The impact of water allocation control measures on overallocation of groundwater resource in karst aquifers: A case study of the Wonderfonteinspruit Catchment in the Vaal Water Management Area

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Better control and management of groundwater resource allocation is based on a series of measures supported by compliance with various organisational processes. The implementation of these measures can have a direct or indirect impact on the overallocated Wonderfonteinspruit Catchment and posing a risk to various stakeholders, including water use sectors such as industry, agriculture, mining and power generation. These impacts of water allocation measures have not been investigated even though Wonderfonteinspruit Catchment is the most studied in South Africa. To evaluate the allocation instruments all groundwater-related licences and registered water uses which are groundwater abstractions for the quaternary catchment were obtained from WARMS database, and Groundwater Resource Assessment 2 water balance value was used as a threshold to identify the level of stress in the catchment. The results obtained indicated that implementing measures to control water allocation can be challenging, has an impact on the overall allocation process and on the existing allocation which increased risks of overallocation of groundwater resources.