



## Developing delivery ratio duration curve (DRDC) based on SWAT modeling in Nakdong river basin

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### ABSTRACT

As a river basin pollution runoff quality indicator, delivery ratio is an important factor in river basin management but the lack of empirical data and absence of practical application method as well as increase in non-point pollution source make assessment of delivery ratio for flow duration difficult. Therefore, this research puts into consideration the river basin of Nakdong river's water system with water quality and flow data secured by real time auto monitoring that takes place at the area of subject of research. This survey on the spot and water basin model law provides practical assessment of individual case of flow duration and river basin delivery ratio and is applied on the area of research. By careful consideration of land use types in Nakdong river's water system, mountainous, agricultural land, and urban property area is governed and an adequate area that represents the characteristics of river basin delivery ratio is chosen by use of real time monitoring based on land use. Through the SWAT results obtained by monitoring results, flow duration curve (FDC) and loads duration curve (LDC) of three property areas over the three year between 2000–2007 have been written along with a final delivery rate duration curve (DRDC). Monitoring data by land use and FDC, LDC, DRDC as basis, polluted substance runoff characteristics and polluted substance delivery characteristics have been analyzed according to regional land use for overall analysis of individual river basin runoff and delivery characteristics. Urban property area has shown high delivery and agricultural property area has shown low delivery. Legibility in the statement of different delivery ratio has been obtained by checking the difference in delivery ratio that proved each river basin to have differing delivery ratio according to its topographic characteristics.

*Keywords:* Delivery ratio duration curve (DRDC); Non-point source pollutant loads; SWAT

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