

Investigation of stormwater runoff strength in an agricultural area, Korea

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Received 14 October 2011; Accepted 24 December 2011

ABSTRACT

To manage and control the nonpoint source (NPS) pollution and to improve the water quality of impaired streams, rivers and lakes, practices including constructed wetlands, permeable pavement, swales and others are being attempted in the world. Before applying these techniques, an analysis of stormwater runoff characteristics should be understood due to the complexity in estimating system design factors for best management practices (BMPs). This study investigates the stormwater discharge from an agricultural area in Korea. Based on this investigation, pollutant and flow coefficient of variation (PFCoV) values were developed in an attempt to explain the stormwater runoff in the agricultural area. Four field studies categorized by rainfall type were then employed to assess the PFCoV values. The results show that the physical meaning of PFCoV values indicates the variation of NPS pollutants during a storm event. As such, this simple and meaningful result can be applied to a wide range of stormwater management designs or water quality controls in agricultural areas.

Keywords: Water quality management; Stormwater runoff; Agricultural area; Runoff strength; Coefficient of variation; Nonpoint source pollution

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First Academic Workshop on Non-point Source Pollution Research, 2011, Korea