

## **Regional Assessment of hydrological response patterns in Denmark**

J. Müller-Wohlfeil, H. L. Iversen, S.E. Larsen and B. Kronvang  
National Environmental Research Institute, Vejlsøvej 25, 8600 Silkeborg, DK

The assessment of river discharge and nutrient loads in Denmark suffers from the fact that runoff measured at gauging stations reflects properties of which only some can be directly related to data available at the catchment scale. Other factors, such as tile drainage and drinking water abstraction, as well as subsurface flows crossing topographic catchment boundaries cannot be detected directly. The main aim of the project was to identify runoff patterns for different regions in Denmark and to detect those catchments where runoff deviates from those patterns. To this end we calculated the climatic water balance (precipitation minus potential evapotranspiration) for more than 150 basins during the period 1989-1997. We then performed statistical analyses of flow duration curves for those catchments where river discharge was either lower than the climatic water balance or almost as high as precipitation. River discharge from these catchments may be influenced by drinking water abstraction, tile drainage, sealed surfaces or a significant difference between the location of the topographic watershed and the groundwater catchment boundaries. As a next step we compared the results of the statistical analyses of river discharge from these catchments with those from adjacent catchments with a similar distribution of land use, soils, and climate and where runoff is assumed to be determined by the result of natural processes within the topographic catchment. The

Overall procedure is regarded as a first step towards regionalising runoff behaviour and assessing river discharge at newly established gauging stations.